Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011)

User's Manual for the ECLS-K:2011 Kindergarten–Fifth Grade Data File and Electronic Codebook, Public Version

NCES 2019-051
U.S. DEPARTMENT OF EDUCATION

Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011)

User's Manual for the ECLS-K:2011 Kindergarten–Fifth Grade Data File and Electronic Codebook, Public Version

JULY 2019

Karen Tourangeau
Christine Nord
Thanh Lê
Kathleen Wallner-Allen
Nancy Vaden-Kiernan
Lisa Blaker
Westat

Michelle Najarian
Educational Testing Service

Gail M. Mulligan
Project Officer
National Center for Education Statistics

NCES 2019-051

U.S. DEPARTMENT OF EDUCATION

U.S. Department of Education
Betsy DeVos
Secretary

Institute of Education Sciences
Mark Schneider
Director

National Center for Education Statistics
James L. Woodworth
Commissioner

The National Center for Education Statistics (NCES) is the primary federal entity for collecting, analyzing, and reporting data related to education in the United States and other nations. It fulfills a congressional mandate to collect, collate, analyze, and report full and complete statistics on the condition of education in the United States; conduct and publish reports and specialized analyses of the meaning and significance of such statistics; assist state and local education agencies in improving their statistical systems; and review and report on education activities in foreign countries.

NCES activities are designed to address high-priority education data needs; provide consistent, reliable, complete, and accurate indicators of education status and trends; and report timely, useful, and high-quality data to the U.S. Department of Education, the Congress, the states, other education policymakers, practitioners, data users, and the general public. Unless specifically noted, all information contained herein is in the public domain.

We strive to make our products available in a variety of formats and in language that is appropriate to a variety of audiences. You, as our customer, are the best judge of our success in communicating information effectively. If you have any comments or suggestions about this or any other NCES product or report, we would like to hear from you. Please direct your comments to

NCES, IES, U.S. Department of Education
550 12th Street SW
Washington, DC 20202

July 2019

The NCES Home Page address is https://nces.ed.gov.
The NCES Publications and Products address is https://nces.ed.gov/pubsearch.

This publication is only available online. To download, view, and print the report as a PDF file, go to the NCES Publications and Products address shown above.

The Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) has been funded by the U.S. Department of Education, Institute of Education Sciences, under contract number ED-IES-14-C-0119 with Westat. This report was produced under that contract. Mention of trade names, commercial products, or organizations does not imply endorsement by the U.S. Government.

Suggested Citation
Tourangeau, K., Nord, C., Lê, T., Wallner-Allen, K., Vaden-Kiernan, N., Blaker, L. and Najarian, M. (2019). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) User's Manual for the ECLS-K:2011 Kindergarten–Fifth Grade Data File and Electronic Codebook, Public Version* (NCES 2019-051). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Content Contact
Gail M. Mulligan
(202) 245-8413
Gail.Mulligan@ed.gov

CONTENTS

Chapter				Page
LIST OF TABLES				x
LIST OF EXHIBITS				xvi
1.	INTRODUCTION			1-1
	1.1	Background		1-2
	1.2	Periods of Data Collection		1-3
	1.3	Overview of the Fifth-Grade Round of Data Collection		1-4
	1.4	ECLS-K:2011 Kindergarten–Fifth Grade (K–5) Public-Use Data File		1-5
	1.5	Contents of Manual		1-6
2.	DATA COLLECTION INSTRUMENTS AND METHODS			2-1
	2.1	Data Collection Instruments		2-1
		2.1.1	Direct Child Assessment	2-3
		2.1.2	Child Questionnaire	2-8
		2.1.3	Parent Interview	2-11
		2.1.4	General Classroom Teacher Questionnaires	2-14
		2.1.5	Special Education Teacher Questionnaires	2-22
		2.1.6	School Administrator Questionnaires	2-24
		2.1.7	Copyrighted Materials	2-27
	2.2	Data Collection Methods		2-28
		2.2.1	Comparison of Data Collection Methods Used in Fifth Grade to Those Used in Earlier Data Collection Rounds	2-28
3.	ECLS-K:2011 DIRECT AND INDIRECT ASSESSMENT DATA			3-1
	3.1	Direct Cognitive Assessment: Reading, Mathematics, and Science		3-2
		3.1.1	IRT-Based Scores Developed for the ECLS-K:2011	3-2
			3.1.1.1 Theta and the Standard Error of Measurement (SEM) of Theta	3-3
			3.1.1.2 Scale Scores	3-8
		3.1.2	Variables Indicating Exclusion from the Direct Assessment Due to Disability	3-11
		3.1.3	Choosing the Appropriate Score for Analysis	3-11

CONTENTS—Continued

Chapter				Page
		3.1.4	Analytic Considerations for Measuring Gains in the ECLS-K:2011	3-12
		3.1.5	Reliability of the ECLS-K:2011 Scores	3-13
		3.1.6	Validity of the ECLS-K:2011 Scores	3-14
	3.2	Direct Cognitive Assessment: Executive Function		3-15
		3.2.1	Dimensional Change Card Sort	3-16
			3.2.1.1 Dimensional Change Card Sort Data Flags	3-24
		3.2.2	Numbers Reversed	3-26
			3.2.2.1 Numbers Reversed Data Flags	3-33
		3.2.3	The NIH Toolbox Flanker Inhibitory Control and Attention Task (Flanker)	3-34
			3.2.3.1 Flanker Data Flag	3-40
	3.3	Child Questionnaire		3-41
	3.4	Teacher- and Parent-Reported Measures of Child Behavior and Peer Relationships		3-44
		3.4.1	Teacher-Reported Social Skills	3-45
		3.4.2	Teacher-Reported Approaches to Learning Items and Scale	3-50
		3.4.3	Teacher-Reported Attentional Focusing and Inhibitory Control: Children's Behavior Questionnaire (CBQ) and Temperament in Middle Childhood Questionnaire (TMCQ)	3-51
		3.4.4	Teacher- and Parent-Reports of Children's Peer Relationships	3-56
		3.4.5	Teacher- and Parent-Reports of Children's School Liking and Avoidance	3-60
4.	SAMPLE DESIGN AND SAMPLING WEIGHTS			4-1
	4.1	Sample Design		4-1
		4.1.1	ECLS-K:2011 School Sample	4-2
		4.1.2	The Sample of Children	4-4

CONTENTS—Continued

Chapter					Page
	4.2	Sample Design for the First- Through Fifth-Grade Years			4-7
		4.2.1	Fall First Grade and Fall Second Grade		4-7
		4.2.2	Spring First Grade Through Spring Fifth Grade		4-14
		4.2.3	Following Movers		4-25
	4.3	Calculation and Use of Sample Weights			4-28
		4.3.1	Types of Sample Weights		4-29
		4.3.2	Computation of Sample Weights		4-39
			4.3.2.1	Student Base Weights	4-40
			4.3.2.2	Student Weights Adjusted for Mover Subsampling	4-40
			4.3.2.3	Student Nonresponse-Adjusted Weights	4-41
			4.3.2.4	Raking to Sample Control Totals	4-41
		4.3.3	Characteristics of Sample Weights		4-42
		4.3.4	Variance Estimation		4-44
			4.3.4.1	Jackknife Method	4-44
			4.3.4.2	Taylor Series Method	4-45
			4.3.4.3	Specifications for Computing Standard Errors	4-46
		4.3.5	Use of Design Effects		4-47
5.	RESPONSE RATES				5-1
	5.1	Study Instruments			5-1
	5.2	Unit Response Rates and Overall Response Rates			5-2
	5.3	Nonresponse Bias Analysis			5-31
		5.3.1	Effect of Nonresponse on Child Assessment Data		5-32
		5.3.2	Effect of Nonresponse on Parent Interview Data		5-37
		5.3.3	Effect of Nonresponse on Teacher Questionnaire Data		5-43
		5.3.4	Effect of Nonresponse on School Administrator Questionnaire Data		5-49
		5.3.5	Effect of Nonresponse on Characteristics from the Base Year		5-53

CONTENTS—Continued

Chapter				Page
6.	DATA PREPARATION			6-1
	6.1	Coding Text Responses		6-2
		6.1.1	Household Roster Review	6-4
		6.1.2	Partially Complete Parent Interviews	6-5
	6.2	Receipt, Coding, and Editing of Hard-Copy Questionnaires		6-5
		6.2.1	Receipt Control	6-5
		6.2.2	Scanning of Hard-Copy Questionnaires	6-5
		6.2.3	Coding for Hard-Copy Questionnaires	6-5
		6.2.4	Data Editing	6-6
7.	DATA FILE CONTENT AND COMPOSITE VARIABLES			7-1
	7.1	Variable Naming Conventions		7-3
	7.2	Identification Variables		7-4
	7.3	Missing Values		7-7
	7.4	Data Flags		7-11
		7.4.1	Child Assessment Flags (X9RDGFLG, X9MTHFLG, X9SCIFLG, X9NRFLG, X9NRGEST, X9DCCSFLG, X9FLNKFLG, X9HGTFLG, X9WGTFLG, X9ASMTST, X9EXDIS, X9CQFLG)	7-11
			7.4.1.1 Child Theta Score Outlier (X_RTOFLG, X_MTOFLG, X_STOFLG)	7-13
		7.4.2	Parent Data Flags (X9PARDAT, X9EDIT, X9BRKFNL)	7-14
		7.4.3	Teacher Flags (X9TQTDAT, X9TQTZDAT, X9TQRDGDAT, X9TQMTHDAT, X9TQSCIDAT, X9MSFLAG, X9SETQA, X9SETQC)	7-15
		7.4.4	School Administrator Data Flag (X9INSAQ)	7-16
		7.4.5	Child Destination School Flag (X9DEST)	7-17
	7.5	Composite Variables		7-17
		7.5.1	Child Composite Variables	7-18
			7.5.1.1 Child's Date of Birth (X_DOBYY_R and X_DOBMM_R)	7-18

CONTENTS—Continued

Chapter			Page
	7.5.1.2	Child's Age at Assessment and the Date of Assessment (X9AGE, X9ASMTDD, X9ASMTMM, X9ASMTYY)	7-18
	7.5.1.3	Child's Sex (X_CHSEX_R)	7-19
	7.5.1.4	Race/Ethnicity (X_AMINAN_R, X_ASIAN_R, X_HAWPI_R, X_BLACK_R, X_WHITE_R, X_HISP_R, X_MULTR_R, X_RACETHP_R, X_RACETH_R)	7-20
	7.5.1.5	Child's Height (X9HEIGHT)	7-22
	7.5.1.6	Child's Weight (X9WEIGHT	7-23
	7.5.1.7	Child's Body Mass Index (X9BMI)	7-24
	7.5.1.8	Child's Disability Status (X9DISABL2, X9DISABL)	7-24
	7.5.1.9	Primary Language in the Child's Home (X9LANGST)	7-26
	7.5.1.10	Student Grade Level (X9GRDLVL)	7-26
	7.5.1.11	Child Linked to a Special Education Teacher (X9SPECS)	7-27
7.5.2		Family and Household Composite Variables	7-27
	7.5.2.1	Household Counts (X9HTOTAL, X9NUMSIB, X9LESS18, X9OVER18)	7-28
	7.5.2.2	Household Rosters	7-29
	7.5.2.3	Parent Identifiers and Type in the Household (X9IDP1, X9IDP2, X9HPAR1, X9HPAR2, X9HPARNT)	7-32
	7.5.2.4	Parent Demographic Variables (X9PAR1AGE, X9PAR2AGE, X9PAR1RAC, X9PAR2RAC)	7-37
	7.5.2.5	Parent Education Variables (X9PAR1ED_I, X9PAR2ED_I)	7-38
	7.5.2.6	Parent Occupation Variables (X9PAR1EMP_I, X9PAR2EMP_I, X9PAR1OCC_I, X9PAR2OCC_I, X9PAR1SCR_I, X9PAR2SCR_I)	7-39
	7.5.2.7	Household Income and Poverty (X9INCCAT_I, X9POVTY_I)	7-47
	7.5.2.8	Socioeconomic Status (SES) (X9SESL_I)	7-50
	7.5.2.9	Respondent ID and Relationship to Focal Child (X9RESID, X9RESREL2)	7-54

CONTENTS—Continued

Chapter | Page

7.5.2.10 Food Security Status 7-55

7.5.2.10.1 Food Security Status: Raw Scores (X9FSRAW2, X9FSADRA2, and X9FSCHRA) 7-56

7.5.2.10.2 Food Security Status: Continuous Measures (X9FSSCAL2, X9FSADSC2, and X9FSCHSC) 7-57

7.5.2.10.3 Food Security Status: Categorical Measures (X9FSSTAT2, X9FSADST2, and X9FSCHST) 7-58

7.5.3 Teacher Composite Variables 7-59

7.5.4 School Composite Variables 7-60

7.5.4.1 School Type (X9SCTYP) 7-60

7.5.4.2 Public or Private School (X9PUBPRI) 7-61

7.5.4.3 School Enrollment (X9ENRLS) 7-61

7.5.4.4 Percent Non-White Students in the School (X9RCETH) 7-62

7.5.4.5 Highest and Lowest Grade at the School (X9LOWGRD, X9HIGGRD) 7-64

7.5.4.6 Students Eligible for Free or Reduced-Price School Meals (X9FRMEAL_I) 7-64

7.5.4.7 Geographic Region and Locality of the Child's School (X9REGION, X9LOCALE) 7-67

7.5.5 Field Management System (FMS) Composite Variables 7-69

7.5.5.1 School Year Start and End Dates (X9SCHBDD, X9SCHBMM, X9SCHBYY, X9SCHEDD, X9SCHEMM, X9SCHEYY) 7-69

7.5.5.2 Year-Round Schools (X9YRRND) 7-70

7.5.6 School District Poverty (X9DISTPOV) 7-70

7.6 Methodological Variables 7-70

CONTENTS—Continued

Chapter Page

8. ELECTRONIC CODEBOOK (ECB) 8-1

8.1 Introduction 8-1

8.1.1 Hardware and Software Requirements 8-1

8.2 Installing, Starting, and Exiting the ECB 8-2

8.2.1 Installing the ECB Program on Your Personal Computer 8-2

8.2.2 How to Start the ECB 8-5

REFERENCES R-1

Appendixes

A. Data Addenda, Anomalies, Errata, and Data Considerations A-1

B. Supplemental Guide for the Kindergarten-Fifth Grade Public-Use Data File B-1

LIST OF TABLES

Table Page

3-1. Direct cognitive assessment: Item Response Theory (IRT) theta scores, fall and spring kindergarten, fall and spring first-grade, fall and spring second-grade, spring third-grade, spring fourth-grade, and spring fifth-grade assessments: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 3-7

3-2. Direct cognitive assessment: Item Response Theory (IRT) standard errors of measurement (SEM), fall and spring kindergarten, fall and spring first-grade, fall and spring second-grade, spring third-grade, spring fourth-grade, and spring fifth-grade assessments: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 3-8

3-3. Direct cognitive assessment: Item Response Theory (IRT) scale scores, fall and spring kindergarten, fall and spring first-grade, fall and spring second-grade, spring third-grade, spring fourth-grade, and spring fifth-grade assessments: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 3-10

3-4. Reliability of Item Response Theory (IRT)-based scores (theta and scale scores), by round of data collection and domain, for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 3-14

3-5. Dimensional Change Card Sort variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School year 2012–13, spring 2014, spring 2015, and spring 2016 3-23

3-6. Numbers Reversed variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 3-32

3-7. Flanker variable names, descriptions, value ranges, weighted means, and standard deviations for spring fourth grade and spring fifth grade: Spring 2015 and spring 2016 3-40

3-8. Teacher-reported social skills scales variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 3-47

LIST OF TABLES—Continued

Table		Page
3-9.	Teacher-reported social skill scales reliability estimates for fall and spring kindergarten, fall and spring first grade, and fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016	3-49
3-10.	Teacher-reported Approaches to Learning scale variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016	3-51
3-11.	*Children's Behavior Questionnaire* variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten and spring first grade: School year 2010–11 and spring 2012	3-54
3-12.	*Temperament in Middle Childhood Questionnaire* variable names, descriptions, value ranges, weighted means, and standard deviations for spring second grade, spring third grade, spring fourth grade, and spring fifth grade: Spring 2013, spring 2014, spring 2015, and spring 2016	3-54
3-13.	Reliability estimates for the teacher-reported Attentional Focus and Inhibitory Control scales for fall and spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School year 2010–11, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016	3-56
4-1.	The ECLS-K:2011 school sample after school substitution	4-3
4-2.	Number (unweighted) of eligible children sampled for the ECLS-K:2011, by selected characteristics: School year 2010–11	4-5
4-3.	Number (unweighted) of sampled children who are base-year respondents, by selected characteristics: School year 2010–11	4-6
4-4.	Number (unweighted) of original sampled schools in the 30 PSUs selected for the fall data collections, by selected characteristics: Fall 2011 and fall 2012	4-8
4-5.	Number (unweighted) of original sampled schools with base-year respondents at the start of the fall data collections, by selected characteristics: Fall 2011 and fall 2012	4-9

LIST OF TABLES—Continued

Table — Page

4-6. Number (unweighted) of base-year respondents in the fall first- and second-grade sample, by selected characteristics: Fall 2011 and fall 2012 4-10

4-7. Number (unweighted) of base-year respondents in fall first grade, by type of sampled school and selected characteristics: Fall 2011 4-12

4-8. Number (unweighted) of base-year respondents in the fall second grade, by type of sampled school and selected characteristics: Fall 2012 4-13

4-9. Number (unweighted) of original sampled schools in the 90 PSUs selected for the spring data collections with base-year respondents, by selected characteristics: Spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016 4-14

4-10. Number (unweighted) of base-year respondents in spring first grade, by type of sampled school and selected characteristics: Spring 2012 4-16

4-11. Number (unweighted) of base-year respondents in spring second grade, by type of sampled school and selected characteristics: Spring 2013 4-17

4-12. Number (unweighted) of base-year respondents in spring third grade, by type of sampled school and selected characteristics: Spring 2014 4-18

4-13. Number (unweighted) of base-year respondents in spring fourth grade, by type of sampled school and selected characteristics: Spring 2015 4-19

4-14. Number (unweighted) of base-year respondents in spring fourth grade who were selected for the mathematics teacher questionnaire, by type of sampled school and selected characteristics: Spring 2015 4-20

4-15. Number (unweighted) of base-year respondents in spring fourth grade who were selected for the science teacher questionnaire, by type of sampled school and selected characteristics: Spring 2015 4-21

4-16. Number (unweighted) of base-year respondents in spring fifth grade, by type of sampled school and selected characteristics: Spring 2016 4-22

4-17. Number (unweighted) of base-year respondents in spring fifth grade who were selected for the mathematics teacher questionnaire, by type of sampled school and selected characteristics: Spring 2016 4-23

4-18. Number (unweighted) of base-year respondents in spring fifth grade who were selected for the science teacher questionnaire, by type of sampled school and selected characteristics: Spring 2016 4-24

4-19. Characteristics of the fifth-grade weights: Spring 2016 4-43

LIST OF TABLES—Continued

Table | Page

4-20. Standard errors and design effects for selected survey items, fifth grade: Spring 2016 4-49

4-21. Median design effects for the spring fifth-grade survey items, by school characteristic: Spring 2016 4-52

5-1. Response rates for child assessment and parent interview, by selected school characteristics, fifth grade: Spring 2016 5-6

5-2. Response rates for child assessment and parent interview, by selected student characteristics, fifth grade: Spring 2016 5-8

5-3. Response rates for reading teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016 5-9

5-4. Response rates for reading teacher questionnaires, by selected student characteristics, fifth grade: Spring 2016 5-11

5-5. Response rates for mathematics teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016 5-12

5-6. Response rates for mathematics teacher questionnaires, by selected student characteristics, fifth grade: Spring 2016 5-14

5-7. Response rates for science teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016 5-15

5-8. Response rates for science teacher questionnaires, by selected student characteristics, fifth grade: Spring 2016 5-17

5-9. Overall response rates for child assessment and parent interview, by selected school characteristics, fifth grade: Spring 2016 5-18

5-10. Overall response rates for reading teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016 5-20

5-11. Overall response rates for mathematics teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016 5-22

5-12. Overall response rates for science teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016 5-24

5-13. Response rates for special education teacher questionnaires, fifth grade: Spring 2016 5-26

5-14. Response rates for school administrator questionnaire, by selected school characteristics, fifth grade: Spring 2016 5-27

LIST OF TABLES—Continued

Table Page

5-15. Response rates for school administrator questionnaire, by selected student characteristics, fifth grade: Spring 2016 5-29

5-16. Overall response rates for school administrator questionnaire, by selected school characteristics, fifth grade: Spring 2016 5-30

5-17. Weighted and unweighted response rates for all instruments, fifth grade: Spring 2016 5-31

5-18. Estimates using unadjusted and nonresponse-adjusted weights, child assessment, spring fifth grade: Spring 2016 5-34

5-19. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, child assessment, spring fifth grade: Spring 2016 5-35

5-20. Estimates using unadjusted and nonresponse-adjusted weights, parent interview, spring fifth grade: Spring 2016 5-38

5-21. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, parent interview, spring fifth grade: Spring 2016 5-40

5-22. Estimates using unadjusted and nonresponse-adjusted weights, teacher questionnaire data, spring fifth grade: Spring 2016 5-43

5-23. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, teacher questionnaire data, spring fifth grade: Spring 2016 5-46

5-24. Estimates using unadjusted and nonresponse-adjusted weights, school administrator questionnaire data, spring fifth grade: Spring 2016 5-49

5-25. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, school administrator questionnaire data, spring fifth grade: Spring 2016 5-51

5-26. Differences between unadjusted base-year estimates from kindergarten respondents and unadjusted base-year estimates from fifth-grade respondents: Spring 2011 and spring 2016 5-54

LIST OF TABLES—Continued

Table | Page

5-27. Differences between adjusted base-year estimates from kindergarten respondents and adjusted base-year estimates from fifth-grade longitudinal respondents: Spring 2011 and spring 2016 5-57

7-1. Pointers to parent figure questions: School year 2015–16 7-35

7-2. Occupation categories and assigned prestige scores 7-45

7-3. Detailed income range categories used in the parent interview: Spring 2016 7-47

7-4. Criteria for reporting income to the nearest $1,000 in the spring parent interview and 2015 thresholds for 200 percent of poverty: Spring 2016 7-49

7-5. ECLS-K:2011 poverty composite and 2015 census poverty thresholds: Spring 2016 7-50

7-6. Missing data for socioeconomic status (SES) source variables, fifth grade year: School year 2015–16 7-51

7-7. Number and percent of public and private schools and study students with missing data for the percent of children in the school eligible for free or reduced-price lunch (S9PCTFLN): Spring 2016 7-66

LIST OF EXHIBITS

Exhibit | Page

1-1. Data collection schedule: School years 2010–11 through 2015–16 1-4

2-1. Instruments used in the ECLS-K:2011 kindergarten, first-, second-, third, fourth-, and fifth-grade rounds of data collection: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 2-2

2-2. Child questionnaire topics by round of data collection in the ECLS-K:2011: Spring 2014, spring 2015, and spring 2016 2-10

2-3. Parent interview topics, by round of data collection in the ECLS-K:2011: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 2-12

2-4. General classroom teacher teacher-level questionnaire topics, by round of data collection in the ECLS-K:2011: School years: 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 2-19

2-5. General classroom teacher child-level questionnaire topics, by round of data collection in the ECLS-K:2011: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016 2-21

2-6. Special education teacher questionnaire topics, by round of data collection in the ECLS-K:2011: Spring 2011, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016 2-23

2-7. School administrator questionnaire topics, by round of data collection in the ECLS-K:2011: Spring 2011, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016 2-26

2-8. Copyright-protected instruments in ECLS-K:2011 2-27

3-1. Data flag description for the computerized Dimensional Change Card Sort for fall and spring second grade, spring fourth grade, and spring fifth grade: School year 2012–13, spring 2015, and spring 2016 3-24

3-2. Data flag description for the computerized the computerized Dimensional Change Card Sort (DCCS) for spring third grade: Spring 2014 3-25

3-3. Data flag description for the *Flanker* for the spring of fourth grade and spring of fifth grade: Spring 2015 and spring 2016 3-41

3-4. Child questionnaire topics and item-level variables for spring third grade, spring fourth grade, and spring fifth grade: Spring 2014, spring 2015, and spring 2016 3-43

LIST OF EXHIBITS—Continued

Exhibit		Page
3-5.	Teacher-reported item-level variables on peer relationships in spring second grade, spring third grade, spring fourth grade, and spring fifth grade: Spring 2013, spring 2014, spring 2015, and spring 2016	3-58
3-6.	Parent-reported item-level variables on peer relationships and friendships in spring second grade, spring third grade, spring fourth grade, and spring fifth grade: Spring 2013, spring 2014, spring 2015, and spring 2016	3-59
3-7.	Teacher- and parent-reported item-level variables on school liking and avoidance in spring fourth grade and spring fifth grade: Spring 2015 and spring 2016	3-60
4-1.	ECLS-K:2011 fifth-grade main sampling weights for analysis not including data from teachers	4-31
4-2.	ECLS-K:2011 fifth-grade main sampling weights associated with data from teachers	4-32
4-3.	Weights developed for use with the ECLS-K:2011 fifth-grade data, by components for which nonresponse adjustments were made: Spring 2016	4-38
5-1.	ECLS-K:2011 survey instruments and definition of completed instrument: Spring 2016	5-2
7-1.	Prefixes for fifth-grade variables	7-3
7-2.	Identification variables included in the ECLS-K:2011 kindergarten–fifth grade restricted-use data file	7-5
7-3.	Missing value codes used in the ECLS-K:2011 data file	7-7
7-4.	Industry and occupation codes used in the ECLS-K:2011	7-41
7-5.	Definitions of negative and affirmed values for the food security items in the ECLS-K:2011 kindergarten–fifth grade restricted-use data file	7-57
8-1.	InstallShield Wizard	8-3
8-2.	Welcome window	8-3
8-3.	Choose Destination Location	8-4
8-4.	Setup Status	8-4
8-5.	InstallShield Wizard Complete	8-5

LIST OF EXHIBITS—Continued

Exhibit		Page
8-6a.	Desktop icon	8-5
8-6b.	Desktop screen—click start	8-6
8-7.	First-time user dialog box	8-6
8-8.	ECB splash screen	8-7
8-9.	Select Catalog screen	8-7
8-10.	Main ECB screen	8-8
B-1.	ECLS-K:2011 masked variables, spring 2016 child assessment	B-3
B-2.	ECLS-K:2011 masked variables, spring 2016 parent interview	B-4
B-3.	ECLS-K:2011 masked variables, spring 2016 teacher-level reading teacher questionnaire	B-14
B-4.	ECLS-K:2011 masked variables, spring 2016 teacher-level mathematics/science teacher questionnaire	B-16
B-5.	ECLS-K:2011 masked variables, spring 2016 child-level teacher questionnaires	B-17
B-6.	ECLS-K:2011 masked variables, spring 2016 school administrator questionnaire	B-18
B-7.	ECLS-K:2011 masked variables, spring 2016 composite variables	B-21
B-8.	ECLS-K:2011 masked variables, spring 2016 field management system and identification variables	B-22

1. INTRODUCTION

This manual provides guidance and documentation for users of the longitudinal kindergarten–fifth grade (K-5) data file of the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011). It mainly provides information specific to the fifth-grade round of data collection. Users should refer to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook, Public Version* (NCES 2015-074) (Tourangeau et al. 2015a), hereinafter referred to as the base-year User's Manual, for information about the general study methodology and the kindergarten rounds of data collection; to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data File and Electronic Codebook, Public Version (*NCES 2015-078) (Tourangeau et al. 2015b); for information about the first-grade rounds of data collection; to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Second Grade Data File and Electronic Codebook, Public Version* (NCES 2017-285) (Tourangeau et al. 2017) for information about the second-grade rounds of data collection; to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Third Grade Data File and Electronic Codebook, Public Version* (NCES 2018-034) (Tourangeau et al. 2018a) for information about the third-grade round of data collection; and to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Fourth Grade Data File and Electronic Codebook, Public Version* (NCES 2018-032) (Tourangeau et al. 2018b) for information about the fourth-grade round of data collection.

This chapter provides an overview of the ECLS-K:2011. Subsequent chapters provide details on the fifth-grade data collection instruments and methods, including a description of how the fifth-grade data collection differs from the earlier rounds, the direct and indirect child assessments, the sample design, weighting procedures, response rates, and data file content, including composite variables.

Data for the ECLS-K:2011 are released in both a restricted-use and a public-use version. This manual, which has been developed for public dissemination and use with the public version of the data, is almost identical to the manual released with the kindergarten-fifth-grade restricted-use file.[1] **Edits have been made to round or remove unweighted sample sizes that cannot be generated with the public-use file (PUF)**. Estimates such as means that are presented in the tables throughout the manual were calculated

[1] *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11(ECLS-K:2011) User's Manual for the ECLS-K:2011 Kindergarten-Fifth Grade Data File and Electronic Codebook, Restricted Version* (NCES 2019-101) (Tourangeau et al. 2019b).

with the restricted-use file**.** Some estimates may not be able to be reproduced exactly with variables in the PUF because the variables have been masked to make them suitable for public release. **Appendix B provides information about the ways in which data were masked on the PUF and includes tables that list all variables that have been masked or suppressed.** Also, throughout this manual references are made to materials that are on the restricted-use DVD. Public-release versions of these materials are available under "Data Products" on the ECLS-K:2011 website, https://nces.ed.gov/ecls/kindergarten2011.asp.

The ECLS-K:2011 followed a nationally representative sample of children from kindergarten through their elementary school years. It is a multisource, multimethod study that focuses on children's early school experiences. It includes interviews with parents; self-administered questionnaires completed by teachers and school administrators; one-on-one assessments of children; and beginning in third grade, a computer-assisted self-administered questionnaire for children. During the kindergarten year, the ECLS-K:2011 also included self-administered questionnaires for nonparental before- and after-school care providers. The ECLS-K:2011 is sponsored by the National Center for Education Statistics (NCES) within the Institute of Education Sciences (IES) of the U.S. Department of Education.

1.1 Background

The ECLS-K:2011 is the third and latest study in the Early Childhood Longitudinal Study (ECLS) program, which at present comprises three longitudinal studies of young children: the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K); the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B); and the ECLS-K:2011. The ECLS program is broad in its scope and coverage of child development, early learning, and school progress. It draws together information from multiple sources, including children, parents, teachers, school administrators, and early care and education providers, to provide data for researchers and policymakers to use to answer questions regarding children's early educational experiences and address important policy questions. The ECLS-K:2011 provides current information about today's elementary school children. Also, coming more than a decade after the inception of the ECLS-K, the ECLS-K:2011 allows for cross-cohort comparisons of two nationally representative kindergarten classes experiencing different policy, educational, and demographic environments.

The three studies in the ECLS program provide national data on children's developmental status at birth and at various points thereafter; children's transitions to nonparental care, early education programs, and school; and children's home and school experiences, growth, and learning. The ECLS program also provides data that enable researchers to analyze how a wide range of child, family, school, classroom, nonparental care and education provider, and community characteristics relate to children's development and to their experiences and success in school. Together, these three studies provide the range and breadth of data needed to more fully describe and understand children's education experiences, early learning, development, and health in the late 1990s, 2000s, and 2010s.

More information about all three of these studies can be found on the ECLS website (https://nces.ed.gov/ecls).

1.2 Periods of Data Collection

The ECLS-K:2011 followed a cohort of children from their kindergarten year (the 2010–11 school year, referred to as the base year) through the 2015–16 school year, when most of the children were in fifth grade (exhibit 1-1). The sample included both children who were in kindergarten for the first time and those who were repeating kindergarten during 2010–11. Although the study refers to later rounds of data collection by the grade the majority of children were expected to be in (that is, the modal grade for children who were in kindergarten in the 2010–11 school year), children were included in subsequent data collections regardless of their grade level.[2] During the 2010–11 school year, when both a fall and a spring data collection were conducted, approximately 18,170 kindergartners from about 1,310 schools[3] and their parents, teachers, school administrators, and before- and after-school care providers participated in the study. Fall and spring data collections were also conducted during the first-grade year. While the fall kindergarten collection included the full ECLS-K:2011 sample, the fall first-grade collection was conducted with children in one-third of the sample of primary sampling units (PSUs) selected for the study. These children are referred to as the fall subsample. The data collection schedule for second grade was similar to the schedule for first grade, with a fall second-grade collection that included the same subsample of children from the fall of first grade and a spring collection that included the entire sample of children who participated in at least one of the two base-year data collection rounds. In the third, fourth, and fifth grades, a spring data collection was conducted with the entire sample of children who participated in the base year.[4]

[2] Children may not be in the modal grade due to retention in a grade or promotion to a higher grade ahead of schedule.
[3] This number includes both schools that were part of the original sample of schools selected for the study (approximately 970) and schools to which children transferred during the base year (approximately 340).
[4] Beginning with the fall first-grade data collection, children who moved away from their original base-year schools were subsampled for follow-up. More information about the sample for fifth grade, including the subsampling of movers, is provided in chapter 4.

Exhibit 1-1. Data collection schedule: School years 2010–11 through 2015–16

School year	Grade[1]	Data collections[2]
2010–11	Kindergarten	Fall 2010 Spring 2011
2011–12	First grade	Fall 2011 Spring 2012
2012–13	Second grade	Fall 2012 Spring 2013
2013–14	Third grade	Spring 2014
2014–15	Fourth grade	Spring 2015
2015–16	Fifth grade	Spring 2016

[1] Grade indicates the modal grade for children who were in kindergarten in the 2010–11 school year. After the kindergarten rounds of data collection, children were included in data collection regardless of their grade level.
[2] All but two rounds of data collection include the entire sample of children. The fall first-grade data collection included approximately one-third of the total ECLS-K:2011 sample of children. The fall second-grade data collection included the same subsample selected for the fall of first grade.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011).

1.3 Overview of the Fifth-Grade Round of Data Collection

As described in chapter 1 of the base-year User's Manual*,* the ECLS-K:2011 collected information from children, parents, classroom teachers, special education teachers, and school administrators. In the base year, information was also collected from children's before- and after-school care providers. Data collection instruments for all these different respondent types were included in the fifth-grade round of data collection, except for the care provider questionnaires. The care provider component was included in the base year to obtain more information about young children's activities outside of school, which is particularly important for understanding differences in the educational environments of children attending full-day kindergarten and of those attending part-day kindergarten.

The assessments and instruments used in fifth grade were largely the same as those used in earlier rounds to allow for longitudinal analysis. However, the earlier assessments and instruments were revised, as necessary, to make them appropriate for the fifth-grade data collections. For example, questions in the school administrator questionnaire asking about the school's fourth-graders were revised to ask about the school's fifth-graders. As in third and fourth grades, fifth-grade instruments included a child questionnaire. Specifically, children completed an audio computer-assisted self-administered questionnaire about themselves. For the fifth-grade collection, the direct child assessment included a similar battery of assessments as previous rounds and also included the third measure of executive function added in fourth grade to the existing two measures used in the previous rounds. More detailed information about the fifth-grade study instruments, including how they differ from the instruments used in the earlier rounds, is provided in chapter 2.

1.4 ECLS-K:2011 Kindergarten–Fifth Grade (K-5) Public-Use Data File

The ECLS-K:2011 kindergarten–fifth grade (K-5) public-use data file includes the base-year, first-grade, second-grade, third-grade, fourth-grade, and fifth-grade data encompassing both the fall and spring rounds of data collection in kindergarten, first grade, and second grade and the spring round of data collection in third, fourth, and fifth grades. The data file includes information for all students who participated during the kindergarten year even if they did not participate during later rounds. Fifth-grade data for students who did not participate in the fifth-grade round are set to “system missing.” The K-5 public-use file (PUF) is intended to replace the previously released PUFs; the K-5 PUF includes all of the cases included in prior PUFs and has some important corrections and updates to previously released data, including the child assessment scores.

In preparing data files for release, NCES takes steps to minimize the likelihood that individual schools, teachers, parents, or students participating in the study can be identified. Every effort is made to protect the identity of individual respondents. The process of preparing the files for release includes a formal disclosure risk analysis. Small percentages of values are swapped across cases with similar characteristics to make it very difficult to identify a respondent with certainty. The modifications used to reduce the likelihood that any respondent could be identified in the data do not affect the overall data quality.

Analysts should be aware that the ECLS-K:2011 data file is provided as a *child-level* data file containing one record for each child who participated in the base year. The record for each child contains information from each of the study respondents: the child, as well as his or her parent, teacher(s), school administrator and, if applicable, before- or after-school care provider.

The ECLS-K:2011 K-5 data are provided with an electronic codebook (ECB) that permits analysts to view the variable frequencies, tag selected variables, and prepare data extract files for analysis with SAS, SPSS, or Stata. The public-use version of the data will be available online.

1.5 Contents of Manual

The remainder of this manual contains more detailed information on the fifth-grade data collection instruments (chapter 2) and the direct and indirect child assessments (chapter 3). It also describes the ECLS-K:2011 sample design and weighting procedures (chapter 4), response rates and bias analysis (chapter 5), and data preparation procedures (chapter 6). In addition, this manual describes the structure of the K-5 data file and the composite variables that have been developed for the file (chapter 7). The last chapter of this manual contains a short introduction to the ECLS-K:2011 ECB and how to use it (chapter 8).

Additional information about the ECLS-K:2011 study design, methods, and measures can be found in earlier round user's manuals noted above, as well as in the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), Kindergarten Psychometric Report* (NCES 2018-182) (Najarian et al. 2018a), the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), First-Grade and Second-Grade Psychometric Report* (NCES 2018-183) (Najarian et al. 2018b), and the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), Third-Grade, Fourth-Grade, and Fifth-Grade Psychometric Report* (NCES 2019-023) (Najarian et al. forthcoming). Also, as noted earlier, additional information about the ECLS program can be found online at https://nces.ed.gov/ecls.

2. DATA COLLECTION INSTRUMENTS AND METHODS

This chapter describes the data collection instruments used in the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) fifth-grade round of data collection, including the child assessments, child questionnaire, parent interview, school administrator questionnaires, and teacher questionnaires.[1] Differences between earlier rounds of data collection and the fifth-grade round in the study instruments and data collection procedures are discussed. For more information on the earlier data collection instruments and methods, consult the user's manuals for those rounds.

2.1 Data Collection Instruments

The design of the ECLS-K:2011 and its survey instruments was guided by a conceptual framework of children's development and learning that emphasizes the interaction among the various environments in which children live and learn and the resources within those environments to which children have access. A comprehensive picture of children's environments and experiences is created by combining information from children themselves, their parents, their school administrators, their teachers, and their kindergarten before- and after-school care providers.

Exhibit 2-1 presents a listing of the ECLS-K:2011 data collection instruments and the rounds of data collection in which they were used. The instruments for the kindergarten, first-grade, second-grade, third-grade, fourth-grade, and fifth-grade collections are included on the ECLS-K:2011 kindergarten–fifth grade (K–5) restricted-use DVD and are available online at https://nces.ed.gov/ecls, with the exception of copyrighted materials or items adapted from copyrighted materials that cannot be publicly distributed without copyright holder and National Center for Education Statistics (NCES) permission. Study instruments and items for which copyright permissions are needed are discussed further in section 2.1.7.

The information collected in the ECLS-K:2011 instruments can be used to answer a wide variety of research questions about how child, home, school, and neighborhood factors relate to children's cognitive, social, emotional, and physical development. Sections 2.1.1 through 2.1.6 describe the major topics covered in each instrument.

[1] For ease of presentation, this chapter refers to all students as "fifth-grade students." However, the reader should keep in mind that some children had been retained in a grade and a very small number of students had been advanced to a higher grade. These children are included in the group being referred to as fifth-graders.

Exhibit 2-1. Instruments used in the ECLS-K:2011 kindergarten, first-, second-, third-, fourth-, and fifth-grade rounds of data collection: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Instrument	Fall kinder-garten	Spring kinder-garten	Fall first grade	Spring first grade	Fall second grade	Spring second grade	Spring third grade	Spring fourth grade	Spring fifth grade
Child assessment									
Language screener	X	X	X	X					
Reading	X	X	X	X	X	X	X	X	X
Mathematics	X	X	X	X	X	X	X	X	X
Executive function	X	X	X	X	X	X	X	X	X
Science		X	X	X	X	X	X	X	X
Height and weight	X	X	X	X	X	X	X	X	X
Hearing evaluation					X		X		X[1]
Child questionnaire							X	X	X
Parent interview	X	X	X	X	X	X	X	X	X
Classroom teacher questionnaires – grades K, 1, 2, and 3									
Teacher level	X	X		X		X	X		
Teacher level – subject area							X		
Teacher background (new teacher supplement)		X							
Child level	X	X	X	X	X	X	X		
Classroom teacher questionnaires – grades 4 and 5									
Teacher Background Questionnaire								X	X
Reading and Language Arts Teacher Questionnaire								X	X
Mathematics Teacher Questionnaire								X	X
Science Teacher Questionnaire								X	X
Special education teacher questionnaires									
Teacher level		X		X		X	X	X	X
Child level		X		X		X	X	X	X

See notes at end of exhibit.

Exhibit 2-1. Instruments used in the ECLS-K:2011 kindergarten, first-, second-, third-, fourth-, and fifth-grade rounds of data collection: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016—Continued

Instrument	Fall kinder-garten	Spring kinder-garten	Fall first grade	Spring first grade	Fall second grade	Spring second grade	Spring third grade	Spring fourth grade	Spring fifth grade
School administrator questionnaires		X		X		X	X	X	X
Before- and after-school care questionnaires									
Center director		X							
Center-based care provider		X							
Home-based care provider		X							
Child level		X							

[1] In spring fifth grade, children who completed the hearing evaluation also completed a short language impairment screener. For more information on this assessment and on the hearing evaluations component, see the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) User's Manual for the Fifth-Grade Hearing Evaluations Component Data File* (NCES 2019-019) (Tourangeau et al. 2019a).
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

2.1.1 Direct Child Assessment

In the fifth-grade data collection, children were assessed in the spring in reading, mathematics, science, and on their executive function skills, and their height and weight were measured. The majority of the items included in the fifth-grade assessments in reading, mathematics, and science had been included in the earlier assessments. However, to ensure that these assessments adequately measured the knowledge and skills of the children as they progressed through school, new, more difficult items were added to the assessments in fifth grade, and easier items reflecting lower level skills were omitted. All children received the assessments designed for the fifth-grade collection, regardless of their actual grade level. The reading, mathematics, and science assessments were administered directly to the sampled children on an individual basis by trained and certified child assessors. This battery of assessments was designed to be administered within about 60 minutes per child.[2] Child responses were entered by the assessor into a computer-assisted interviewing (CAI) program. Executive function skills were assessed through computer-administered tasks completed by children and an oral task in which child responses were input into the computer using the CAI program. In addition, a subsample of study children had their hearing evaluated.

[2] Together the fifth-grade reading, mathematics, and science assessments took an average of 61 minutes. The executive function assessments averaged 13 minutes. The measurement of height and weight took about 5 minutes.

Two-stage assessment. The fifth-grade direct cognitive assessment included two-stage assessments for reading, mathematics, and science. For each assessment domain, the first stage of the assessment was a routing section that included items covering a broad range of difficulty. A child's performance on the routing section of a domain determined which one of three second-stage tests (low, middle, or high difficulty) the child was next administered for that domain. The second-stage tests varied by level of difficulty so that a child would be administered questions appropriate for his or her demonstrated level of ability for each of the cognitive domains. The purpose of this adaptive assessment design was to maximize accuracy of measurement while minimizing administration time.

Language screener for children whose home language was not English. In kindergarten and first grade, a language screener was used for children whose home language was not English. By the spring of first grade, nearly all children (99.9 percent) were routed through the assessment in English; therefore, the language screener was not administered beyond the spring of first grade.

Cognitive domains. The fifth-grade cognitive assessment focused on four domains: reading (language use and literacy), mathematics, science, and executive function (working memory, cognitive flexibility, and inhibitory control). For the reading, mathematics, and science assessments, assessors asked the children questions related to images or text that were presented on a small easel, such as words, short sentences, or items associated with passages for reading; numbers and number problems for mathematics; and predictions based on observations and cause-and-effect relationships for science. For the reading assessment, children were also asked questions about short reading selections they were asked to read in a passages booklet developed for the assessment. These questions were also presented on the easel. Children were not required to explain their reasoning. The executive function component included a computer-administered card sort task, for which children entered responses in the assessor's laptop computer; a backward digit span task, for which children provided verbal responses to the assessor; and a computer-administered inhibitory control task, for which children entered responses in the assessor's laptop computer. A brief description of each of the cognitive assessment components follows.

Reading (language and literacy). The reading assessment included questions measuring basic skills (e.g., word recognition), vocabulary knowledge, and reading comprehension. Reading comprehension questions asked the child to identify information specifically stated in text (e.g., definitions, facts, supporting details); to make complex inferences within texts; and to consider the text objectively and judge its appropriateness and quality. The reading assessment began with a set of 12 routing items, with the child's score on these items determining which second-stage form (low, middle, or high difficulty) the child received.

Mathematics. The mathematics assessment was designed to measure skills in conceptual knowledge, procedural knowledge, and problem solving. The assessment consisted of questions on number sense, properties, and operations; measurement; geometry and spatial sense; data analysis, statistics, and probability; and patterns, algebra, and functions. A set of 18 routing items was administered to all children, and the score on these items determined which second-stage test (low, middle, or high difficulty) a child received. Most of the text that the children could see on the easel pages, for example, question text for word problems or graph labels, was read to them by the assessor to reduce the likelihood that the children's reading ability would affect their mathematics assessment performance.[3] Paper and pencil were offered to the children for use during the mathematics assessment, and children were periodically reminded of the availability of paper and pencil as part of the assessment protocol.

Science. The science assessment included questions about physical sciences, life sciences, Earth and space sciences, and scientific inquiry. The science assessment included 15 routing items that all children received, followed by one of three second-stage forms (low, middle, or high difficulty). As with reading and mathematics, the second-stage form children received depended on their responses to the routing items. The questions, response options, and any text the children could see on the easel pages (for example, graph labels) were read to the children to reduce the likelihood that their reading ability would affect their science assessment score.

Executive function. The executive function component of the cognitive assessment obtained information on cognitive processes associated with learning: cognitive flexibility, working memory, and inhibitory control. To measure cognitive flexibility, children were administered the *Dimensional Change Card Sort (DCCS)* (Zelazo 2006). Different versions of the *DCCS* were used in different rounds of data collection because there was no single task that was age appropriate across all rounds of data collection when the study began. During the kindergarten and first-grade rounds, the hard-copy or physical version of the *DCCS*, as described in Zelazo 2006, was administered using cards that children were asked to sort into piles. Because the physical version of the *DCCS* would have been too easy for the majority of the study children during the second-grade rounds, beginning in the fall second-grade round, children were administered a new, age-appropriate, computerized version of the *DCCS* in which the "cards" were presented on a computer screen and children sorted them into "piles" on the computer screen using keys on the keyboard to indicate where to place each card. The computerized task was developed as part of the National Institutes of Health Toolbox for the Assessment of Neurological and Behavioral Function (NIH Toolbox) and is appropriate for ages 3–85 (Zelazo et al. 2013). The NIH Toolbox *DCCS* has two different

[3] Numbers were read to the child only when the question text referenced the number.

administrations based on the age of the child: one for children 7 years and younger and one for children 8 years and older. The task had been under development during the kindergarten and first-grade rounds of data collection but became available in time to be incorporated into the second-grade data collections. The ECLS-K:2011 used the version for children 8 years and older beginning in the fall second-grade round. Although the physical and the computer versions assess the same construct, the scoring and the way by which the construct is assessed differ across the two tasks (for information on scoring, see chapter 3, section 3.2.1).

Like the physical version of the *DCCS* administered in the kindergarten and first-grade data collections, the computerized version asked children to sort cards either by shape or color. However, rather than administer the cards in sections with a consistent sorting rule (with cards first sorted only by color, then only by shape, and finally by color or shape depending on whether a card had a black border), in the computerized *DCCS* the sorting rules were intermixed across the 30 trials of the task. In the computerized *DCCS*, one rule was more common than the other to build a response tendency (i.e., a response that was "preferred" because it happened more frequently, resulting in a predisposition to respond in that manner). Also, whereas performance on the physical version was measured by sorting accuracy, performance on the computerized version was measured as a function of both accuracy and reaction time. Reaction time was calculated based on reaction time only for trials using the sorting rule that was presented less often and only when there was a correct response. The reaction time of the less frequent trials or nondominant trials was of most interest because when a child is predisposed to respond in a particular way, it is harder and takes more time to inhibit that response tendency and switch the response to maintain accuracy. As children get older, it is important to incorporate reaction time into the *DCCS* score because older children and adults tend to slow down in order to respond accurately. Younger children do not tend to show a speed/accuracy tradeoff, and therefore accuracy is a better metric of performance for young children (Davidson et al. 2006). Performance on the computerized version of the *DCCS* was derived from a formula that takes into consideration both accuracy and reaction time (Zelazo et al. 2013; Slotkin, Nowinski et al. 2012).

After the card sort, children were administered the Numbers Reversed task, which is a measure of working memory. In this task, children were asked to repeat strings of orally presented numbers in reverse order. The sequence of numbers became increasingly longer, up to a maximum of eight numbers. The task was ended when children responded incorrectly to three consecutive number sequences of the same length, so that they would not be asked to continue at a level that was too difficult, or when all number sequences had been completed.

Beginning in fourth grade, children were administered a task that measured inhibitory control in the context of selective visual attention. The NIH Toolbox Flanker Inhibitory Control and Attention Task *(Flanker)* is a computerized task that was developed as part of the NIH Toolbox for the Assessment of Neurological and Behavioral Function (NIH Toolbox) and is appropriate for ages 3–85 (Zelazo et al. 2013). The ECLS-K:2011 used the version of the NIH Toolbox *Flanker* task that is for children 8 years and older.

The *Flanker* task measures both inhibitory control and attention. Children must inhibit an automatic response tendency that may interfere with achieving a goal and use selective attention to consciously direct sensory or thought processes to a stimulus in the visual field in the service of goal-directed behavior. In the *Flanker* task, children were asked to focus attention on a central stimulus while ignoring or inhibiting attention to stimuli presented on either side of the central stimulus. The stimuli used for children 8 years or older are a series of five arrows, pointing either left of right. The stimuli that "flank" the central stimulus either point in the same direction as the central stimulus (congruent) or in the opposite direction as the central stimulus (incongruent). Children were presented with 20 trials and were asked to press a button on the computer to indicate the direction the central stimulus was pointing. Like the *DCCS*, performance on the *Flanker* was derived from a formula that takes into consideration both accuracy and reaction time (Zelazo et al. 2013; Slotkin, Nowinski et al. 2012). Performance on the incongruent trials was used to derive a score that is a measure of inhibitory control in the context of selective visual attention.

Height and weight measurement. In addition to the cognitive domains described above, children's height and weight were measured during each data collection. A Shorr board (a tall wooden stand with a ruled edge used for measuring height) and a digital scale were used to obtain the measurements.[4] Assessors recorded the children's height (in inches to the nearest one-quarter inch) and weight (in pounds to the nearest half pound) on a height and weight recording form and then entered the measurements into a laptop computer. Each measurement was taken and recorded twice to ensure reliable measurement.

Hearing evaluations. In the spring fifth-grade data collection, a subsample of the children also had their hearing evaluated by specially trained health technicians. Study protocol called for the health technicians to conduct the 15-minute hearing evaluations immediately after each selected child's

[4] The Shorr board that was used is manufactured by Weigh and Measure, LLC, and is model ICA. The digital scale used was Seca Bella model 840.

assessment and height and weight measurement.[5] For the hearing evaluation, the health technician first asked the child a few questions about his or her hearing and recent experiences that could affect the results of the evaluation, including whether the child had an earache or recent cold or had recently heard any loud noises. Next, the child's ears were visually examined to see if there was any blockage that could affect the evaluation. The child's responses to the questions and the results of the visual examination of the child's ears were entered into a laptop computer. Then, the child listened to short tones of various pitches and decibel levels that were presented through headphones connected to an audiometer in order to determine hearing thresholds (the softest sounds the child could hear) for each ear. Next, the health technician used a tympanometer to measure inner-ear functioning. The data collected from the audiometer and the tympanometer were automatically transferred from the hearing equipment and saved to the health technician's laptop. Finally, new to the fifth-grade round, children used an Apple iPod Touch® MP3 player to complete a short grammar test that could indicate language impairment. The scores produced by the Grammaggio language screening application were entered into the laptop by the health technician. For detailed information about the language screening application and each part of the hearing evaluations component, see the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) User's Manual for the Fifth-Grade Hearing Evaluations Component Data File* (NCES 2019-019) (Tourangeau et al., 2019). The data collected during the hearing evaluation are available in a separate, restricted-use data file, the *ECLS-K:2011 Fifth-Grade Hearing Evaluations Component Restricted-Use Data File* (NCES 2019-018) (U.S. Department of Education 2019).

2.1.2 Child Questionnaire

Beginning in the spring of third grade, a child questionnaire was administered to children prior to the cognitive assessment components. The fifth-grade questionnaire had 48 questions and took approximately 10 minutes to complete.

Unlike the hard-copy child questionnaires that were administered during the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) by assessors who read the questions/items to the children, the ECLS-K:2011 child questionnaire was administered on a computer using audio computer-assisted self-interview (audio-CASI) technology and headphones. Children listened as the software system read the instructions and questionnaire items. One questionnaire item at a time was displayed on the laptop's screen, and in fourth and fifth grades a computer-generated voice read each

[5] In some instances, it was not possible to follow this standard protocol because after the assessment/measurement, the child had to return to the classroom for a scheduled activity, for example, a recess or lunch break. For those children, the evaluation was completed as soon as possible after the activity or break.

question and the response options to the child. The child responded by selecting the desired response on the laptop's touch screen. The audio-CASI questionnaire standardized administration and accommodated the variation in children's reading ability levels. It also allowed the child privacy to respond to the questions and limited distractions because the headphones worn during the administration minimized extraneous noise.

Exhibit 2-2 shows the content areas included in the third-, fourth-, and fifth-grade child questionnaires. The fifth-grade child questionnaire included both new items and items that were also included in earlier questionnaires. In both the third- and fourth-grade questionnaires, children were asked about social anxiety, specifically fear of negative evaluation by peers, and about peer victimization. The peer victimization questions were parallel to questions asked of teachers in third and fourth grades and of parents in third grade. New questions that were part of the fourth-grade questionnaire asked children about their behavioral engagement in school, peer social support, feelings of loneliness at school, media usage and family rules about media usage, and pets. In contrast to the third-grade child questionnaire, the content of the fourth-grade questionnaire did not overlap with the content of the child questionnaires that were administered in the prior cohort study, the ECLS-K. The fifth-grade questionnaire included the peer victimization questions and fear of negative evaluation by peer items that were also asked in third and fourth grades. A subset of the life satisfaction items asked in third grade was also asked in fifth grade. The fifth-grade questionnaire included questions on behavioral engagement in school, peer social support, feelings of loneliness at school and media usage that were asked in fourth grade. It also included additional, new items on media usage. New questions were added to the fifth-grade questionnaire on school belonging, grit (i.e., perseverance over the long term in pursuit of a goal), worry about school, and parental monitoring. The questions about school belonging were originally asked in the Grade 8 Student Questionnaire from the ECLS-K, and questions about worry about school were selected from a larger set of items on internalizing problem behaviors that were developed and used in grades 3, 5, and 8 in the ECLS-K.

Exhibit 2-2. Child questionnaire topics by round of data collection in the ECLS-K:2011: Spring 2014, spring 2015, and spring 2016

Child questionnaire topics	Spring third grade	Spring fourth grade	Spring fifth grade
Perceived Interest/Competence in Reading[1]	X		
Perceived Interest/Competence in Math[1]	X		
Perceived Interest/Competence in Science[1]	X		
Perceived Interest/Competence in Peer Relationships[1]	X		
Peer Victimization[2]	X	X	X
Social Anxiety/Fear of Negative Evaluation[3]	X	X	X
Prosocial Behavior[4]	X		
Life Satisfaction[5]	X		X
Behavioral Engagement[6]		X	X
Peer Social Support[7]		X	X
Loneliness[8]		X	X
Media Usage[9]		X	X
Pets[10]		X	
School Belonging[11]			X
Grit[12]			X
Worry/Stress About School[13]			X
Parental Monitoring[14]			X

[1] Adapted from the Self Description Questionnaire I (SDQI) © Herbert Marsh. SELF Research Centre (Bankstown Campus) University of Western Sydney, Australia. Used with permission.
[2] Peer victimization items were adapted from a 21-item scale by Espelage, D. L. and Holt, M. (2001). Bullying and victimization during early adolescence: Peer influences and psychosocial correlates. *Journal of Emotional Abuse, 2:* 123–142.
[3] Adapted from the Social Anxiety Scale for Children—Revised ©1993 Annette M. La Greca, University of Miami. Used with permission. La Greca, A. M. and Stone, W. L. (1993). Social anxiety scale for children—revised: Factor structure and concurrent validity. *Journal of Clinical Child Psychology, 22*(1): 17–27.
[4] Adapted from the Children's Social Behavior Scale—Self Report (CSBS-S). Crick, N.R. and Grotpeter, J.K. (1995). Relational aggression, gender, and social psychological adjustment. *Child Development, 66*: 710–722.
[5] Adapted from the NIH Toolbox for Assessment of Neurological and Behavioral Function (version 1.0): Domain-Specific Life Satisfaction Survey from the NIH Toolbox Emotion Battery (www.NIHToolbox.org) © 2012 Northwestern University and the National Institutes of Health. Used with permission.
[6] Adapted from Skinner, E. A., Kindermann, T. A., and Furrer, C. J. (2009). A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities in the classroom. *Educational and Psychological Measurement*, *69*(3), 493-525.
[7] Adapted from Vandell, D. (2000). Peer Social Support, Bullying, and Victimization (Form FLV05GS: *Kids in My Class at School*) [measurement instrument]. NICHD Study of Early Child Care and Youth development: Phase III, 2000–2004.
[8] Adapted from Parker, J. G. and Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, *29*(4), 611–621.
[9] Adapted from the Pew September Tracking Survey 2009. Citation: Princeton Survey Research Associates International (2009). Pew September Tracking Survey 2009. Pew Internet & American Life Project.
[10] Adapted from the CENSHARE Pet Attachment Survey. Holcomb, R., Williams, R. C., and Richards, P. S. (1985). The elements of attachment: Relationship maintenance and intimacy. *Journal of the Delta Society*, *2*(1), 28-34.
[11] Grade 8 Student Questionnaire, ECLS-K.
[12] Adapted from the Short Grit Scale in collaboration with Angela Duckworth for the ECLS-K:2011.
[13] Adapted from the Internalizing Problems Scale that was developed for ECLS-K and used in the ECLS-K grade 3 and grade 5 child-reported Self-Description Questionnaire and the Grade 8 Student Questionnaire.
[14] Adapted from the Self-Disclosure & Parental Monitoring/Knowledge Scale (Kerr and Stattin, 2000). Kerr, M., and Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology, 36,* 366-380.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2014, spring 2015, and spring 2016.

2.1.3 Parent Interview

A parent interview was conducted during the spring of fifth grade. Unlike the kindergarten, first-grade, and second-grade data collections that had both fall and spring interviews, an interview was not conducted in the fall of subsequent rounds of the study. The average length of the spring fifth-grade parent interview was approximately 47 minutes. The spring fifth-grade parent interview was slightly longer than the fourth-grade (34 minutes) interview to incorporate questions needed for the final round of the study. For example, in the last round of the study it was of interest to ask parents questions about issues that may have changed since they were first asked (e.g., the primary language spoken in the home or parents' educational expectations for their child) or could be different for parents of older children than for parents of younger children (e.g., barriers to parent participation with the school).

The spring fifth-grade parent interview included many of the same questions that were included in earlier rounds of the study, for example, questions about parent involvement in the child's school; homework; time children spent playing video games; children's participation in out-of-school activities; whether there had been a change in the relationship of one of the parent figures to the child (e.g., adoption); and child health and well-being. In addition, information about children's country of origin was collected if it had not been collected in earlier rounds. All questions that were new to the fourth-grade data collection were retained in the fifth grade (questions about parents' use of a computer or other electronic device to find out about children's homework, school assignments, grades, and how children at the school were doing as a group, parent reports of the child's grades, the frequency that the child avoids school, family monitoring of what the child looks at online and how many hours are spent online, children's friendships, how frequently the parent and child argue, and overall life stress in the past 12 months). Also, several questions from earlier rounds of the study that had not been fielded in recent rounds were included in order to have a final data point in the study (e.g. parent's educational expectations for the child, marital/partner satisfaction, use of a language other than English, and outings with the child). Lastly, several questions about animals and their use to help children with disabilities were added to the child's health and well-being section.

Exhibit 2-3 shows the content areas included in the parent interview in the fall and spring of three grades (kindergarten, first grade, and second grade) and in the spring of third, fourth, and fifth grades, by data collection round. While many of the same topics were addressed in multiple rounds, there were some differences in the specific questions asked for each topic. For example, there was only one question about employment in the spring of third grade and the spring of fourth grade, but there were multiple questions about employment in earlier interviews. Also, questions about whether parents were on active duty in the military were asked in the employment section of the spring third-grade, spring fourth-grade, and spring fifth-grade parent interviews, but were not asked in earlier interviews.

Exhibit 2-3. Parent interview topics, by round of data collection in the ECLS-K:2011: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Parent interview topics[5]	Fall kinder-garten	Spring kinder-garten	Fall first grade	Spring first grade	Fall second grade	Spring second grade	Spring third grade	Spring fourth grade	Spring fifth grade
Child care arrangements[1]	X	X	X	X	X	X	X	X	X
Child demographic characteristics[2]	X	X	X	X	X	X	X	X	X
Child disabilities and services[3]		X	X	X	X	X	X	X	X
Child friendships								X	X
Child health and well-being	X	X		X	X	X	X	X	X
Child mobility	X		X	X	X	X	X	X	X
Child school avoidance								X	X
Child social skills, problem behaviors, and approaches to learning[4]	X	X		X			X	X	
Country of origin of parent and child[5]		X		X		X	X	X	X
Family structure	X	X		X		X	X	X	X
Food sufficiency and food consumption		X		X			X	X	X
Household roster	X	X		X		X	X	X	X
Home environment, activities, resources, and cognitive stimulation[6]	X	X	X	X	X	X	X	X	X
Home language[5]	X	X		X		X	X		X
Involvement of nonresident parent	X	X		X		X	X	X	X
Neighborhood safety		X		X				X	
Parent characteristics	X	X		X		X	X	X	X
Parenting stress		X		X					X
Parent education[5]	X	X		X			X	X	X
Parent employment[7]	X			X		X	X	X	X
Parent income and assets		X		X		X	X	X	X
Parent involvement with the child's education	X	X		X		X	X	X	X
Parent marital history[5]	X	X							
Parent marital status	X	X		X		X	X	X	X
Parent respondent's psychological well-being and health		X				X	X	X	X
Parent social support				X					

See notes at end of exhibit.

Exhibit 2-3. Parent interview topics, by round of data collection in the ECLS-K:2011: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016—Continued

Parent interview topics	Fall kinder-garten	Spring kinder-garten	Fall first grade	Spring first grade	Fall second grade	Spring second grade	Spring third grade	Spring fourth grade	Spring fifth grade
Parental beliefs and expectations related to child's education	X						X		X
Parental discipline, warmth, and emotional supportiveness		X		X		X	X	X	X
Peer victimization						X	X		
Time father/other adult male spends with child		X							
Welfare and other public transfers	X	X		X		X		X	X

[1] In the fall of kindergarten, questions were asked about current child care and child care in the year before kindergarten. In the spring of kindergarten, questions about child care in the year before kindergarten were asked if information had not been collected in the fall. In the fall of first and second grades, questions were about child care during the previous summer. In the spring of first, second, third, and fifth grades, questions asked about current child care. In the spring of fourth grade, the only child care questions asked were those about whether the child regularly took care of him or herself and, if so, how much time the child spent in self-care.
[2] Questions about child demographic characteristics were asked in the fall and spring of kindergarten and then asked in later rounds of the study if the information was missing from a previous round. Questions about the child's specific ethnic origin were first asked in the spring third-grade parent interview; if the information was not provided in the spring of third grade, the questions were asked again in the spring fourth-grade parent interview.
[3] Questions in the fall first- and second-grade interviews were about services for special needs or participation in a special education program over the previous summer. Questions about disabilities and services in other rounds of the study were not limited to the past summer.
[4] In the spring of third grade and the spring of fourth grade, the questions in this section were about working memory. In previous rounds of the study, the questions were about social skills, behavior, and approaches to learning.
[5] Asked if information had not been collected in a previous round. In the spring of fourth and fifth grades, the country of origin of the resident parent(s) was no longer asked.
[6] Questions in the fall first- and second-grade interviews were about home activities, outings with family members, camps, and summer school during the previous summer. Questions in other rounds of the study were not limited to the summer.
[7] In the spring of third and fourth grades, employment was asked about in a single question about whether the parent figure(s) worked part-time, full-time, were a stay-at-home parent or guardian, or not working. In other rounds of the study, multiple questions about employment and occupation were asked.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

The parent interview was conducted by telephone for most cases; 5 percent were conducted as in-person interviews. The respondent to the parent interview was usually a parent or guardian in the household who identified himself or herself as the person who knew the most about the child's care, education, and health. During the spring fifth-grade data collection round, interviewers attempted to complete the parent interview with the same respondent who had completed the parent interview in the previous rounds. Another parent or guardian in the household who knew about the child's care, education, and health was selected if the previous respondent was not available.

The parent interview was fully translated into Spanish before data collection began and was administered by bilingual interviewers if parent respondents preferred to speak in Spanish. The parent interview was not translated into other languages because it was cost prohibitive to do so. However, interviews were completed with parents who spoke other languages by using an interpreter who translated the English version during the interview.

2.1.4 General Classroom Teacher Questionnaires

Teacher questionnaires were completed in the spring fifth-grade data collection (spring 2016) by one or more of each child's classroom teachers as described below. The purposes of these questionnaires were (1) to gather information about the classroom environments and experiences that may relate to children's academic and social development and (2) to obtain information from the teacher's perspective about the child's academic and social development.

The ECLS-K:2011 made a major change in its approach to collecting the teacher questionnaire data starting in fourth grade. This procedure was described in the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) User's Manual for the ECLS-K:2011 Kindergarten–Fourth Grade Data File and Electronic Codebook, Public Version* (NCES 2018-032) (Tourangeau et al. 2018b) and is repeated here as a convenience for data file users. In general, as children move into the upper elementary grades, more than one teacher is involved in a given child's instruction. Although in some schools children may have one teacher who teaches them all subjects, it becomes more common for children in upper elementary grades to have different teachers for at least a few subject areas, such as reading and language arts, mathematics, science, and/or social studies. There are variations of this model with multiple teachers providing instruction implemented in schools. For example, students may have had a different teacher for each subject taught or they may have had one primary teacher for most subjects and a single other teacher for one subject (e.g., science). In short, it cannot be assumed that each ECLS-K:2011 child had *only one* regular classroom teacher who could respond to questions about the instruction of all subjects and the child's performance in all subjects.

In order to accommodate this variation in organization for instruction, for the spring 2015 fourth-grade and spring 2016 fifth-grade data collections, the same approach for collecting the teacher questionnaire data that was used in the fifth-grade round of the ECLS-K was followed. All sampled children had their reading teacher identified, and that teacher was asked to complete questionnaires. Information was also collected from children's mathematics and science teachers. To reduce the response burden on teachers, half of the sampled children were randomly assigned to have their mathematics teacher complete questionnaires, while the other half of the sampled children were randomly assigned to have their science teacher complete questionnaires. Thus, every child had a reading teacher and either a mathematics or a science teacher identified for him or her. If a child had the same teacher for both reading and mathematics (for those selected for the mathematics teacher questionnaire) or for both reading and science (for those selected for the science teacher questionnaire), that same teacher was asked to provide information on both subjects. The random assignment to have a mathematics or science teacher complete a questionnaire was conducted in the fourth-grade data collection and used again in the fifth-grade data collection. Thus, if a child was selected to have the mathematics teacher complete a questionnaire in the fourth grade, the child was also selected to have the mathematics teacher complete a questionnaire in the fifth grade.

All identified teachers received a self-administered teacher-level questionnaire that collected information about the teacher. Teachers were also asked to complete another questionnaire with questions about the study child and the teachers' classrooms. This second questionnaire had many items tailored to the specific subject (reading, mathematics, or science) the teachers taught to study children.

Teacher Questionnaire, Teacher Level

The teacher-level teacher questionnaire asked teachers to provide information on the subjects he or she taught, use of class time by subject area, school climate, the teacher's sense of efficacy and job satisfaction, and background information (e.g., education, certification, teaching experience). In the exhibits below, content included in the teacher-level questionnaire is marked with "A8" for the spring of fourth grade and "A9" for the spring of fifth grade. The character "A" is the first character in the names of variables included on the data file that contain information collected through the teacher-level questionnaire.

Teacher Questionnaire, Child and Classroom Level

The child- and classroom-level questionnaire consisted of two parts: part 1 containing child-specific questions and part 2 containing classroom-specific questions. Separate questionnaires were developed for reading teachers, for mathematics teachers, and for science teachers.

Part 1: Child-specific questions. Each teacher was asked to answer questions about a specific ECLS-K:2011 study child in their classroom in part 1 of the child- and classroom-level questionnaire. If a teacher had multiple ECLS-K:2011 study children in his or her classroom, the teacher received different questionnaires for each child and was asked to complete the questions in Part 1 for each child. The questionnaires for mathematics and science teachers contained only a few child-level questions specifically related to mathematics or science, respectively. Because each child's reading teacher completed a child- and classroom-level teacher questionnaire, the reading teacher was asked to answer additional child-level questions that were not included in the mathematics and science teacher questionnaires. Specifically, the reading teacher questionnaire contained questions related not only to reading but also to the child's academic and social skills, classroom behaviors, and peer relationships. There were also questions in all three reading, mathematics, and science teacher questionnaires asking for child-specific instructional information (for example, instructional group placement and additional services the child receives).

Part 2: Classroom-specific questions. The questions in the classroom section of the child- and classroom-level teacher questionnaire pertained to the reading, mathematics, or science class in which the sampled student was taught. Specifically, teachers were asked to indicate how much time was spent on specific skills and activities in that subject area, and to answer questions on instruction and grading practices, behavioral issues, and homework assignments.

Since one teacher could instruct multiple study children in the same class and would be given multiple child- and classroom-level questionnaires, data collection procedures were implemented to minimize teacher burden by not asking teachers to answer questions about the same class for multiple children. One "key child" was identified for each subject and class. Teachers were asked to complete the classroom-level questions in Part 2 of the questionnaire only for the "key child." Part 2 questions were left unanswered in questionnaires for other students in the same class as the "key child." If a teacher taught more than one section/class containing an ECLS-K:2011 student for a given subject, a "key child" was identified for each of the sections/classes, and the teacher was asked to complete the classroom questions in part 2 about each of the sections/classes.

The classroom-specific questions focused on the concepts and skills in each subject area. The ECLS-K:2011 items that asked teachers about reading and mathematics in the kindergarten data collections came from the ECLS-K. The reading and mathematics concepts and skills asked of teachers in later rounds of the ECLS-K:2011 were based on the Common Core State Standards.[6] Beginning in fourth grade, the parallel items in the science teacher questionnaire relied on the Next Generation Science

[6] See www.corestandards.org for further information. An effort led by state governors and state commissioners of education to develop the Common Core State Standards for kindergarten through grade 12 was begun in 2009, through the National Governors Association Center for Best Practices and the Council of Chief State School Officers.

Standards.[7] These two sets of standards are nationally recognized and were developed collaboratively by state departments of education and subject-matter specialists. The classroom-level questions also gathered information on instruction and grading practices, classroom behavioral issues, and homework assignments in the key child's classroom.

In the exhibits below, content included in the child- and classroom-level questionnaires is marked with "G8" (reading), "M8" (mathematics), and/or "N8" (science) in the spring of fourth grade and "G9" (reading), and "M9" (mathematics), and/or "N9" (science) in the spring of fifth grade. The character G, M, or N is the first character in the names of variables included on the data file that contain information collected through the child- and classroom-level questionnaires provided to reading teachers, mathematics teachers, and science teachers, respectively.

Taken together, the content of the various teacher questionnaires in the spring 2014 third-grade, the spring 2015 fourth-grade, and the spring 2016 fifth-grade teacher questionnaires are much the same. The topics were reorganized across the child- and classroom-level teacher questionnaires in the fourth and fifth grades.

Only one classroom-level item was added to the fifth-grade teacher questionnaires that did not appear in the fourth grade. The fifth-grade reading teacher was asked about the use of a school library or media center. This item had appeared in the kindergarten, first-grade, and third-grade questionnaires.

Classroom-level items related to formal assessments in reading, mathematics, and science continued to be asked in fifth grade. However, to make room for questions about parental involvement, some of the classroom-level items related to Response to Intervention programs were eliminated in the fifth-grade questionnaires:

- Specialists or special education teachers providing direct instructions to students who are struggling or at risk of failure in reading/mathematics/science;
- Views on the school's benchmarks and criteria in reading/mathematics/science performance;
- Support received for reading/mathematics/science instruction; and

[7] See www.nextgenscience.org for further information. The Next Generation Science Standards (NGSS) is a multi-state effort to create new science education standards for grades K-12 that are grounded in the most current research on science and scientific learning, which was outlined in the report *Framework for K-12 Science Education* that was released in 2011 from the National Academies of Science, a non-governmental organization whose mission is to advise the nation on scientific and engineering issues. In 2013, the NGSS were released for states to consider for adoption.

- Support received for delivery of effective behavioral supports, collection and management of assessment data, and use of assessment data to guide instruction.

Several child-level items on parental involvement were added to the fifth-grade reading, mathematics, and science teacher questionnaires. Although these items did not appear in the fourth-grade questionnaires, they had been included in the child-level teacher questionnaire in kindergarten, first grade, and second grade. The parental involvement items added in fifth grade included the following:

- Parent participation in specific activities,
- Teacher's communication with the child's parents, and
- Purposes of communications with parents.

One more child-level item was added to the fifth-grade reading teacher questionnaire. The child's reading teacher was asked whether the child received special accommodations (e.g., for a disability or limited English proficient) to participate in the school's testing or assessment program. This item had been included in the child-level teacher questionnaire in the earlier grades of the study (kindergarten, first grade, second grade) but not in third or fourth grade. No child-level topics asked in previous rounds were eliminated from the fifth-grade questionnaires.

Child-level child behavior topics were added based on discussions with experts who participated in a Technical Review Panel meeting in November of 2013. New child-level topics added for fourth and fifth grades included:

- student's school liking and avoidance,
- teacher ratings of child's peer group, and
- student's social skills with peers.

Exhibits 2-4 and 2-5 show the teacher- and child-level topics addressed in the kindergarten through fifth-grade teacher- and child-level questionnaires, respectively, by data collection round. As noted in text above, abbreviations in the fourth-grade and fifth-grade columns (which are defined in the notes to the tables and which match the relevant data file prefix) indicate in which of the fourth-grade and fifth-grade teacher questionnaires a particular topic was addressed. Although the same topics are included across rounds, the actual items can vary by data collection round.

Exhibit 2-4. General classroom teacher teacher-level questionnaire topics, by round of data collection in the ECLS-K:2011: School years: 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Teacher-level questionnaire topics	Fall kindergarten	Spring kindergarten	Spring first grade (first-grade version)	Spring first grade (kindergarten version)	Spring second grade	Spring third grade	Spring fourth grade[1]	Spring fifth grade[2]
Classroom and student characteristics	X	X	X	X	X	X	G8/M8/N8	G9/M9/N9
Class type (half day or full day)	X	X						
Class organization and resources,	X	X	X	X	X	X		
Availability of computers, Internet			X	X	X	X		
Use of technology			X	X	X	X	G8/M8/N8	G9/M9/N9
Instructional activities		X	X	X	X	X	A8/G8/M8/N8	A9/G9/M9/N9
Instruction for English language learners	X	X	X	X	X			
Content coverage for language arts		X	X	X	X	X[4]	G8	G9
Content activities for reading and language arts		X		X			G8	G9
Content coverage for mathematics		X	X	X	X	X[4]	M8	M9
Content activities for mathematics		X		X			M8	M9
Content coverage for science		X	X	X	X	X[4]	N8	N9
Content activities for science							N8	N9
Activities and resources related to Response to Intervention programs			X	X	X	X	G8/M8/N8	G9/M9/N9
Teacher evaluation and grading practices		X	X	X	X	X	A8	A9

See notes at end of exhibit.

Exhibit 2-4. General classroom teacher teacher-level questionnaire topics, by round of data collection in the ECLS-K:2011: School years: 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016—Continued

Teacher-level questionnaire topics	Fall kinder-garten	Spring kinder-garten	Spring first grade (first-grade version)	Spring first grade (kinder-garten version)	Spring second grade	Spring third grade	Spring fourth grade[1]	Spring fifth grade[2]
Parent involvement		X	X	X	X	X	A8	A9
Meeting with other teachers		X						
Respect from and cooperation with other teachers		X	X	X	X	X		
Opportunities for professional development	X	X	X	X	X	X	G8/M8/N8	G9/M9/N9
Teacher's views on teaching, school climate, and environment	X	X	X	X	X	X	A8	A9
Teacher's experience, education, and background	X	X[3]	X	X	X	X	A8	A9

[1, 2] For grades 4 and 5, teacher questionnaires were reorganized by subject area, which resulted in a mix of teacher-level and child-level content within the three subject area questionnaires. To indicate the location of the identified content within questionnaires, the columns for fourth- and fifth-grade indicate the name of the questionnaire(s) by using the data file prefix appropriate to the file in which the data can be found. The prefix for each data file, corresponding to its questionnaire, is as follows:
For fourth grade:
A8: Spring 2015 Fourth-Grade Teacher Questionnaire
G8: Spring 2015 Fourth-Grade Reading and Language Arts Teacher Questionnaire
M8: Spring 2015 Fourth-Grade Mathematics Teacher Questionnaire
N8: Spring 2015 Fourth-Grade Science Teacher Questionnaire
For fifth grade:
A9: Spring 2016 Fifth-Grade Teacher Questionnaire
G9: Spring 2016 Fifth-Grade Reading and Language Arts Teacher Questionnaire
M9: Spring 2016 Fifth-Grade Mathematics Teacher Questionnaire
N9: Spring 2016 Fifth-Grade Science Teacher Questionnaire
[3] In the spring of kindergarten, teachers new to the study were asked to complete a supplemental teacher-level questionnaire in order to collect information on their experience, education, and background that had been collected from other teachers in the fall. Teachers who provided information in the fall were not asked the same questions again in the spring.
[4] In spring third grade, these items were contained in a separate questionnaire to facilitate obtaining responses from multiple teachers, if applicable.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

Exhibit 2-5. General classroom teacher child-level questionnaire topics, by round of data collection in the ECLS-K:2011: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Child-level questionnaire topics	Fall kinder-garten	Spring kinder-garten	Fall first grade	Spring first grade	Spring first grade (kinder-garten version)	Fall second grade	Spring second grade	Spring third grade	Spring fourth grade[1]	Spring fifth grade[1]
Student and enrollment information	X	X	X	X	X	X	X	X	G8/ M8/N8	G9/ M9/N9
Summer assignments			X			X				
Language and literacy skills and knowledge	X	X	X	X	X	X				
Mathematical thinking skills and knowledge	X	X		X	X					
Science skills and knowledge		X		X						
Overall academic rating		X		X						
Overall academic rating, by subject							X	X	G8/ M8/N8	G9/ M9/N9
Social skills	X	X	X	X	X	X	X		G8	G9
Approaches to learning	X	X	X	X	X	X	X		G8	G9
Attention focusing and inhibitory control	X	X		X	X		X		G8	G9
School liking and avoidance									G8	G9
Student-teacher relationship		X		X	X		X			
Peer relationships								X	G8	G9
Peer victimization (child as victim and child as aggressor)							X	X	G8	G9
Working memory								X		
Specialized programs and services for the child		X		X	X		X	X	G8/ M8/N8	G9/ M9/N9
Prediction of child's ultimate educational attainment				X	X		X			

See notes at end of exhibit.

Exhibit 2-5. General classroom teacher child-level questionnaire topics, by round of data collection in the ECLS-K:2011: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016—Continued

Child-level questionnaire topics	Fall kinder-garten	Spring kinder-garten	Fall first grade	Spring first grade	Spring first grade (kinder-garten version)	Fall second grade	Spring second grade	Spring third grade	Spring fourth grade[1]	Spring fifth grade[1]
Parent involvement		X		X	X		X	X	G8	G9/ M9/N9
Child's primary teacher in reading, mathematics, science, and social studies[2]				X	X		X	X	G8/ M8/N8	G9/ M9/N9

[1] For grades 4 and 5, teacher questionnaires were reorganized by subject area, which resulted in a mix of teacher-level and child-level content within the three subject area questionnaires. To indicate the location of the identified content within questionnaires, the columns for fourth- and fifth-grade indicate the name of the questionnaire(s) by using the data file prefix appropriate to the file in which the data can be found. The prefix for each data file, corresponding to its questionnaire, is as follows:
For fourth grade:
A8: Spring 2015 Fourth-Grade Teacher Questionnaire
G8: Spring 2015 Fourth-Grade Reading and Language Arts Teacher Questionnaire
M8: Spring 2015 Fourth-Grade Mathematics Teacher Questionnaire
N8: Spring 2015 Fourth-Grade Science Teacher Questionnaire
For fifth grade:
A9: Spring 2016 Fifth-Grade Teacher Questionnaire
G9: Spring 2016 Fifth-Grade Reading and Language Arts Teacher Questionnaire
M9: Spring 2016 Fifth-Grade Mathematics Teacher Questionnaire
N9: Spring 2016 Fifth-Grade Science Teacher Questionnaire
[2] The teacher who responded to the child-level teacher questionnaire was asked to indicate for each of these subject areas whether he or she was the child's primary teacher for the subject.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

2.1.5 Special Education Teacher Questionnaires

As was done in each year from kindergarten through fourth grade, a set of special education teacher questionnaires was completed in the spring of the fifth-grade year for each participating child with an Individualized Education Program (IEP) or equivalent program on record with the school. The respondent to the questionnaire could have been a staff member identified as the child's special education teacher, a related service provider if the child was not taught by a special education teacher, or the child's general classroom teacher if that teacher provided all of the child's education and services required by the IEP. Two self-administered hard-copy instruments were used, a teacher-level questionnaire and a child-level questionnaire.

The special education teacher-level questionnaire collected information on the special education teacher's background, education, teaching experience, teaching position, and caseload. The special education child-level questionnaire addressed the following topics: current services received through an IEP, child's disabilities (primary disability and all those for which the child received services), IEP goals and whether the child was meeting those goals, classroom placement, expectations regarding general education goals, the special education teacher's communication with other teachers and the child's parents, grade placement, and participation in assessments.

The same items appeared in both the fourth-grade and fifth-grade special education teacher questionnaires. Exhibit 2-6 shows the topics addressed in the kindergarten through fifth-grade special education teacher-level and child-level questionnaires by data collection round.

Exhibit 2-6. Special education teacher questionnaire topics, by round of data collection in the ECLS-K:2011: Spring 2011, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016

Special education teacher questionnaire topics	Spring Kinder-garten	Spring first grade	Spring second grade	Spring third grade	Spring fourth grade	Spring fifth grade
Teacher-level topics						
Teacher characteristics	X	X	X	X	X	X
Teacher education and experience	X	X	X	X	X	X
Teacher position, assignment, and caseload	X	X	X	X	X	X
Child-level topics						
Prekindergarten services received through an Individualized Education Program (IEP)	X					
Current services received through an IEP	X	X	X	X	X	X
Child's disabilities (primary disability and those for which services have been received)	X	X	X	X	X	X
Goals of the child's IEP and extent to which goals have been met	X	X	X	X	X	X
Classroom placement	X	X	X	X	X	X
Special education teacher's communication with other teachers and the child's parents	X	X	X	X	X	X
Expectations regarding general education goals	X	X	X	X	X	X
Grade placement		X	X	X	X	X
Participation in assessments	X	X	X	X	X	X

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2011, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

2.1.6 School Administrator Questionnaires

There was a single version of the school administrator questionnaire for fifth grade. In first grade through fourth grade, there were two versions of the school administrator questionnaire: (1) a version for schools that were new to the study or for which a completed school administrator questionnaire was not received in a prior data collection and (2) a shorter version for schools for which a school administrator questionnaire had been completed in a prior year. Using a single version in fifth grade provided an opportunity to obtain the full set of school-level data for all schools for the final data collection round of the study.

The school administrator questionnaire was a hard-copy paper questionnaire completed by the school principal/administrator and/or his or her designee during the spring data collection round of the fifth-grade year. The school administrator questionnaire addressed the following topics: school characteristics; school-family-community connections; school policies and practices; school programs for particular populations (language minority children and children with special needs); federal programs; staffing and teacher characteristics; and school administrator characteristics and background.

The single fifth-grade school administrator questionnaire was based on the fourth-grade version for schools new to the study, which was the longer version of the two fourth-grade school administrator questionnaires. Compared with that fourth-grade questionnaire, several items were added for fifth grade. The added items were not new to the study; they had been included in one or more previous rounds of data collection. The items added to the fifth-grade school administrator questionnaire, along with the grade and questionnaire section in which they had last been included, are the following:

- Neighborhood school vs. other catchment system (kindergarten, “school characteristics”);
- Number of students that the school is designed to accommodate (second grade, “school characteristics”);
- Programs and services (e.g., before/after school care, health screenings, adult literacy program, etc.) at the school site (second grade, “school-family-community connections”);
- Hearing and vision screening services at the school site (second grade, “school-family-community connections”);
- Grade retention and promotion policies and practices (second grade, “school practices and policies); and

- Race/ethnic distribution of teaching staff (second grade, “staffing and teacher characteristics”).

Two items were omitted for fifth grade that had been asked in fourth grade in schools with an implemented Response to Intervention program:

- Number of years a Response to Intervention program had been implemented.
- Response to Intervention program information provided to parents.

Exhibit 2-7 shows the topics addressed in the kindergarten through fifth-grade school administrator questionnaires by data collection round, with separate columns for new schools and returning schools.

Exhibit 2-7. School administrator questionnaire topics, by round of data collection in the ECLS-K:2011: Spring 2011, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016

School administrator questionnaire topics	Spring kinder-garten	Spring first grade (new schools)	Spring first grade (returning schools)	Spring second grade (new schools)	Spring second grade (returning schools)	Spring third grade (new schools)	Spring third grade (returning schools)	Spring fourth grade (new schools)	Spring fourth grade (returning schools)	Spring fifth grade
School characteristics	X	X	X	X	X	X	X	X	X	X
Facilities and resources	X	X	X	X	X	X				
School-family-community connections	X	X	X	X	X	X	X	X	X	X
School policies and practices	X	X	X	X	X	X	X	X	X	X
Response to Intervention programs		X	X	X	X	X	X	X	X	X
School programs for particular populations (language minority children and children with special needs)	X	X	X	X	X	X	X	X	X	X
Federal programs	X	X	X	X	X	X	X	X	X	X
Staffing and teacher characteristics	X	X	X	X	X	X	X	X	X	X
School administrator characteristics and background	X	X	X	X	X	X	X	X	X	X

NOTE: New schools were generally asked more questions about a topic than returning schools. Although questionnaire topics were the same between new and returning schools in a given year, one exception was that the third-grade school administrator questionnaire for new schools contained questions about school facilities and resources but the third-grade school administrator questionnaire for returning schools did not have any questions on this topic.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2011, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

2.1.7 Copyrighted Materials

A number of the measures used in the ECLS-K:2011 assessment and questionnaires were taken directly or adapted from copyrighted instruments. Exhibit 2-8 lists these copyrighted instruments and identifies the copyright holder for each.

Exhibit 2-8. Copyright-protected instruments in ECLS-K:2011

Instrument	Publisher/copyright holder
Direct child assessment	
Peabody Individual Achievement Test – Revised (PIAT-R)	Pearson Education, Inc.
Peabody Picture Vocabulary Test – 3rd Edition (PPVT-III)	Pearson Education, Inc.
Test of Early Mathematics Ability – 3rd edition (TEMA-3)	PRO-ED, Inc.
Test of Early Reading Ability – 3rd edition (TERA-3)	PRO-ED, Inc.
Test of Preschool Early Literacy (TOPEL)	PRO-ED, Inc.
Woodcock-Johnson Psychoeducational Battery, Third Edition (WJ-III) – Applied Problems Test	The Riverside Publishing Company/HMH Assessments[1]
Woodcock Johnson Psychoeducational Battery, Third Edition (WJ-III) Tests of Cognitive Abilities – Numbers Reversed Task	The Riverside Publishing Company/HMH Assessments[1]
Child questionnaire	
Self Description Questionnaire I (SDQI)	Herbert Marsh
Social Anxiety Scale for Children—Revised	Annette M. La Greca
Domain-Specific Life Satisfaction Survey from the NIH Toolbox Emotion Battery	Northwestern University and the National Institutes of Health
Parent instruments	
Social Skills Rating System (SSRS)	Pearson Education, Inc.
Behavior Rating Inventory of Executive Function (BRIEF)	Psychological Assessment Resources, Inc.
Teacher instruments	
Social Skills Rating System (SSRS)	Pearson Education, Inc.
Behavior Rating Inventory of Executive Function (BRIEF)	Psychological Assessment Resources, Inc.
Teacher instruments	
Children's Behavior Questionnaire (CBQ)	Samuel Putnam and Mary Rothbart
Temperament in Middle Childhood Questionnaire (TMCQ)	Jennifer Simonds and Mary Rothbart
Student-Teacher Relationship Scale (STRS)	Robert C. Pianta
Social Skills Rating System (SSRS)	Pearson Education, Inc.
Behavior Rating Inventory of Executive Function (BRIEF)	Psychological Assessment Resources, Inc.
Child Behavior Scale	Gary W. Ladd
Classroom Environment Student Difficulties Scale	T. Abry, J. Swanson, and R. A. Fabes

[1] Riverside Publishing Company, which was associated with Houghton Mifflin Harcourt, was the copyright holder when ECLS-K:2011 made the copyright agreement. Subsequently, Riverside Publishing Company became HMH Assessments.
NOTE: There are no copyrighted items included in the questionnaires for special education teachers and school administrators.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K: 2011).

2.2 Data Collection Methods

The data collection methods used for the spring fifth-grade round of the ECLS-K:2011 were the same as those used in previous rounds, with just a few exceptions described below. Please refer to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook*, *Public Version* (NCES 2015-074) (Tourangeau et al. 2015a), for an overview of the general study procedures for school recruitment, field staff training, school contact in the fall, data collection, tracing activities, and data collection quality control.

2.2.1 Comparison of Data Collection Methods Used in Fifth Grade to Those Used in Earlier Data Collection Rounds

School recruitment. Fifth-grade school recruitment followed the same procedures used in fourth-grade school recruitment. Data collection staff team leaders[8] recruited only new transfer schools, meaning those schools to which study children moved between fourth grade and the spring of fifth grade. Recruitment was not repeated for schools that had participated in the kindergarten, first-, second-, third-, or fourth-grade years.

Field staff training. Training for the fifth-grade data collection was similar to the training for the spring fourth-grade collection. Both team leaders and assessors completed a home study prior to attending in-person training. Both team leaders and assessors were trained on the parent interview, the child assessment, and the child questionnaire during a 6-day, in-person training. Child assessment and child questionnaire training included interactive sessions, individual practice, and role plays with partners. In the spring of fifth grade, all team leaders were trained via the Learning Management System (LMS), an online learning platform that delivers and tracks assigned trainings in a browser environment. New team leaders participated in an additional 1-day, in-person training. Training for school recruiters for the fifth-grade data collection was conducted via WebEx[9] as was done in third and fourth grades.

Health technicians, who accompanied the teams into the schools to conduct the hearing evaluations, were trained in a 5-day, in-person training. For more information on the hearing evaluations component, see the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011)*

[8] The team leader is a specially trained ECLS-K:2011 staff member responsible for communicating with schools and making arrangements for assessment activities and for leading a team of assessors in each school.

[9] WebEx is an Internet-based web conferencing tool for sharing presentations in any format with an audience in multiple remote locations.

User's Manual for the Fifth-Grade Hearing Evaluations Component Data File (NCES 2019-019) (Tourangeau et al., 2019).

Advance school contact in the fall. Advance school contact procedures for fifth grade remained the same as those used in the fourth grade. The protocol for the collection of teacher information implemented in fourth grade was used again in fifth grade. Each child was linked to a reading teacher and to either a mathematics or science teacher, unlike in rounds prior to fourth grade where each child was linked to one regular classroom teacher.

Data collection. Data collection procedures used in fifth grade were the same as those used during the fourth-grade year. As described above, however, revisions were made to the instruments that had been used in the earlier rounds. As in fourth grade, a child questionnaire was administered via an audio computer-assisted self-interview (audio-CASI). The executive function component, the *Flanker* task, which was added to the fourth-grade child assessment was also included in fifth grade. The *Flanker* task measures inhibitory control. Also, the hearing evaluations component was conducted with the same subset of children originally sampled for evaluations in the fall of second grade.

Tracing activities. Tracing activities for the fifth-grade round remained the same as those used in earlier rounds.

Quality control. Quality control and validation procedures for the fifth-grade round remained the same as those used in in earlier rounds.

This page intentionally left blank.

3. ECLS-K:2011 DIRECT AND INDIRECT ASSESSMENT DATA

This chapter provides information primarily about the direct and indirect assessment data from the fifth-grade collection of the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011). The chapter begins with a description of the direct cognitive assessments, providing information about the scores available in the data file. The chapter then presents information on the executive function assessments. In fifth grade, study children completed the same three direct measures of executive function that were administered in fourth grade: a card sort task to assess cognitive flexibility, a numbers reversed task to assess working memory, and a flanker task to assess inhibitory control. Next the chapter presents information on the fifth-grade child questionnaire, which repeated some content from the fourth-grade child questionnaire but also included new content. Finally, the chapter closes with information on teacher- and parent-reported assessments of children's cognitive and socioemotional knowledge and skills.

This chapter includes information about assessment data from the kindergarten through fifth-grade rounds of data collection in three instances: when those data have been changed since their release on previous files, when new data from those rounds have been added to the kindergarten through fifth-grade (K-5) data file, and when necessary to illustrate how fifth-grade data related to a particular measure or construct differ from data related to the same measure or construct released for the earlier rounds. Information about assessments that were used in prior rounds but not in fifth grade, for example the Spanish Early Reading Skills (SERS) assessment, and about scores that were produced only for earlier rounds, such as raw number-right scores, can be found in the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook, Public Version* (NCES 2015-074) (Tourangeau et al. 2015a), hereinafter referred to as the base-year User's Manual, the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data File and Electronic Codebook, Public Version* (NCES 2015-078) (Tourangeau et al. 2015b), the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Second Grade Data File and Electronic Codebook, Public Version* (NCES 2017-285) (Tourangeau et al. 2017), the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Third Grade Data File and Electronic Codebook, Public Version* (NCES 2018-034) (Tourangeau et al. 2018a), and the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Fourth Grade Data File and Electronic Codebook, Public Version* (NCES 2018-032) (Tourangeau et al. 2018b).

3.1 Direct Cognitive Assessment: Reading, Mathematics, and Science

The direct cognitive assessments administered in each grade measured children's knowledge and skills in reading, mathematics, and science. This section presents information about the direct cognitive assessment scores available in the data file. More detailed information about the development of the scores, including a more complete discussion of item response theory (IRT) procedures, can be found in the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), Third-Grade, Fourth-Grade, and Fifth-Grade Psychometric Report* (NCES 2019-023) (Najarian et al. forthcoming). A description of the administration of the direct assessments is provided in chapter 2 of this user's manual.

It must be emphasized that the direct cognitive assessment scores described below are *not* directly comparable with those developed for the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K). Although the IRT procedures used in the analysis of data were similar in the ECLS-K and in the ECLS-K:2011, each study incorporated different items and the resulting scales are different. A set of comparable scores between the ECLS-K and the ECLS-K:2011 is under development and is scheduled for release at the end of the ECLS-K:2011 study.

3.1.1 IRT-Based Scores Developed for the ECLS-K:2011

Broad-based scores using the full set of items administered in the kindergarten, first-grade, second-grade, third-grade, fourth-grade, and fifth-grade assessments in reading, mathematics, and science were calculated using IRT procedures. IRT is a method for modeling assessment data that makes it possible to calculate an overall score for each domain measured for each child that can be compared to scores of other children regardless of which specific items a child is administered. This method was used to calculate scores for the ECLS-K:2011 because, as discussed in chapter 2, the study employed a two-stage assessment (in reading and mathematics in kindergarten and in reading, mathematics, and science in first, second, third, fourth, and fifth grades) in which children were administered a set of items appropriate for their demonstrated ability level rather than all the items in the assessment. Although this procedure resulted in children being administered different sets of items, there was a subset of items that all children received (the items in the routing tests, plus a set of items common across the different second-stage forms). These common items were used to calculate scores for all children on the same scale.

IRT also was used to calculate scores for all children on the same scale for the science assessment fielded in the spring of kindergarten even though that assessment was not two-stage. In that assessment, the assortment of items a child received was not dependent upon routing to a second stage, but instead on omissions by the child or the discontinuation of the administration of the assessment. In those cases, IRT was used to estimate the probability that a child would have provided a correct response when no response was available.

IRT uses the pattern of right and wrong responses to the items actually administered in an assessment and the difficulty, discriminating ability,[1] and "guess-ability" of each item to estimate each child's ability on the same continuous scale. IRT has several advantages over raw number-right scoring. By using the overall pattern of right and wrong responses and the characteristics of each item to estimate ability, IRT can adjust for the possibility of a low-ability child guessing several difficult items correctly. If answers on several easy items are wrong, the probability of a correct answer on a difficult item would be quite low. Omitted items are also less likely to cause distortion of scores, as long as enough items have been answered to establish a consistent pattern of right and wrong answers. Unlike raw number-right scoring, which treats omitted items as if they had been answered incorrectly, IRT procedures use the pattern of responses to estimate the probability of a child providing a correct response for each assessment question. Finally, IRT scoring makes possible longitudinal measurement of gain in achievement, even when the assessments that are administered to a child are not identical at each point, for example, when a child was administered different levels of the second-stage form in the fall and spring data collections within one year or different sets of items across grades.

3.1.1.1 Theta and the Standard Error of Measurement *(SEM)* of Theta

A theta score is provided in the ECLS-K:2011 data file for each child who participated in the direct cognitive assessment for each cognitive domain assessed and for each data collection in which the assessment was administered. The theta score[2] is an estimate of a child's ability in a particular domain (e.g., reading, mathematics, or science) based on his or her performance on the items he or she was actually administered. The theta scores are reported on a metric ranging from -4 to 4, with lower scores indicating lower ability and higher scores indicating higher ability. Theta scores tend to be normally distributed because they represent a child's latent ability and are not dependent on the difficulty of the items included within a specific test.

The standard error of theta provides a measure of uncertainty of the theta score estimate for each child. Adding and subtracting twice the standard error from the theta score estimates provides an

[1] The discriminating ability describes how well changes in ability level predict changes in the probability of answering the item correctly at a particular ability level.
[2] Theta is iteratively estimated and re-estimated and the theta score is derived from the means of the posterior distribution of the theta estimate.

approximate 95 percent confidence interval or range of values that is likely to include the true theta score. Unlike classical item theory, in which the precision of the scores is consistent across all examinees, IRT allows the standard error to vary. Larger standard errors of measurement can be the result of estimations of thetas in the extremes of the distribution (very low or very high ability) or for children who responded to a limited number of items (i.e., children who responded to all items administered generally have lower standard errors of measurement than those children responding to fewer items because more information about their actual performance is available, thereby making estimates of their ability more precise).

Unlike prior longitudinal data files, *every reading, mathematics, and science direct assessment* score on the K-5 longitudinal file has been re-estimated for each child, at each round, and in each domain, due to a modification in the calibration methodology used for the final analyses once all of the data collection was completed. In prior rounds, the method used to compute the theta scores resulted in the calculation of theta for a given round that did not change based on later administrations of the assessments. Therefore, for any given child, the theta scores provided in subsequent data files were the same as theta scores released in earlier data files.[3] This, however, is no longer the case on the K-5 longitudinal file.

As the fifth-grade round was the final round of collection, the methodology for the scaling of the reading, mathematics, and science direct child assessments was reexamined to confirm that the scores developed over the nine rounds of data collection accurately and precisely measured growth over time. Three approaches for computing scores were explored.

- ***Unconstrained scaling solution.*** The unconstrained solution, which is the methodology employed for the kindergarten through fourth-grade rounds, produces a set of separate grade-specific scales and then aligns these scales on a common metric. Data from each grade first are calibrated separately, and then the separate IRT calibrations are aligned to the base year metric via a multiple chain linking approach (Stocking and Lord, 1983). For example, data from fall and spring kindergarten were calibrated together and data from fall and spring first grade were calibrated together. Next, data from the first-grade calibration were aligned on the kindergarten scale. Such an approach imposes few restrictions on IRT item parameters for items that appear in multiple grades. It therefore preferences model-data fit at the cost of requiring large numbers of item parameters to be estimated.

- ***Constrained scaling solution.*** A second approach, *the* ***constrained scaling solution***, employs a single IRT calibration based on a pooled data set that included assessment

[3] One exception is the reading thetas provided in the base-year data file. After the kindergarten-year data collection, the methodology used to calibrate and compute reading scores changed; therefore, the reading thetas reported in the base-year file are not the same as the kindergarten reading thetas provided in the files with later-round data. Any analysis involving kindergarten reading theta scores and reading theta scores from later rounds, for example an analysis looking at growth in reading knowledge and skills between the spring of kindergarten and the spring of first grade, should use the kindergarten reading theta scores from data files released after the base year. The reading theta scores released in the kindergarten-year data file *are* appropriate for analyses involving only the kindergarten-round data; analyses conducted with only data released in the base-year file are *not* incorrect, since those analyses do not compare kindergarten scores to scores in later rounds that were computed differently.

data from every round of data collection and directly produces a set of results on a single vertically aligned scale. This is the approach that had been employed in earlier ECLS longitudinal studies (the ECLS-K and ECLS-B) and is most consistent with an interpretation of a single common vertical scale. It makes the strongest assumptions about the equality of IRT item parameters across multiple collection points. It, therefore, preferences model parsimony and scale interpretability at the cost of greater model-data misfit. The threat of greater model-data misfit comes from the assumption that a common item characteristic curve may not adequately fit the item across multiple rounds, especially for non-adjacent grades.

- ***Partially constrained scaling solution.*** A third approach, the ***partially constrained scaling solution***, represents a compromise between the grade-specific vertically aligned scales (as produced for the ECLS-K:2011 kindergarten through fourth-grade data) and a single vertical scale (as produced for the ECLS-K kindergarten through eighth-grade data). For the partially constrained scaling solution, two separate IRT calibrations were conducted – one for the combined data set from the first six rounds (fall and spring kindergarten, fall and spring first grade, and fall and spring second grade) and one for the combined data set from rounds 7 through 9 (spring third, spring fourth, and spring fifth grades). Within each of these two calibrations, separate ability distributions were estimated for each data collection round but a single common item characteristic curve was estimated for each item. The results of these two scalings were then vertically aligned using the Stocking-Lord procedure (Stocking and Lord, 1983). The partially constrained solution was intended to balance the tradeoff between model-data fit and parsimony/interpretability of the resulting scales.

For the three scaling solutions for each assessment domain, both the scale score metric and the IRT theta metric were evaluated by examining patterns of average growth, within-round correlations, and patterns of change for within-grade standard deviations. Patterns of average growth were examined to see if a single IRT metric was supported by the data in all three approaches. After placing all results separately for each domain on a common metric, patterns of average growth are nearly identical under the three approaches. Within-round correlations were considered to see if the approaches yielded similar results. The within-round correlations between scores across the three scaling approaches were near one. Patterns of change for within-grade standard deviations were examined in order to determine if the approaches showed comparable patterns of variability. If differences were observed, that would suggest compression in the vertical IRT scale under one or more approaches. In the *theta metric*, there were some differences in the pattern of change for within-grade standard deviations for mathematics and reading. These standards deviations were reduced at a steeper rate in the constrained and partially constrained solutions than was the case for the unconstrained solution, meaning some compression in the overall scale.[4] The same was not observed for the theta metric science results. For the science results, the

[4] IRT-based vertical scales may indicate that within-grade variability in test performance decreases over time, also known as "scale compression." The decreasing variability may be explained by the IRT ability estimation for low- and high-scoring students across grade-level assessments. If scale compression exists, the ability estimates are "compressed" toward the mean, resulting in higher estimates of ability for the lower-ability students and lower estimates of ability for the higher-ability students. This compression may result in estimates of growth for students in the tails of the ability distribution that are higher or lower than expected. The constrained and partially-constrained solutions, by definition, pool data

constrained and partially constrained standard deviations remained similar to the unconstrained approach, meaning the science constrained and unconstrained approaches showed less scale compression than was the case in reading and math. For all three subject areas, in the scale score metric little evidence of any difference across scaling approaches in the magnitude or pattern of change in standard deviation was evident. The shapes of the theta distributions in all but reading[5] were quite similar and, for all three subject areas, were very similar in the scale score metric. Despite the similarity of distribution shapes across scaling for most data collection rounds and subjects, there are individual instances of scale shrinkage and compression as a function of scaling approach.

Based on these findings, the partially constrained solution results were selected for the final scores. This solution is less restrictive than the single vertical scale but provides a more parsimonious summarization of the regularities in the data than using grade-specific scales. Compared to the unconstrained solution, the partially constrained approach is better supported by the data structures (i.e., targeted blocks administered over multiple grades and, therefore, more and better data are available for item parameter estimation), and is more consistent with the intended interpretation of a vertical scale. See the *ECLS-K:2011 Third-Grade, Fourth-Grade, and Fifth-Grade Psychometric Report* (Najarian et al. forthcoming) for details.

Tables 3-1 and 3-2 list the names of the variables pertaining to the reading, mathematics, and science IRT theta scores and standard errors of measurement available in the data file, along with the variable descriptions, value ranges, weighted means, and standard deviations.[6] As can be seen in the tables, theta scores are available for all data collection rounds for reading and mathematics. For science, theta scores are available for all rounds except the fall of kindergarten; the science assessment was not included in that first round of data collection. The variable names and descriptions end with K5, indicating these are scores released on the kindergarten–fifth grade (K–5) longitudinal data file.

Because the recomputed kindergarten, first-grade, second-grade, third-grade, and fourth-grade theta scores are available in the kindergarten through fifth-grade data file, it is recommended that researchers conduct any new analyses with the recomputed kindergarten theta scores using this file. This

---

across grade levels and thus the overall theta abilities may be compressed within grade level but also by possible compression to the overall mean. In the ECLS-K:2011 estimates, comparison of the scales across solutions did not show a significant compression in scale.

[5] Small average differences (0.1 to 0.2 of a standard deviation) in the reading theta metric were observed across all rounds from fall kindergarten through spring fourth grade. In spring of fifth grade, the average difference in the reading theta metric is closer to 0.3 of a standard deviation. In math and science, the average differences in the theta metric were near 0.1 of a standard deviation or less in across all rounds.

[6] The name and description for each variable in the tables begin with an "X," indicating that it is a derived/calculated variable, and a data collection round number (1 for the fall kindergarten round, 2 for the spring kindergarten round, 3 for the fall first-grade round, 4 for the spring first-grade round, 5 for the fall second-grade round, 6 for the spring second-grade round, 7 for the spring third-grade round, and 8 for the spring fourth-grade round, and 9 for the spring fifth-grade round). These variable naming conventions are used for all the variables mentioned in this chapter. More information about variable naming conventions can be found in chapter 7.

recommendation does not imply that analyses using the previous data file are incorrect or any less valid. Any new analyses using the kindergarten through fifth-grade data file would include more precise estimates of child abilities and item parameters since all of the available assessment data was used in developing those estimates. For more information on the methods used to calculate theta scores, see the *ECLS-K:2011 Third-Grade, Fourth-Grade, and Fifth-Grade Psychometric Report* (Najarian et al. forthcoming).

Table 3-1. Direct cognitive assessment: Item Response Theory (IRT) theta scores, fall and spring kindergarten, fall and spring first-grade, fall and spring second-grade, spring third-grade, spring fourth-grade, and spring fifth-grade assessments: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Variable	Description	*n*	Range of possible values	Weighted mean	Standard deviation
X1RTHETK5	X1 READING THETA-K5	15,669	-4.0–+4.0	-1.24	0.792
X2RTHETK5	X2 READING THETA-K5	17,186	-4.0–+4.0	-0.29	0.660
X3RTHETK5	X3 READING THETA-K5	5,194	-4.0–+4.0	0.05	0.584
X4RTHETK5	X4 READING THETA-K5	15,115	-4.0–+4.0	0.55	0.493
X5RTHETK5	X5 READING THETA-K5	4,725	-4.0–+4.0	0.72	0.402
X6RTHETK5	X6 READING THETA-K5	13,837	-4.0–+4.0	0.94	0.360
X7RTHETK5	X7 READING THETA-K5	12,866	-4.0–+4.0	1.12	0.300
X8RTHETK5	X8 READING THETA-K5	12,074	-4.0–+4.0	1.29	0.295
X9RTHETK5	X9 READING THETA-K5	11,427	-4.0–+4.0	1.45	0.346
X1MTHETK5	X1 MATH THETA-K5	15,595	-4.0–+4.0	-1.15	0.702
X2MTHETK5	X2 MATH THETA-K5	17,143	-4.0–+4.0	-0.40	0.626
X3MTHETK5	X3 MATH THETA-K5	5,222	-4.0–+4.0	-0.03	0.594
X4MTHETK5	X4 MATH THETA-K5	15,103	-4.0–+4.0	0.51	0.554
X5MTHETK5	X5 MATH THETA-K5	4,729	-4.0–+4.0	0.68	0.523
X6MTHETK5	X6 MATH THETA-K5	13,830	-4.0–+4.0	1.04	0.528
X7MTHETK5	X7 MATH THETA-K5	12,866	-4.0–+4.0	1.42	0.462
X8MTHETK5	X8 MATH THETA-K5	12,080	-4.0–+4.0	1.64	0.464
X9MTHETK5	X9 MATH THETA-K5	11,426	-4.0–+4.0	1.83	0.464
X2STHETK5	X2 SCIENCE THETA-K5	16,936	-4.0–+4.0	-0.60	0.737
X3STHETK5	X3 SCIENCE THETA-K5	5,180	-4.0–+4.0	-0.32	0.809
X4STHETK5	X4 SCIENCE THETA-K5	15,072	-4.0–+4.0	0.13	0.786
X5STHETK5	X5 SCIENCE THETA-K5	4,724	-4.0–+4.0	0.40	0.750
X6STHETK5	X6 SCIENCE THETA-K5	13,819	-4.0–+4.0	0.75	0.730
X7STHETK5	X7 SCIENCE THETA-K5	12,856	-4.0–+4.0	1.18	0.650
X8STHETK5	X8 SCIENCE THETA-K5	12,069	-4.0–+4.0	1.53	0.620
X9STHETK5	X9 SCIENCE THETA-K5	11,419	-4.0–+4.0	1.87	0.659

NOTE: Fall kindergarten estimates (X1) and spring kindergarten estimates (X2) estimates are weighted by W1C0. Fall first-grade estimates (X3) are weighted by W3CF3P_30, and spring first-grade estimates (X4) are weighted by W4CS4P_20. Fall second-grade estimates (X5) are weighted by W6CF6P_2A0, and spring second-grade estimates (X6) are weighted by W6CS6P_20. Spring third-grade estimates (X7) are weighted by W7C7P_20. Spring fourth-grade estimates (X8) are weighted by W8C8P_20. Spring fifth-grade estimates (X9) are weighted by W9C9P_20. The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

Table 3-2. Direct cognitive assessment: Item Response Theory (IRT) standard errors of measurement *(SEM),* fall and spring kindergarten, fall and spring first-grade, fall and spring second-grade, spring third-grade, spring fourth-grade, and spring fifth-grade assessments: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Variable	Description	*n*	Range of possible values	Weighted mean	Standard deviation
X1RSETHK5	X1 READING STD ERR OF THETA-K5	15,669	0.0–3.0	0.30	0.083
X2RSETHK5	X2 READING STD ERR OF THETA-K5	17,186	0.0–3.0	0.20	0.080
X3RSETHK5	X3 READING STD ERR OF THETA-K5	5,194	0.0–3.0	0.16	0.061
X4RSETHK5	X4 READING STD ERR OF THETA-K5	15,115	0.0–3.0	0.12	0.040
X5RSETHK5	X5 READING STD ERR OF THETA-K5	4,725	0.0–3.0	0.11	0.023
X6RSETHK5	X6 READING STD ERR OF THETA-K5	13,837	0.0–3.0	0.11	0.016
X7RSETHK5	X7 READING STD ERR OF THETA-K5	12,866	0.0–3.0	0.11	0.010
X8RSETHK5	X8 READING STD ERR OF THETA-K5	12,074	0.0–3.0	0.11	0.016
X9RSETHK5	X9 READING STD ERR OF THETA-K5	11,427	0.0–3.0	0.13	0.030
X1MSETHK5	X1 MATH STD ERR OF THETA-K5	15,595	0.0–3.0	0.28	0.055
X2MSETHK5	X2 MATH STD ERR OF THETA-K5	17,143	0.0–3.0	0.24	0.036
X3MSETHK5	X3 MATH STD ERR OF THETA-K5	5,222	0.0–3.0	0.23	0.037
X4MSETHK5	X4 MATH STD ERR OF THETA-K5	15,103	0.0–3.0	0.21	0.030
X5MSETHK5	X5 MATH STD ERR OF THETA-K5	4,729	0.0–3.0	0.20	0.032
X6MSETHK5	X6 MATH STD ERR OF THETA-K5	13,830	0.0–3.0	0.19	0.023
X7MSETHK5	X7 MATH STD ERR OF THETA-K5	12,866	0.0–3.0	0.20	0.022
X8MSETHK5	X8 MATH STD ERR OF THETA-K5	12,080	0.0–3.0	0.21	0.034
X9MSETHK5	X9 MATH STD ERR OF THETA-K5	11,426	0.0–3.0	0.19	0.038
X2SSETHK5	X2 SCIENCE STD ERR OF THETA-K5	16,936	0.0–3.0	0.71	0.081
X3SSETHK5	X3 SCIENCE STD ERR OF THETA-K5	5,180	0.0–3.0	0.51	0.073
X4SSETHK5	X4 SCIENCE STD ERR OF THETA-K5	15,072	0.0–3.0	0.48	0.059
X5SSETHK5	X5 SCIENCE STD ERR OF THETA-K5	4,724	0.0–3.0	0.45	0.065
X6SSETHK5	X6 SCIENCE STD ERR OF THETA-K5	13,819	0.0–3.0	0.43	0.051
X7SSETHK5	X7 SCIENCE STD ERR OF THETA-K5	12,856	0.0–3.0	0.39	0.084
X8SSETHK5	X8 SCIENCE STD ERR OF THETA-K5	12,069	0.0–3.0	0.40	0.067
X9SSETHK5	X9 SCIENCE STD ERR OF THETA-K5	11,419	0.0–3.0	0.37	0.083

NOTE: Fall kindergarten estimates (X1) and spring kindergarten estimates (X2) are weighted by W1C0. Fall first-grade estimates (X3) are weighted by W3CF3P_30, and spring first-grade estimates (X4) are weighted by W4CS4P_20. Fall second-grade estimates (X5) are weighted by W6CF6P_2A0, and spring second-grade estimates (X6) are weighted by W6CS6P_20. Spring third-grade estimates (X7) are weighted by W7C7P_20. Spring fourth-grade estimates (X8) are weighted by W8C8P_20. Spring fifth-grade estimates (X9) are weighted by W9C9P_20. The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

3.1.1.2 Scale Scores

The IRT-based overall scale score for each content domain is an estimate of the number of items a child would have answered correctly in each data collection round if he or she had been administered all of the questions for that domain that were ever administered during the study (that is, all of the 205 unique questions in the router and the three second-stage reading forms administered in kindergarten, first grade, second grade, third grade, fourth grade, and fifth grade; all of the 206 unique questions in the router and the three second-stage mathematics forms administered in kindergarten, first grade, second grade, third grade, fourth grade, and fifth grade; and all of the 130 unique items administered in the single-stage kindergarten science form and the router and three second-stage science forms in first grade, second grade, third grade, fourth grade, fifth grade).

To calculate the IRT-based overall scale score for each domain, a child's theta is used to predict a probability for each assessment item that the child would have gotten that item correct. Then, the probabilities for all the items fielded as part of the domain in every round are summed to create the overall scale score. Because the computed scale scores are sums of probabilities, the scores are not integers.

Gain scores in each domain may be obtained by subtracting the IRT scale scores at an earlier round from the IRT scale scores at a later round. For example, subtracting the fall kindergarten mathematics score from the spring kindergarten mathematics score would result in a score indicating gain across the kindergarten year. Similarly, a gain score from kindergarten entry to the end of fifth grade would be obtained by subtracting the fall kindergarten mathematics score from the spring fifth-grade mathematics score. Users should note that the scale scores are only comparable across rounds within a single data file. In other words, the scale scores for a given domain in the K–5 data file are all comparable to one other, but they are not comparable to the scale scores for that domain reported in the previously released files. The scale scores are recomputed for each file because the scale scores represent the estimated number correct for *all* items across *all* assessments administered; the total number of items in the pool expands each year as more difficult items are added to the assessments.

Scores for different subject areas are not comparable to each other because they are based on different numbers of questions and content that is not necessarily equivalent in difficulty. For example, if a child's IRT scale score in reading is higher than in mathematics, it would not be appropriate to interpret that to mean the child performs better in reading than in mathematics.

Table 3-3 provides the names of the variables pertaining to the IRT scale scores available in the data file, along with the variable descriptions, value ranges, weighted means, and standard deviations.

Table 3-3. Direct cognitive assessment: Item Response Theory (IRT) scale scores, fall and spring kindergarten, fall and spring first-grade, fall and spring second-grade, spring third-grade, spring fourth-grade, and spring fifth-grade assessments: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Variable	Description	*n*	Range of possible values	Weighted mean	Standard deviation
X1RSCALK5	X1 READING IRT SCALE SCORE-K5	15,669	0.0–205.0	53.85	11.224
X2RSCALK5	X2 READING IRT SCALE SCORE-K5	17,186	0.0–205.0	68.57	14.315
X3RSCALK5	X3 READING IRT SCALE SCORE-K5	5,194	0.0–205.0	77.03	16.715
X4RSCALK5	X4 READING IRT SCALE SCORE-K5	15,115	0.0–205.0	94.47	17.812
X5RSCALK5	X5 READING IRT SCALE SCORE-K5	4,725	0.0–205.0	101.22	17.413
X6RSCALK5	X6 READING IRT SCALE SCORE-K5	13,837	0.0–205.0	111.93	16.922
X7RSCALK5	X7 READING IRT SCALE SCORE-K5	12,866	0.0–205.0	120.66	15.331
X8RSCALK5	X8 READING IRT SCALE SCORE-K5	12,074	0.0–205.0	129.31	14.513
X9RSCALK5	X9 READING IRT SCALE SCORE-K5	11,427	0.0–205.0	136.26	15.337
X1MSCALK5	X1 MATH IRT SCALE SCORE-K5	15,595	0.0–206.0	35.21	11.479
X2MSCALK5	X2 MATH IRT SCALE SCORE-K5	17,143	0.0–206.0	49.42	13.342
X3MSCALK5	X3 MATH IRT SCALE SCORE-K5	5,222	0.0–206.0	58.01	14.110
X4MSCALK5	X4 MATH IRT SCALE SCORE-K5	15,103	0.0–206.0	72.25	15.500
X5MSCALK5	X5 MATH IRT SCALE SCORE-K5	4,729	0.0–206.0	77.41	15.950
X6MSCALK5	X6 MATH IRT SCALE SCORE-K5	13,830	0.0–206.0	89.71	17.920
X7MSCALK5	X7 MATH IRT SCALE SCORE-K5	12,866	0.0–206.0	103.70	17.802
X8MSCALK5	X8 MATH IRT SCALE SCORE-K5	12,080	0.0–206.0	112.30	17.631
X9MSCALK5	X9 MATH IRT SCALE SCORE-K5	11,426	0.0–206.0	119.45	17.339
X2SSCALK5	X2 SCIENCE IRT SCALE SCORE-K5	16,936	0.0–130.0	33.57	7.353
X3SSCALK5	X3 SCIENCE IRT SCALE SCORE-K5	5,180	0.0–130.0	36.95	9.044
X4SSCALK5	X4 SCIENCE IRT SCALE SCORE-K5	15,072	0.0–130.0	42.71	10.213
X5SSCALK5	X5 SCIENCE IRT SCALE SCORE-K5	4,724	0.0–130.0	46.63	10.722
X6SSCALK5	X6 SCIENCE IRT SCALE SCORE-K5	13,819	0.0–130.0	52.25	11.606
X7SSCALK5	X7 SCIENCE IRT SCALE SCORE-K5	12,856	0.0–130.0	59.83	11.914
X8SSCALK5	X8 SCIENCE IRT SCALE SCORE-K5	12,069	0.0–130.0	66.73	11.902
X9SSCALK5	X9 SCIENCE IRT SCALE SCORE-K5	11,419	0.0–130.0	73.38	12.743

NOTE: Fall kindergarten estimates (X1) and spring kindergarten estimates (X2) are weighted by W1C0. Fall first-grade estimates (X3) are weighted by W3CF3P_30, and spring first-grade estimates (X4) are weighted by W4CS4P_20. Fall second-grade estimates (X5) are weighted by W6CF6P_2A0, and spring second-grade estimates (X6) are weighted by W6CS6P_20. Spring third-grade estimates (X7) are weighted by W7C7P_20. Spring fourth-grade estimates (X8) are weighted by W8C8P_20. Spring fifth-grade estimates (X9) are weighted by W9C9P_20. The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, spring 2016.

3.1.2 Variables Indicating Exclusion from the Direct Assessment Due to Disability

The variables X1EXDIS, X2EXDIS, X3EXDIS, X4EXDIS, X5EXDIS, X6EXDIS, X7EXDIS, X8EXDIS, and X9EXDIS can be used to identify children who were excluded from the assessment because they needed an accommodation the study did not provide or because they had an Individualized Education Program (IEP) that indicated they could not take part in standardized assessments. These variables are coded 1, *Excluded from assessment due to disability*, for children who were excluded from the assessment for these reasons. All other children are coded 0 for variables X1EXDIS, X2EXDIS, X4EXDIS, X6EXDIS, X7EXDIS, X8EXDIS, and X9EXDIS. For the variables pertaining to the fall first-grade and fall second-grade data collections (X3EXDIS and X5EXDIS), children who were part of the subsample in those rounds and not excluded from the assessments are coded 0 and children who were not part of the subsample (and, therefore, not eligible for the assessments in these rounds) are coded as system missing.[7]

3.1.3 Choosing the Appropriate Score for Analysis

When choosing scores to use in analysis, researchers should consider the nature of their research questions, the type of statistical analysis to be conducted, the population of interest, and the audience. The sections below discuss the general suitability of the different types of scores for different analyses.

- The IRT-based theta scores are overall measures of ability. They are appropriate for both cross-sectional and longitudinal analyses. They are useful in examining differences in overall achievement among subgroups of children in a given data collection round or across rounds, as well as in analysis of correlations between achievement and child, family, and school characteristics. The fall kindergarten, spring kindergarten, fall first-grade, spring first-grade, fall second-grade, spring second-grade, spring third-grade, spring fourth-grade, and spring fifth-grade theta scores included in the K-5 data file are on the same metric. Therefore, an analyst looking at growth across the kindergarten year could, for example, subtract the fall kindergarten score from the spring kindergarten score to compute a gain score. When looking at growth from kindergarten entry to the end of fifth grade, an analyst could subtract the fall kindergarten score from the spring fifth-grade score to compute a gain score.

  The theta scores may be more desirable than the scale scores for use in a multivariate analysis because their distribution generally tends to be more normal than the distribution of the scale scores. It is recommended that analysts review the

[7] The "system missing" code appears as a blank when viewing codebook frequencies and in the ASCII data file. System missing codes (blanks) indicate that data for an entire instrument or assessment are missing due to unit nonresponse.

distributions for normality. In assessments where the number of items or number of observations is low, the normality of the distribution may be affected. In the ECLS-K:2011, the kindergarten science and kindergarten and first-grade SERS distributions deviated from normal, due to the limited number of items and observations, respectively. Additionally, in the extreme tails of the theta distributions in each domain, a combination of some extremely low-performing and some extremely high-performing children who took the assessment and the instrument itself may result in clustered estimates. By design, in order to limit the length of the assessment and the number of too easy or too difficult items any one child would be administered, the assessment does not have many items administered at the difficulty ranges in the tails. Including more items appropriate for children at the ability extremes would have required a reduction in the number of items at the range of ability of nearly all the sampled children (> 99 percent). Thus, some clustering of thetas may be observed in the extreme tails of the theta distributions.

For a broader audience of readers unfamiliar with IRT modeling techniques, the metric of the theta scores (from -4 to 4) may be less readily interpretable than the metric of the scale scores. Researchers should consider their analysis and the audience for their research when selecting between the theta and the scale score.

- The IRT-based scale scores also are overall measures of achievement. They are appropriate for both cross-sectional and longitudinal analyses. They are useful in examining differences in overall achievement among subgroups of children in a given data collection round or in different rounds, as well as in analysis looking at correlations between achievement and child, family, and school characteristics. The fall kindergarten, spring kindergarten, fall first-grade, spring first-grade, fall second-grade, spring second-grade, spring third-grade, spring fourth-grade, and spring fifth-grade scale scores included in the K-5 data file are on the same metric. Therefore, an analyst looking at growth across the kindergarten year could subtract the fall kindergarten score from the spring kindergarten score to compute a gain score. Or when looking at growth from kindergarten entry to the end of fifth grade, an analyst could subtract the fall kindergarten score from the spring fifth-grade score to compute a gain score. Results expressed in terms of scale score points, scale score gains, or an average scale score may be more easily interpretable by a wider audience than results based on the theta scores.

3.1.4 Analytic Considerations for Measuring Gains in the ECLS-K:2011

An important issue to be considered when analyzing achievement scores and gains is assessment timing: children's age at assessment, the date of assessment, and the time interval between assessments. Most sampled children were born throughout the second half of 2004 and first half of 2005, but their birth dates were not related to testing dates. As a result, children were tested at different developmental and chronological ages. Assessment dates ranged from August to December for the fall data collections, and from March to June for the spring data collections. Children assessed later in a data collection period in a particular grade level, for example in December during a fall collection, may be expected to have an advantage over children assessed earlier in the data collection period, for example in the first days or weeks of school, because they had more exposure to educational content before being assessed. Substantial differences in the intervals between assessments may also affect analysis of gain scores. Children assessed in September for the fall data collection and June for the spring data collection have more time to learn knowledge skills than do children assessed first in November and then again in March. These differences in interval may or may not have a significant impact on analysis results. In designing an analysis plan, it is important to consider whether and how differences in age, assessment date, and interval may affect the results; to look at relationships between these factors and other variables of interest; and to adjust for differences, if necessary.

When using the IRT scale scores as longitudinal measures of overall growth, analysts should keep in mind that gains made at different points on the scale have qualitatively different interpretations. Children who made gains toward the lower end of the scale, for example, in skills such as identifying letters and associating letters with sounds, are learning different skills than children who made gains at the higher end of the scale, for example, those who have gone from reading sentences to reading passages, although their gains in number of scale score points may be the same. Comparison of gains in scale score points is most meaningful for groups that started with similar initial status. One way to account for children's initial status is to include a prior round assessment score as a control variable in an analytic model. For example, the fall kindergarten scale score could be included in a model using the spring kindergarten scale score as the outcome.

3.1.5 Reliability of the ECLS-K:2011 Scores

Reliability statistics assess consistency of measurement, or the extent to which test items in a set are related to each other and to the score scale as a whole. For tests of equal length, reliability estimates can be expected to be higher for sets of items that are closely related to the underlying construct than for tests with more diversity of content. Conversely, for tests with similar levels of diversity in content, reliabilities tend to be higher for longer tests compared to shorter tests. Reliabilities range from 0 to 1.

Table 3-4 presents the reliability statistics computed for the IRT-based scores for each subject area for the fall and spring of kindergarten, the fall and spring of first grade, the fall and spring of second grade, the spring of third grade, the spring of fourth grade, and the spring of fifth grade. The reliability of the overall ability estimate, theta, is based on the variance of repeated estimates of theta for each individual child compared with total sample variance. The reliabilities calculated for theta also apply to the scores derived from the theta estimate, namely, the IRT scale scores.

Table 3-4. Reliability of Item Response Theory (IRT)-based scores (theta and scale scores), by round of data collection and domain, for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Domain	Number of items	Fall kinder-garten	Spring kinder-garten	Fall first grade	Spring first grade	Fall second grade	Spring second grade	Spring third grade	Spring fourth grade	Spring fifth grade
Reading	205	0.92	0.94	0.95	0.95	0.91	0.90	0.86	0.87	0.86
Mathematics	206	0.92	0.93	0.93	0.93	0.93	0.94	0.92	0.91	0.92
Science	130	†	0.73	0.83	0.84	0.86	0.85	0.83	0.82	0.86

† Not applicable: field test findings indicated that science knowledge and skills could not be validly and reliably assessed in the fall of kindergarten and thus were assessed beginning in spring kindergarten.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

3.1.6 Validity of the ECLS-K:2011 Scores

Evidence for the validity of the direct cognitive assessments was derived from several sources. A review of national and state performance standards, comparison with state and commercial assessments, and the judgments of curriculum experts all informed the development of the test specifications.

The content category specifications for the ECLS-K:2011 reading assessments in kindergarten through second grade are based on the 2009 Reading Frameworks for the National Assessment of Educational Progress (NAEP) (National Assessment Governing Board 2008), with the addition of basic reading skills and vocabulary categories suited for the earlier grades. Although the NAEP framework was selected for its rigorous design and its use in many years of national administrations by National Center for Education Statistics (NCES), because the NAEP assessments are administered starting in fourth grade, it was necessary to consult other sources to extend the NAEP content percentage specifications down to earlier grades. Experts in reading assessment development consulted the ECLS-K kindergarten, first-grade, third-grade, and fifth-grade reading assessment frameworks; current curriculum standards from Texas, California, New Jersey, Florida, and Virginia; and the Common Core State Standards.[8] The ECLS-K:2011 reading specifications for third grade, fourth grade, and fifth grade are built upon those developed for the earlier grades and supplemented by the fourth- and eighth-grade NAEP Reading Frameworks for 2011 (National Assessment Governing Board 2010a), as well as the third-, fourth-, and fifth-grade standards from the same five states noted.

[8] See http://www.corestandards.org for further information. An effort led by state governors and state commissioners of education to develop the Common Core State Standards for kindergarten through grade 12 was begun in 2009, through the National Governors Association Center for Best Practices and the Council of Chief State School Officers.

The ECLS-K:2011 mathematics test specifications for kindergarten through second grade are based on the frameworks developed for the ECLS-K assessments, which were based on the NAEP mathematics frameworks and extended down to earlier grades. The content of the mathematics framework is consistent with recommendations presented in the Mathematics Framework for the 2005 NAEP (National Assessment Governing Board 2004a), the National Council of Teachers of Mathematics *Principles and Standards for School Mathematics* (2000), and with state standards of California, New Jersey, Tennessee, Texas, and Virginia. These are also consistent with general findings from the National Mathematics Advisory Panel (2008). For third grade, fourth grade, and fifth grade, the content covered in the ECLS-K:2011 mathematics assessment was determined by comparing the state or national standards from Texas, Virginia, NAEP, and the National Council of Teachers of Mathematics (NCTM). Common Core State Standards were not used in the comparison since these standards are similar to the national standards set by NCTM and NAEP. As in reading, the framework in the later grades builds on the framework developed for the earlier grades, using the same sources.

The science knowledge and skills assessed in the ECLS-K:2011 were chosen based on the areas identified as being important to assess in the 1996–2005 and 2011 NAEP science frameworks (National Assessment Governing Board 2004b, 2010b). However, because the NAEP science frameworks begin in fourth grade, the science standards of six states (Arizona, California, Florida, New Mexico, Texas, and Virginia) were analyzed to find common topics that are taught at the lower grade levels. In these states and for each grade level, three or four standards were drawn from each of four common content categories (scientific inquiry, life science, physical science, and Earth and space science) and these four areas were selected as the content categories for the ECLS-K:2011 science assessment framework.

Pools of potential assessment items were developed for each content domain based on the framework or standards pertinent to the domain. An expert panel of school educators, including curriculum specialists in the subject areas, then examined the pool of items for content and framework strand design, accuracy, nonambiguity of response options, and appropriate formatting. The items were included in a field test and better performing items were selected for the final assessment battery.

3.2 Direct Cognitive Assessment: Executive Function

Executive functions are interdependent processes that work together to regulate and orchestrate cognition, emotion, and behavior and that help a child to learn in the classroom. Three measures of executive function were administered in the fifth-grade direct child assessment battery, to assess cognitive flexibility, working memory, and inhibitory control. The NIH Toolbox Flanker Inhibitory Control and Attention Task (*Flanker*) (Zelazo et al 2013), which measures inhibitory control in the context of selective visual attention, was administered for the first time in fourth grade, and then the same version of the task was administered again in the fifth grade. The *Flanker* complemented the two additional measures of executive function included in fifth grade, which were also included in the kindergarten, first-grade, second-grade, third-grade and fourth-grade assessments: the *Dimensional Change Card Sort (DCCS*) (Zelazo 2006; Zelazo et al. 2013), assessing children's cognitive flexibility, and the Numbers Reversed subtest of the *Woodcock-Johnson III* (WJ III) *Tests of Cognitive Abilities* (Woodcock, McGrew, and Mather 2001), assessing working memory. The same versions of the *DCCS* and the Numbers Reversed tasks were administered in fall and spring of the kindergarten year and fall and spring of first grade. In second grade, the *DCCS* was changed to computerized administration to remain age-appropriate through fifth grade. The same computerized version was used again in third grade, fourth grade, and fifth grade. The Numbers Reversed task remained the same across all rounds of collection, kindergarten through fifth grade.

3.2.1 *Dimensional Change Card Sort*

The *Dimensional Change Card Sort (DCCS*) (Zelazo 2006; Zelazo et al. 2013) is used to collect information on children's cognitive flexibility.

In the kindergarten and first-grade data collections, the *DCCS* was administered as a physical, table-top card sort with the items administered by a trained assessor. Beginning with the second-grade data collections, a computerized version of the *DCCS* developed for the National Institutes of Health Toolbox for the Assessment of Neurological and Behavioral Function (NIH Toolbox) was administered. The shift to a computerized version of the task was made so that the *DCCS* would remain age-appropriate through the end of data collection for ECLS-K:2011. For more information on the physical, table-top card sort task administered in kindergarten and first grade and differences between the physical version and computerized version, see chapter 3 of the *User's Manual for the Kindergarten–Second Grade Data File and Electronic Codebook, Public Version* (NCES 2017-285) (Tourangeau et al. 2017). This section describes the computerized version of the *DCCS* that was administered in the spring of fifth grade, which is the same version administered in the second-grade, third-grade, and fourth-grade rounds.

The computerized task was developed as part of the National Institutes of Health Toolbox for the Assessment of Neurological and Behavioral Function (see www.nihtoolbox.org) and is appropriate for ages 3–85 (Zelazo et al. 2013). The task had been under development during the planning phases for the earliest rounds of the ECLS-K:2011 and became available in time to be incorporated into the second-grade data collections. The NIH Toolbox Dimensional Change Card Sort Test (NIH Toolbox *DCCS*) is a task that is used across the 3 through 85 age range, but it has two different start points based on the age of the child in order to limit administration time. The NIH Toolbox *DCCS* consists of 40 trials, including 5 pre-switch trials (where children are asked to sort by one dimension, e.g., color), 5 post-switch trials (where children are asked to sort by a different dimension, e.g., shape), and 30 mixed-block trials (in which the sorting dimension, either color or shape, varies by trial). Testing conducted in the development of the NIH Toolbox *DCCS* indicated that 8-year-olds typically scored at ceiling on the pre-switch and post-switch trials. Consequently, children under age 8 begin with the pre-switch trials, and children age 8 and above begin with the mixed-block trials and are given credit in the scoring for completing the pre-switch and post-switch trials accurately.

For the ECLS-K:2011 administrations of the computerized *DCCS*, all ECLS-K:2011 children were administered the version of the NIH Toolbox *DCCS* for ages 8 years and older, regardless of their age at the time of assessment. In second grade, approximately 90 percent of the ECLS-K:2011 children in the fall subsample for second grade and approximately 40 percent of children in the spring of second grade who had a score on the *DCCS* were not yet 8 years old when the DCCS was administered. In third grade, nearly all children who participated in the *DCCS* (99.95 percent) were at least 8 years old when the *DCCS* was administered. In fourth and fifth grades, all children who participated in the DCCS were at least 8 years old when the *DCCS* was administered. The decision to administer the same version of the *DCCS* from second grade forward, regardless of whether the child was age 8, was made so that all study children would receive the same version of the *DCCS* task in second grade and in later rounds of data collection. Use of the same measure allows for a longitudinal analysis of performance on the *DCCS* from second grade into later rounds of data collection.

As noted earlier, the construct assessed in the physical version of the *DCCS* that was administered in kindergarten and first grades and the computerized version of the *DCCS* is the same—cognitive flexibility. However, the way the construct is assessed and the scoring differ across the versions. One key difference between the two versions is that the computerized version captures data on the amount of time in milliseconds that it takes the child to complete any given item; it is not possible to accurately measure reaction time at the necessary level of precision in the physical version. Therefore, the computerized version supports the use of both accuracy of sorting and reaction time to assess overall performance while the physical card sort assesses performance by accuracy alone.

In each of the 30 mixed-block trials administered via computer to children in the ECLS-K:2011 beginning in the second-grade rounds, the children were presented with a stimulus picture of a ball or truck that was either yellow or blue. A prerecorded female voice announced the sorting rule to be used for that trial ("color" or "shape") as the appropriate word "color" or "shape" was briefly displayed in the center of screen. Next, the stimulus picture was displayed in the center of screen, where the word had just appeared. Children then selected one of two pictures at the bottom of the screen (a blue ball on the left or a yellow truck on the right) that was either the same shape or the same color as the stimulus picture, depending on whether the shape or color sorting rule was in effect for the trial. Children indicated their choice of picture by pressing the arrow key on the laptop keyboard that was associated with the picture; the left arrow key was used to select the picture on the left side of the screen and the right arrow key was used to select the picture on the right side of the screen. Children were instructed to use just one pointer finger to press the arrow keys. They were asked to return their pointer finger to the button in between the left and right arrow keys (marked with a fuzzy sticker, and so identified as the "fuzzy button") in between trials to standardize the start location for every child's finger, with the goal of maximizing accuracy in the measurement of response time. Both reaction time to sort the card and accuracy of its placement according to the sorting rule in effect for the trial were recorded by the computer program.

The sorting rules (i.e., to either sort by shape or color) were intermixed across the trials, and one rule was more common than the other. The shape rule was used for 23 trials while the color rule was used in 7 trials. For example, the child may be asked to sort by shape for 4 trials in a row, then to sort by color on trial 5, and then to sort by shape on trials 6 and 7. One sorting rule was presented more frequently in order to build a response tendency (i.e., a response that is "preferred" because it happens more frequently, resulting in a predisposition to respond in that manner). A predisposition to sort by the dominant rule (i.e., shape) can result in either more errors or a slower reaction or response time on nondominant trials because it is necessary to inhibit the dominant response (i.e., sorting by shape) in order to shift to the less frequent sorting rule (i.e., color). The "cost" associated with the shift from a more frequent rule (the "dominant" rule) to a less frequent rule (the "nondominant" rule) tends to differ by the age of the participant (Davidson et al. 2006). The "cost" to younger children is that they tend to make more errors on the nondominant rule trials; that is, they do not demonstrate the cognitive flexibility to make the switch between rules even when prompted. Younger children do not tend to slow themselves down in favor of higher accuracy and, therefore, accuracy is a better metric of performance for young children (Zelazo et al. 2013). In contrast, older children and adults tend to demonstrate a speed/accuracy tradeoff; they slow down the pace at which they respond in order to maintain accuracy. Thus, the "cost" to older children and adults is seen in reaction time on the nondominant rule trials. The formula used to produce scores from the data collected by the computerized *DCCS* factors in reaction time on the infrequent or nondominant trials when a child demonstrates sufficiently accurate performance across all the test trials, defined as being accurate on more than 80 percent of the trials (Zelazo et al. 2013). Thus, the computerized *DCCS* provides a measure of performance through this developmental shift to learning to trade speed for accuracy. More information on scoring is provided below.

The 30 test trials were administered only to children who successfully completed the practice portion of the *DCCS*. The practice consisted of a minimum of 8 trials and a maximum of 24 trials, depending upon how quickly the child demonstrated that he or she understood the task. For the first set of practice trials, the assessor instructed the child how to sort by shape using text automatically presented on the *DCCS* screen that was read by the assessor along with additional standardized instructions presented by the assessor. Following the instructions, the computer administered four practice trials asking the child to sort by shape. If the child sorted at least three of the four items correctly by shape, he or she progressed to the color practice. If the child sorted more than one item in the set of four incorrectly, he or she was presented with a second set of four practice items. If the child failed to sort three of four items correctly by shape in the second set of practice items, he or she was presented a third set; failure of this third set ended the *DCCS* program before any actual scored trials were presented.

Once a child passed the shape practice trials, the assessor instructed on how to sort by color, and the computer presented 4 to 12 practice trials asking to sort by color. Like the shape practice trials, up to three sets of four items could be presented before the *DCCS* advanced to the scored trials. If the child was not able to pass the color practice, the *DCCS* program ended after the third set of color practice items, again before any actual scored trials were presented.

In contrast with the scored trials, the practice trials maintained one sorting rule for all items presented in succession until practice for the rule was complete. An additional difference between the practice and scored trials was that the stimulus pictures in the practice trials were white or brown rabbits and boats.

Item-level data for the 30 test trials are included in the data file. They are provided in three blocks of 30 items for each participant that indicate: (1) correct versus incorrect responses (C*DCCS1-C*DCCS30); (2) the type of trial, reported as dominant (most frequently presented but not included in reaction time scores; shape is the dominant sorting rule) or nondominant (less frequently presented and used to calculate reaction time scores; color is the nondominant sorting rule) (C*GAME1-C*GAME30); and (3) reaction times reported in milliseconds (C*TARGRT1-C*TARGRT30). Variable names for the item-level data begin with “C9” for spring fifth grade.

As in second, third, and fourth grades, the overall computed score reported for the fifth-grade *DCCS* is derived using a formula provided by the task developer and follows the scoring algorithm used for this task in the NIH Toolbox (see the *NIH Toolbox Scoring and Interpretation Guide*, [Slotkin, Nowinski et al. 2012], for additional information on scoring). Scores range from 0 to 10, with weight given to accuracy (0 to 5 units) and reaction time (0 to 5 units) in the computation of the scores. Accuracy is considered first. If the child's accuracy rate is less than or equal to 80 percent, the child's overall computed score is based entirely on accuracy. If the child's accuracy rate is more than 80 percent, the child's overall computed score is based on a combination of accuracy and reaction time.

The accuracy score factored into the computation of the overall score can range from 0 to 5. There are a total of 40 accuracy points that are scaled down to a maximum score of 5: for each correct response, the child earns a score of .125 (5 points divided by 40 trials). Because all children used the start point of the *DCCS* for children 8 years and older, each child was administered the 30 mixed-block trials, and each child who successfully passed the practice items was automatically given 10 accuracy points for the 5 pre-switch and the 5 post-switch trials of the *DCCS* that were not administered. Therefore, the accuracy component of the overall computed *DCCS* score is calculated as follows:

DCCS accuracy score = 0.125 * number of correct responses[9]

If the child's accuracy rate is higher than 80 percent, a reaction time score is added to the child's accuracy score.[10] Like the accuracy score, the reaction time score ranges from 0 to 5 points.

The reaction time component of the overall computed score for the computerized *DCCS* is computed using the child's median reaction time to correct nondominant trials (i.e., the trials with the less frequently used sorting rule, color), following the same scoring algorithm outlined in the scoring manual for the NIH Toolbox (Slotkin, Nowinski et al. 2012). First, for those children with greater than 80 percent accuracy on the 40 trials, the median reaction time is calculated based on reaction times for correct

---

[9] The number of correct responses = 10 + the number of correct trials out of the 30 mixed block trials. Once the child has passed the practice trials and advanced into the scored portion of the assessment, 10 accuracy points are automatically awarded due to the chosen start point for the task. For this reason, it is not possible for ECLS-K:2011 children to get an accuracy score of 0. Therefore, the minimum possible value for the DCCS accuracy score is 1.25 and the maximum possible DCCS accuracy score is 5.

[10] The criterion of *greater than* 80 percent accuracy is calculated based on all 40 trials (30 administered trials plus the 10 trials not administered). That is, 80 percent of 40 trials is 32 items. However, this can also be thought of in terms of how many items out of the 30 administered trials are required. If the criterion is 80 percent of the 40 trials, this translates to 23 of the 30 administered trials. For example, if a child responds accurately on 23 of the 30 mixed block trials, the child's accuracy rate equals 82.5 percent (10 points automatically awarded for the pre-switch and post-switch trials plus the 23 correct mixed block trials divided by 40; 33/40 = .825). In this example, the child's accuracy score would be [(10 + 23) * .125] = 4.125. Because the accuracy rate is *greater than* 80 percent, the child's reaction time score would be added to this accuracy score to obtain the overall computed score for the DCCS. Alternatively, if the child responded accurately on 22 of the 30 mixed-block trials, the child's accuracy rate would equal 80 percent and, therefore, the child's accuracy is not *greater than* 80 percent and the child's overall score would be based solely on accuracy (overall computed score = [(10 + 22) * .125] = 4).

nondominant trials with reaction times greater than or equal to 100 milliseconds (msec) and within plus or minus three standard deviations from the child's mean reaction time on the correct nondominant trials. The minimum median reaction time allowed is 500 msec; the maximum median reaction time is 3,000 msec. If the child's median reaction time falls outside this range, the child's median reaction is set to the minimum or maximum allowable range: reaction times between 100 msec and 500 msec were set to 500 msec and reaction times between 3,000 msec and 10,000 msec (the maximum trial duration) are set to 3,000 msec. A log (base 10) transformation is applied to the median reaction times to create a more normal distribution. The log values are then algebraically rescaled to a 0 to 5 range and then reversed such that faster (better) reaction times have higher values and slower reaction times have lower values. The formula for rescaling the median reaction times is the following:

$$\text{Reaction time score} = 5 - \left(5 * \left[\frac{\log RT - \log(500)}{\log(3000) - \log(500)}\right]\right)$$

where *RT* is the median reaction time on nondominant trials within set outer limits.[11]

To summarize, the overall computed score on the computerized *DCCS* is equal to the child's accuracy score if the child's accuracy rate is less than or equal to 80 percent. If the child's accuracy rate is greater than 80 percent, the child's overall computed score is equal to the child's accuracy score plus the child's reaction time score, which is derived from the child's reaction time on correct nondominant trials as described above. Additional details on the calculation of the computed score are available in the *NIH Toolbox Scoring and Interpretation Guide* (Slotkin, Nowinski, et al. 2012) and the *NIH Toolbox Technical Manual* (Slotkin, Kallen, et al. 2012).

The fall and spring second-grade, spring third-grade, spring fourth-grade, and spring fifth-grade computed scores (X5DCCSSCR, X6DCCSSCR, X7DCCSSCR, X8DCCSSCR, and X9DCCSSCR) range from 0 to 10, with weight given to accuracy (0 to 5 units) and reaction time (0 to 5 units) in the computation of the score. The overall computed score for the computerized *DCCS* can be used to examine change across rounds that use the computerized *DCCS* (i.e., performance in the fall of second grade can be directly compared to performance in the spring of second grade, the spring of third grade, the spring of fourth grade, and the spring of fifth grade).

[11] The median reaction time (*RT*) used to calculate the reaction time score falls within the range of 500 msec through 3,000 msec. Calculation of the median score requires a minimum of at least one correct nondominant trial reaction time that is greater than 100 msec. When the child reached the accuracy threshold for including the reaction time component in the scoring but did not have any within-range reaction times on correct nondominant trials, the child's overall computed score on the *DCCS* was set equal to the child's accuracy score, and reaction time was not factored into the child's score.

It is important for researchers using the *DCCS* data to be aware of the characteristics of the overall DCCS scores and determine how best to use these scores in their analyses. As noted above, the NIH-developed scoring model computes scores differently depending on sorting accuracy. The use of this scoring model with the data collected from children in the ECLS-K:2011 resulted in a non-normal distribution. For example, approximately 4 percent of children in the third-grade data collection who have a computed overall score failed to achieve greater than 80 percent accuracy. In fourth grade, this percentage was 2 percent. In fifth grade, 1 percent of children who have a computed overall score did not achieve greater than 80 percent accuracy. The score for these children is calculated based solely on accuracy. The remaining children (96 percent in third grade, 98 percent in fourth grade, and 99 percent in fifth grade) who have a computed overall score have scores calculated based on both accuracy and reaction time.

The non-normal distribution may be problematic for statistical analyses. For this reason, users may want to run analyses that do not use the overall score as is with the full sample. For example, users could conduct their analyses separately for the two groups of children so that each analysis only includes children with scores calculated in the same way, or they may decide to limit their analyses to only one group. Another option is for users to analyze all children using the score indicating accuracy alone, recognizing that this score is highly skewed, as most children were able to sort the cards with at least 80 percent accuracy. Users may also want to consider investigating alternative scoring models using the item-level accuracy and reaction time data available on the data file. The decision about how best to use the DCCS overall score in analysis is left to the user, given the research questions being addressed. Analysts may choose to examine other ways researchers have analyzed data with similar distributions, or other executive function or card sort data, in deciding how best to utilize the ECLS-K:2011 *DCCS* data.

The variable names, descriptions, value ranges, weighted means, and standard deviations for the second-, third-, fourth-, and fifth-grade *DCCS* scores are provided in table 3-5. For information on the kindergarten and first-grade scores, see the *User's Manual for the ECLS-K:2011 Kindergarten–Second Grade Data File and Electronic Codebook, Public Version* (NCES 2017-285) (Tourangeau et al. 2017) . The following scores based on the fifth-grade computerized administration are presented on the data file: overall score for spring fifth grade (X9DCCSSCR; range: 0-10); accuracy score for spring fifth grade (X9CSACC; range: 0-5) that is scaled as described above to compute the overall *DCCS* score; reaction time score for spring fifth grade (X9CSNDRT; range: 0-5) that is scaled to compute the overall *DCCS* score; count of correct, dominant trials (X9CSDAC; range: 0-23); and count of correct nondominant trials (X9CSNDAC; range: 0-7). Researchers should note that the count of correct dominant trials and the count of correct nondominant trials represent accuracy by trial type for the 30 administered trials and are different from the total accuracy score (X9CSACC, DCCS Accuracy Component [0-5] Score) that is derived to compute the overall *DCCS* computed score. Researchers should also note that the reaction time score was only computed for cases for which the accuracy score was greater than 80 percent. If the accuracy score was not greater than 80 percent, then the reaction time score was set to -9 (not ascertained).

Table 3-5. *Dimensional Change Card Sort* variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School year 2012–13, spring 2014, spring 2015, and spring 2016

Variable name	Description	*n*	Value ranges[1]	Weighted mean	Standard deviation
X5DCCSSCR	X5 Computed (Overall) Score	4,708	0–10	6.37	1.402
X6DCCSSCR	X6 Computed (Overall) Score	13,774	0–10	6.69	1.345
X7DCCSSCR	X7 Computed (Overall) Score	12,744	0–10	7.19	1.098
X8DCCSSCR	X8 Computed (Overall) Score	12,021	0–10	7.63	0.965
X9DCCSSCR	X9 Computed (Overall) Score	11,386	0–10	7.97	0.943
X5CSACC	X5 DCCS Accuracy Component (0-5) Score	4,708	0–5	4.53	0.589
X6CSACC	X6 DCCS Accuracy Component (0-5) Score	13,774	0–5	4.59	0.504
X7CSACC	X7 DCCS Accuracy Component (0-5) Score	12,744	0–5	4.72	0.356
X8CSACC	X8 DCCS Accuracy Component (0-5) Score	12,021	0–5	4.80	0.274
X9CSACC	X9 DCCS Accuracy Component (0-5) Score	11,386	0–5	4.82	0.246
X5CSNDRT	X5 DCCS Nondom RT Component (0-5) Score	4,067	0–5	2.09	0.758
X6CSNDRT	X6 DCCS Nondom RT Component (0-5) Score	12,405	0–5	2.33	0.765
X7CSNDRT	X7 DCCS Nondom RT Component (0-5) Score	12,222	0–5	2.58	0.777
X8CSNDRT	X8 DCCS Nondom RT Component (0-5) Score	11,790	0–5	2.88	0.768
X9CSNDRT	X9 DCCS Nondom RT Component (0-5) Score	11,247	0–5	3.19	0.790
X5CSDAC	X5 DCCS Dominant Trial Accuracy Count	4,708	0–23	20.19	4.468
X6CSDAC	X6 DCCS Dominant Trial Accuracy Count	13,774	0–23	20.62	3.758
X7CSDAC	X7 DCCS Dominant Trial Accuracy Count	12,744	0–23	21.53	2.535
X8CSDAC	X8 DCCS Dominant Trial Accuracy Count	12,021	0–23	22.05	1.852
X9CSDAC	X9 DCCS Dominant Trial Accuracy Count	11,386	0–23	22.18	1.638
X5CSNDAC	X5 DCCS Nondominant Trial Accuracy Count	4,708	0–7	6.08	1.128
X6CSNDAC	X6 DCCS Nondominant Trial Accuracy Count	13,774	0–7	6.11	1.100
X7CSNDAC	X7 DCCS Nondominant Trial Accuracy Count	12,744	0–7	6.21	1.011
X8CSNDAC	X8 DCCS Nondominant Trial Accuracy Count	12,021	0–7	6.33	0.926
X9CSNDAC	X9 DCCS Nondominant Trial Accuracy Count	11,386	0–7	6.40	0.865

[1] Because 10 accuracy points are automatically awarded due to the chosen start point for the task, it is not possible for ECLS-K:2011 children to obtain an accuracy score of 0. Therefore, the lowest accuracy component (0-5) score in the data file is 1.25, and the lowest computed (overall) score in the data file is also 1.25.

NOTE: Fall second-grade estimates (X5) are weighted by W6CF6P_2A0, and spring second-grade estimates (X6) are weighted by W6CS6P_20. Spring third-grade estimates (X7) are weighted by W7C7P_20. Spring fourth-grade estimates (X8) are weighted by W8C8P_20. Spring fifth-grade estimates (X9) are weighted by W9C9P_20. The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

3.2.1.1 *Dimensional Change Card Sort* Data Flags

Nine flags indicate the presence or absence of *Dimensional Change Card Sort* data. X1DCCSFLG and X2DCCSFLG indicate the presence of data for the fall and spring of kindergarten, respectively. X3DCCSFLG and X4DCCSFLG indicate the presence of first-grade data for the fall and spring, respectively; X5DCCSFLG and X6DCCSFLG indicate that data are present for the overall computed *DCCS* score (X5DCCSSCR/X6DCCSSCR) for the fall and spring of second grade, respectively; X7DCCSFLG indicates that data are present for the overall computed *DCCS* score (X7DCCSSCR) for the spring of third grade; X8DCCSFLG indicates that data are present for the overall *DCCS* score (X8DCCSSCR) for the spring of fourth grade; and X9DCCSFLG indicates that data are present for the overall *DCCS* score (X9DCCSSCR) for the spring of fifth grade.

The use of computers for the administration of the *DCCS* in second, third, fourth, and fifth grades allowed the completion flags (X5DCCSFLG, X6DCCSFLG, X7DCCSFLG, X8DCCSFLG, X9DCCSFLG) to be developed with additional detail that was not available for kindergarten and first grade. The values indicate whether the task was administered, whether the overall computed *DCCS* score is present, and, if a score is not present, the reason why it is not present. Reasons why a score is not present when the *DCCS* was administered include failing the Shape practice trials, failing the Color practice trials, and having an administrative breakoff (meaning the assessor ended the task) either before or after passing the practice trials. Administrative breakoffs could have occurred for a variety of reasons such as an external event (for example, a fire drill or the child needing to return to class) that interrupted an assessment session. Note that the Shape Game preceded the Color Game during the practice trials. There are differences between the second-grade, third-grade, fourth-grade, and fifth-grade *DCCS* flags, as explained below.

The *DCCS* flags for the fall and spring of second grade, the spring of fourth grade, and the spring of fifth grade have 6 possible values. A description of the values of these completion flags is presented in exhibit 3-1.

Exhibit 3-1. Data flag description for the computerized *Dimensional Change Card Sort* for fall and spring second grade, spring fourth grade, and spring fifth grade: School year 2012–13, spring 2015, and spring 2016

X5DCCSFLG/X6DCCSFLG/X8DCCSFLG/X9DCCSFLG	Value
Not Administered	0
DCCS computed (overall) score present	1
Failed Shape Game practice	2
Failed Color Game practice	3
Breakoff before passing practice trials	4
Breakoff after passing practice trials	5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2012, spring 2013, spring 2015, and spring 2016.

The *DCCS* flag variable for the spring of third grade, X7DCCSFLG, ranges from 0 to 7. A description of the values of the completion flag is presented in exhibit 3-2. Two additional codes not used in second, fourth, and fifth grades were added to the third-grade flag to identify a small number of cases that were affected by a programming error that occurred in the third-grade administration of the *DCCS*. This error resulted in giving children credit for a correct response when the child did not provide a response to a trial. This scoring error occurred in both the practice and test trials. Scoring errors that occurred during the test trials were corrected in the data. These errors did not affect the child's experience during the test, but only affected how the trial was recorded.

Exhibit 3-2. Data flag description for the computerized the computerized *Dimensional Change Card Sort* (DCCS) for spring third grade: Spring 2014

X7DCCSFLG	Value
Not Administered	0
DCCS computed (overall) score present	1
Failed Shape Game practice	2
Failed Color Game practice	3
Breakoff before passing practice trials	4
Breakoff after passing practice trials	5
Programming error but still passed practice, DCCS data present	6
Programming error, insufficient practice, DCCS data set to -4	7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2014.

Errors that occurred during the third-grade practice trials, however, did affect the child's experience during the test and, in some cases, resulted in insufficient opportunity for the child to demonstrate an understanding of the rules of the game. When a child did not respond to a trial in the practice, the program treated the nonresponse as a correct response and provided incorrect audio feedback to the child. The audio feedback that the child heard was "That's right," even though the child did not provide a response. If the child did not respond to a trial, the trial was supposed to be scored as incorrect, and the audio feedback was supposed to indicate that the child responded with an incorrect answer and reteach the rule. The erroneous feedback during the practice could have confused the child about the rules of the game. It is important for the child to demonstrate a clear understanding of the rules of the game in the practice trials before progressing to the test trials to ensure that performance is not a reflection of failing to understand the instructions. Under some circumstances, having nonresponse scored as correct affected what practice trials were administered.

Cases affected by the third-grade programming error were examined to determine whether they met the criteria for moving into the test trials based on the items for which they did provide a response (that is, whether they demonstrated sufficient understanding of the task despite receiving erroneous feedback). These cases, children who had at least one instance of nonresponse in the practice, are flagged as a 6 or 7 in the *DCCS* flag variable depending on whether they met the criteria. Cases that have X7DCCSFLG=6 passed the practice trials with the responses they provided during the administration of the *DCCS*. For example, a child may have had 3 correct responses and 1 nonresponse within the block of four practice trials and, thus, the criterion of responding correctly to at least 3 of 4 correct in order to proceed was still reached. As another example, the child could have had two nonresponse trials and two incorrect trials and failed the first practice set. In this case, the child would have been administered another practice block of four trials and could have passed on that set of practice trials. Cases that have the value of 6 on the *DCCS* flag are cases that successfully met the criteria for passing both the shape and color practice and advanced to the test trial, despite receiving at least one instance of erroneous feedback. There are 189 cases that have X7DCCSFLG=6, and data for these cases are provided on the data file. Additional information on this error is provided in the appendix.

Cases that have X7DCCSFLG=7 did not demonstrate sufficient understanding of the task with the responses they provided and were not given sufficient practice per the administration protocols to have their scores included in the data file. These cases were not given the opportunity to meet the criterion for passing the practice because nonresponse was incorrectly recorded as a correct response. For example, children who had 2 correct trials, 1 incorrect trial and 1 nonresponse trial (incorrectly scored as "correct") were incorrectly given credit for passing the practice, even though they only had 2 correct trials and did not meet the criterion of at least 3 of 4 correct to pass. In this example, if the program had performed correctly, the child would have been given additional training and additional opportunities to pass the practice. Because of the programming error, this did not happen and the child progressed to the test trials without truly meeting the criterion for successfully passing the practice. Because it was not possible to determine whether the children could have passed the practice if given the correct opportunities, the data were suppressed. There are 92 cases that have X7DCCSFLG=7. These cases have *DCCS* data set to -4 (suppressed due to insufficient practice).

3.2.2 Numbers Reversed

The Numbers Reversed measure assesses the child's working memory. It is a backward digit span task that requires the child to repeat an orally presented sequence of numbers in the reverse order in which the numbers are presented. For example, if presented with the sequence "3…5," the child would be expected to say "5…3." Children are given up to 5 two-number sequences. If the child gets three consecutive two-number sequences incorrect, then the Numbers Reversed task ends. If the child does not get three consecutive two-number sequences incorrect, the child is then given up to 5 three-number sequences.

The sequence becomes increasingly longer, up to a maximum of eight numbers, until the child gets three consecutive number sequences of the same length incorrect (or completes all number sequences).

Item-level data for the Numbers Reversed subtask for the fall and spring of kindergarten, first grade, and second grade, and spring of third grade, fourth grade, and fifth grade are provided in the ECLS-K:2011 K-5 data file. The maximum number of items any child could have been administered in all data collection rounds was 30 items (5 two-digit number items; 5 three-digit number items; 4 four-digit number items; 4 five-digit number items; 4 six-digit number items; 4 seven-digit number items; and 4 eight-digit number items). Each item is scored "correct" (i.e., the child correctly repeated the number sequence in reversed order), "incorrect" (i.e., the child did not correctly repeat the number sequence in reversed order), or "not administered" (i.e., the child was not administered the item because he or she did not answer enough items correctly to advance to this item). The "not administered" code is different than a system missing code in that only those children who were administered the Numbers Reversed subtask could have a "not administered" code. If a child was not administered the Numbers Reversed subtask at all, his or her case would have a missing code for the Numbers Reversed scores. Variable names for the item-level data from the fall kindergarten assessments begin with "C1," and variable names for the item-level data from the spring kindergarten assessments begin with "C2." Similarly, variable names for item-level data from the fall and spring first-grade assessments begin with "C3" and "C4," while those for fall and spring second grade and spring third grade begin with "C5," "C6," and "C7," respectively. Variable names for the item-level data from the spring fourth-grade assessment begin with "C8," and variable names for the item-level data from the spring fifth-grade assessment begin with "C9." Variable descriptions for these items indicate the length of the digit sequence (e.g., C1 Numbers Reversed Two-digit sequence #1). In addition to the item-level data, five scores developed using guidelines from the publisher's scoring materials are included in the data file for Numbers Reversed: the *W*-ability[12] score, the age standard score, the grade standard score, the age percentile score, and the grade percentile score.

Before analyzing the Numbers Reversed data, it is important that researchers understand the characteristics of these scores and how these characteristics may affect the analysis and interpretation of the Numbers Reversed data in the context of the ECLS-K:2011. Depending on the research question and analysis being conducted, one of the scores may be more preferable than another. For example, the *W* score may be best for a longitudinal analysis, whereas the age or grade percentile rank and/or age or grade standardized score may be better suited for an analysis focusing on one point in time. The descriptions below provide more information about which score may be better suited for a given analysis.[13]

[12] The *W*-ability score is a *W* score that represents the individual's level of ability on the task presented.

[13] More information on these publisher scores can be found in the *Woodcock-Johnson III Tests of Achievement Examiner's Manual: Standard and Extended Batteries* (Mather and Woodcock 2001).

The *W* score, a type of standardized score, is a special transformation of the Rasch ability scale and provides a common scale of equal intervals that represents both a child's ability and the task difficulty. The *W* scale is particularly useful for the measurement of growth and can be considered a growth scale. Typically, the *W* scale has a mean of 500 and standard deviation of 100. Furthermore, the publisher of the WJ III has set the mean to the average of performance for a child of 10 years, 0 months. This means that it would be expected that most children younger than 10 years, 0 months would obtain *W* scores lower than the mean of 500, and most older children would be expected to have scores above the mean of 500. Also, as a child develops with age, it would be expected that the child's *W* score would increase to reflect growth. For example, when a child's *W*-ability score increases from 420 to 440, this indicates growth, and this would be the same amount of growth in the measured ability as any other student who gained 20 *W* points elsewhere on the measurement scale.

As mentioned above, the *W* score is an equal-interval scale, suited for analyses such as correlations and regressions. Higher *W* scores indicate that a child provided more correct responses and generally indicate that a child was able to correctly respond to at least some longer number sequences. The *W* score accounts for only the total number of administered sequences answered correctly and does not reflect the pattern of responses, meaning the *W* score does not indicate how many of each length number sequence the child answered correctly. As noted above, the data file includes item-level data that can be used to examine patterns of response.

The *W* score for each child in the ECLS-K:2011 was determined using norming data provided by the publisher. More specifically, a sample child was assigned the *W* score from the publisher norming data that was associated with the child's raw number-right score, the child's age (in months), and the language of administration.

In kindergarten and first grade, the Numbers Reversed subtask was administered in both English and Spanish. It was administered in Spanish to children routed through the assessment battery in Spanish because they did not pass an English language screener.[14] Norming data were provided separately for English and Spanish administrations of the task. Publisher materials indicate that the *W* scores earned on English administrations of the Numbers Reversed task are comparable to *W* scores earned on Spanish administrations of the task; nevertheless, differences related to precision of measurement in the norming samples result in different *W* scores for the same raw-number right score depending on the language of administration. For example, the lowest earnable *W* score on the English administration of the Numbers Reversed task is 403 (equivalent to a raw score of 0), and the lowest earnable *W* score on the Spanish administration is 393 (equivalent to raw score of 0). While this difference in the *W* scores between English and Spanish administration is largest at the lower end of the *W* distribution, the difference occurs

[14] More information about how children's home language affected children's routing through the assessment battery in each round of data collection is provided in chapter 5 of the *ECLS-K:2011 Kindergarten Psychometric Report* (Najarian et al. 2018a).

along the entirety of the *W* distribution. For example, a raw score of 11 corresponds to a *W* score of 496 in the English administration norming data and a *W* score of 494 in the Spanish administration norming data. The data file includes one *W* score variable per round of data collection that contains data for all children administered the Numbers Reversed task, regardless of the language of administration. Researchers who want to account for language of administration in their analyses can use the data flag provided on the data file for each round (X*FLSCRN) to identify which children were administered Numbers Reversed in English and which children were administered Numbers Reversed in Spanish. All children were administered the assessments in English starting with the second-grade data collection. Therefore, the second-, third-, fourth-, and fifth grade Numbers Reversed scores for all children are based on an English administration of the assessment, and data flags to indicate language administration in grades second through fifth are not provided on the data file.

Although the *W* score is reflective of the average performance of 10-year-olds, and the ECLS-K:2011 children are younger in the earlier rounds of the study, it is included in the data file to enable the measurement of changes in children's working memory longitudinally across all rounds of the study. Also, it facilitates comparisons of the ECLS-K:2011 data with data from other studies that include the Numbers Reversed task. Users should keep in mind that most ECLS-K:2011 sample children were primarily 5 or 6 years old during the kindergarten data collections, 6 or 7 years old during the first-grade data collections, 7 or 8 years old during the second-grade data collections, 8 or 9 years old during the third-grade data collection, 9 and 10 years old during the fourth-grade data collection, and 10 and 11 years old during the fifth-grade data collection[15] while the *W* scores compare their performance to that of 10-year-olds. As a result, *W* scores from the ECLS-K:2011 appear to show that the ECLS-K:2011 children demonstrated below average performance on this task from kindergarten through fourth grades and above average performance in fifth grade. However, because the mean of the *W* scale was set by the publisher based on the average performance for a child 10 years, 0 months, this pattern is as expected. As expected, the discrepancy declined as the participating children grew older and closer to age 10. Because the average age at assessment was approximately age 11 years in the spring of fifth grade, it is not surprising that the average W score is above 500, the mean set for the average performance of a child 10 years, 0 months.

A score of 403 (393 for the Spanish administration) is potentially a meaningful baseline value for the ability level of children who are unable to answer any items correctly. Over time, as children develop more ability that is measurable by the WJ III Numbers Reversed task, the study is able to compare children's baseline Numbers Reversed *W* score (fall kindergarten and/or spring kindergarten Numbers Reversed *W* score) with children's scores across future administrations of the task. However, researchers should understand that a raw score of 0 (which translates to a *W* score of 403 for the English administration

[15] For the fourth-grade assessment, approximately 56 percent of the children were 10 years old or older, and approximately 44 percent of the children were 9 years old or younger. For the fifth-grade assessment, nearly all the children were 10 years old or older (99.9 percent).

and 393 for the Spanish administration) is an imprecise measure of children's ability in the area of working memory, because it is unknown how close a child was to getting at least one answer correct.

In the fall of kindergarten, approximately 40 percent of students did not demonstrate sufficient skills as measured by this assessment to score above the lowest scalable score (403 for English assessment and 393 for Spanish assessment). In the spring of kindergarten, approximately 20 percent of students did not score above the lowest scalable score (403 for English, 393 for Spanish). In the fall of first grade, less than 13 percent scored at the lowest scalable score, and only 6 percent scored at the lowest scalable score in the spring of first grade. In the fall of second grade, less than 4 percent scored the lowest scalable score, and slightly more than 2 percent received the lowest score in the spring. In the spring of third grade, 1 percent scored at the lowest scalable score. In the spring of fourth grade, 0.6 percent scored at the lowest scalable score. In the spring of fifth grade, 0.5 percent scored the lowest scalable score.

A factor that may contribute to the large number of children scoring 403 (and 393 for Spanish) in kindergarten is that some ECLS-K:2011 assessors did not properly administer the practice items, which may have resulted in some children never fully understanding what they were being asked to do during the Numbers Reversed task. During field observations of the assessors, it was noted that when children did not correctly answer the first practice item, there were inconsistencies in the administration of additional practice items. It is not possible to determine the extent to which improper administration of the practice items affected the results. However, readers should keep in mind that this may have affected performance for some (but not all) children. In conducting analyses, researchers need to decide how to handle the 403 (393 for Spanish) scores; the decision for how to do so is left up to the analyst based on his or her analytic goals. For the first-grade and later data collections, assessor training for the Numbers Reversed task was changed to improve the consistency and clarity of administration of the practice items. The instructions trainers provided to the assessors emphasized the need to present practice items consistently and to present multiple practice items when necessary. More information about the Numbers Reversed scoring and data can be found in the *ECLS-K:2011 Kindergarten Psychometric Report* (Najarian et al. 2018a).

The four additional Numbers Reversed scores are the *age standard score,* the *grade standard score,* the *age percentile score,* and the *grade percentile score.* These scores indicate children's status relative to their peers through age-normed and grade-normed transformations of the data. That is, these scores are relative to *same-aged* or *same-grade* subjects in the WJ III norming sample. The standard scores are created by the publisher and have a mean of 100 and a standard deviation of 15. The score is a linear transformation of a Z score (mean of 0 and a standard deviation of 1), which is derived from a person's achieved *W* score. The percentile rank scores describe performance on a scale from 0 to 100 relative to the performance of subjects in the WJ III norming sample that is at the same age or grade as the ECLS-K:2011 subjects.

As with the kindergarten and first-grade *W* scores, the kindergarten and first-grade standard scores and percentile scores in the data file contain data from both the English and Spanish administrations of the Numbers Reversed task. Standard scores and percentile scores are a function of the child's age or grade at assessment. The publisher's scoring protocols result in standard and percentile scores that extend to slightly lower ages for children who were administered the task in Spanish compared to children who were administered the task in English, again due to differences in the precision of measurement within the norming samples. Children 62 months and younger who were administered the Numbers Reversed task in English and who earned a raw score of 0 or 1 have a *W* score but do not have a standard score or percentile score (*W* scores are a function of the number correct and not a function of age). However, all children who were administered this task in Spanish, including those aged 62 months and younger have a *W* score, standard scores, and percentile scores, regardless of their raw score. Again, researchers who want to account for language of administration in their analyses during kindergarten or first grade can use the variables X1FLSCRN, X2FLSCRN, X3FLSCRN, and X4FLSCRN to identify language.

For both the age-normed scores and the grade-normed scores, standard scores and percentile ranks lend themselves to different interpretations. Standard scores and percentile ranks are *not* essentially the same. Standard scores are deviation-based scores, based upon a mean and standard deviation that remains constant across the entire range. They are interval data, where values are separated by a constant interval that maintains the same meaning across the full range. Percentile ranks are neither interval data nor constant and cannot be used interchangeably with standardized scores. As such, standard scores are most appropriately used for comparisons across children and between groups; *W* scores (also a deviation-based score metric) are most appropriately used to look at growth over time, where age-normed standard scores may remain relatively constant with an age-expected rate of growth. Percentiles are less ideal for longitudinal analyses; although they can be used to examine relative rank order consistency across time periods, the *W* scores would be better to assess change and/or stability across time.

The weighted means for the ECLS-K:2011 population are lower than the established means from the WJ III norming sample in some rounds and higher than the established means from the WJ III norming sample in other rounds.[16] For example, the average *W* scores for the ECLS-K:2011 population are less than 500 in kindergarten through fourth grades but higher than 500 in fifth grade. The average

[16] Normative data for the WJ III were gathered from 8,818 subjects in more than 100 geographically diverse U.S. communities (McGrew and Woodcock 2001). The kindergarten through 12th grade sample was composed of 4,783 subjects. The norming sample was selected to be representative of the U.S. population from age 24 months to age 90 years and older. Subjects were randomly selected within a stratified sampling design that controlled for the following 10 specific community and subject variables: census region (Northeast, Midwest, South, West); community size (city and urban, larger community, smaller community, rural area); sex; race (White, Black, American Indian, Asian and Pacific Islander); Hispanic or non-Hispanic; type of school (elementary, secondary, public, private, home); type of college/university (2-year, 4-year, public, private); education of adults; occupational status of adults; occupation of adults in the labor force.

age standard scores are less than 100 in all rounds. The average grade standard scores are less than 100 in kindergarten through second grades but higher than 100 in third through fifth grades. The average age and grade percentile scores are less than 50 in some rounds and above 100 in other rounds. The lower mean for the *W* scores in the ECLS-K:2011 may be attributed to the derivation of the score being a comparison to the average 10-year-old (generally 10-year-olds are in fourth or fifth grade)[17] or to differences between the ECLS-K:2011 population and the WJ III norming sample. The differences between weighted means for the average age and grade standard scores and percentile scores for the ECLS-K:2011 population compared to the established means from the WJ III norming sample may also be attributable to differences between the ECLS-K:2011 population and the WJ III norming sample.

The variable names, descriptions, value ranges, weighted means, and standard deviations for the Numbers Reversed scores from the fall of kindergarten to the spring of fifth grade are shown in table 3-6.

Table 3-6. Numbers Reversed variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Variable name	Description	*n*	Value ranges	Weighted mean	Standard deviation
X1NRWABL	X1 Numbers Reversed W-Ability Score	15,598	393–603	432.56	30.028
X1NRSSCR	X1 Numbers Reversed Age Standard Score	14,445	45–200	93.10	16.510
X1NRSSGR	X1 Numbers Reversed Grade Standard Score	15,598	33–200	96.40	14.569
X1NRPERC	X1 Numbers Reversed Age Percentile	14,445	0–100	37.89	31.786
X1NRPEGR	X1 Numbers Reversed Grade Percentile	15,598	0–100	41.98	30.886
X2NRWABL	X2 Numbers Reversed W-Ability Score	17,147	393–603	449.49	30.412
X2NRSSCR	X2 Numbers Reversed Age Standard Score	17,124	39–200	94.92	17.017
X2NRSSGR	X2 Numbers Reversed Grade Standard Score	17,147	33–200	94.76	16.049
X2NRPERC	X2 Numbers Reversed Age Percentile	17,124	0–100	42.44	30.970
X2NRPEGR	X2 Numbers Reversed Grade Percentile	17,147	0–100	41.89	29.980
X3NRWABL	X3 Numbers Reversed W-Ability Score	5,222	393–603	458.42	27.990
X3NRSSCR	X3 Numbers Reversed Age Standard Score	5,221	36–200	94.21	16.969
X3NRSSGR	X3 Numbers Reversed Grade Standard Score	5,222	24–200	95.19	17.815
X3NRPERC	X3 Numbers Reversed Age Percentile	5,221	0–100	41.23	28.832
X3NRPEGR	X3 Numbers Reversed Grade Percentile	5,222	0–100	43.61	29.857
X4NRWABL	X4 Numbers Reversed W-Ability Score	15,107	393–603	469.56	25.395
X4NRSSCR	X4 Numbers Reversed Age Standard Score	15,102	24–200	95.90	16.872
X4NRSSGR	X4 Numbers Reversed Grade Standard Score	15,107	19–200	95.42	18.159
X4NRPERC	X4 Numbers Reversed Age Percentile	15,102	0–100	44.35	28.470
X4NRPEGR	X4 Numbers Reversed Grade Percentile	15,107	0–100	44.07	29.276

See notes at end of table.

[17] For the fourth-grade assessment, approximately 56 percent of the children were 10 years old or older, and approximately 44 percent of the children were 9 years old or younger. For the fifth-grade assessment, nearly all children were 10 years old or older (99.9 percent).

Table 3-6. Numbers Reversed variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016—Continued

Variable name	Description	*n*	Value ranges	Weighted mean	Standard deviation
X5NRWABL	X5 Numbers Reversed W-Ability Score	4,727	403–603	473.93	23.736
X5NRSSCR	X5 Numbers Reversed Age Standard Score	4,727	29–200	94.93	16.574
X5NRSSGR	X5 Numbers Reversed Grade Standard Score	4,727	19–200	95.85	17.561
X5NRPERC	X5 Numbers Reversed Age Percentile	4,727	0–100	42.13	27.609
X5NRPEGR	X5 Numbers Reversed Grade Percentile	4,727	0–100	44.17	28.742
X6NRWABL	X6 Numbers Reversed W-Ability Score	13,832	403–603	480.70	22.841
X6NRSSCR	X6 Numbers Reversed Age Standard Score	13,828	25–200	95.80	16.749
X6NRSSGR	X6 Numbers Reversed Grade Standard Score	13,832	18–200	95.52	17.715
X6NRPERC	X6 Numbers Reversed Age Percentile	13,828	0–100	43.67	27.765
X6NRPEGR	X6 Numbers Reversed Grade Percentile	13,832	0–100	43.59	28.680
X7NRWABL	X7 Numbers Reversed W-Ability Score	12,877	403–603	489.78	21.624
X7NRSSCR	X7 Numbers Reversed Age Standard Score	12,874	20–200	96.34	16.185
X7NRSSGR	X7 Numbers Reversed Grade Standard Score	12,877	18–195	102.74	17.037
X7NRPERC	X7 Numbers Reversed Age Percentile	12,874	0–100	44.10	27.742
X7NRPEGR	X7 Numbers Reversed Grade Percentile	12,877	0–100	55.90	28.907
X8NRWABL	X8 Numbers Reversed W-Ability Score	12,085	403–603	497.17	21.333
X8NRSSCR	X8 Numbers Reversed Age Standard Score	12,082	15–192	96.65	15.975
X8NRSSGR	X8 Numbers Reversed Grade Standard Score	12,085	19–200	101.86	16.819
X8NRPERC	X8 Numbers Reversed Age Percentile	12,082	0–100	44.28	27.780
X8NRPEGR	X8 Numbers Reversed Grade Percentile	12,085	0–100	54.01	28.724
X9NRWABL	X9 Numbers Reversed W-Ability Score	11,430	403–603	503.12	22.005
X9NRSSCR	X9 Numbers Reversed Age Standard Score	11,429	130–182	96.67	16.494
X9NRSSGR	X9 Numbers Reversed Grade Standard Score	11,430	19–200	100.92	17.017
X9NRPERC	X9 Numbers Reversed Age Percentile	11,429	0–100	44.34	28.576
X9NRPEGR	X9 Numbers Reversed Grade Percentile	11,430	0–100	52.28	29.149

NOTE: Fall kindergarten estimates (X1) and spring kindergarten estimates (X2) are weighted by W1C0. Fall first-grade estimates (X3) are weighted by W3CF3P_30, and spring first-grade estimates (X4) are weighted by W4CS4P_20. Fall second-grade estimates (X5) are weighted by W6CF6P_2A0, and spring second-grade estimates (X6) are weighted by W6CS6P_20. Spring third-grade estimates (X7) are weighted by W7C7P_20. Spring fourth-grade estimates (X8) are weighted by W8C8P_20. Spring fifth-grade estimates (X9) are weighted by W9C9P_20. The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

3.2.2.1 Numbers Reversed Data Flags

Nine flags indicate the presence or absence of Numbers Reversed data. X1NRFLG and X2NRFLG indicate the presence of data for the fall and spring of kindergarten, respectively. X3NRFLG and X4NRFLG indicate the presence of first-grade data for the fall and spring, respectively, and X5NRFLG and X6NRFLG indicate the presence of fall and spring second-grade data, respectively.

X7NRFLG, X8NRFLG, and X9NRFLG indicate the presence of data for spring third-grade, spring fourth-grade, and spring fifth-grade, respectively.

There is one other flag, X*NRGEST, related to Numbers Reversed that is provided for each round of data collection. The Numbers Reversed grade-normed scores (X*NRSSGR, X*NRPEGR) are normed according to how far into the school year the assessment was conducted. Decimals are used to indicate the number of months into the school year the child had been in the grade at the time of the assessment (e.g., 0.1 = 1 month; 0.2 = 2 months, etc.; 0.9 = 9 months, including time in the summer prior to the start of the next grade level). When school year start and end dates were not available, it was necessary to estimate the decimal representing the proportion of the school year completed when the assessment occurred. X*NRGEST indicates whether the number of months completed in the grade was estimated for that round of data collection. In fifth grade, time in grade was estimated for 3 percent of children.

3.2.3 The NIH Toolbox Flanker Inhibitory Control and Attention Task (*Flanker*)

The NIH Toolbox Flanker Inhibitory Control and Attention Task (*Flanker*) is a computerized task that was developed as part of the NIH Toolbox for the Assessment of Neurological and Behavioral Function (NIH Toolbox) and is appropriate for ages 3–85 (Zelazo et al. 2013). The *Flanker* was adapted from the Attention Network Test (ANT; e.g., Rueda et al., 2004), which was based on the Eriksen flanker task (Eriksen and Eriksen, 1974). The *Flanker* (Zelazo et al 2013) was added to the ECLS-K:2011 assessment battery in fourth grade and it was administered again in fifth grade. It is a measure of executive function; specifically, it is a measure of inhibitory control in the context of selective visual attention.

The ECLS-K:2011 used the version of the NIH Toolbox Flanker task that is for children 8 years and older.[18] Starting with the fourth-grade administration of the ECLS-K:2011, all children were at least 8 years old. The *Flanker* task measures inhibitory control in the context of selective visual attention (Slotkin, Nowinski, et al. 2012). In this task children must inhibit an automatic response tendency that may interfere with achieving a goal and use selective attention to consciously direct sensory or thought

---

[18] The NIH Toolbox Flanker task has two different start points based on the age of the child. Children aged 3-7 begin the task with trials that use fish as the stimulus and progress to harder trials that use arrows as stimuli if performance on the fish trials is 90 percent or more correct. By design, children who are 8 years and older begin with the arrow trials and are given credit for successful completion of the fish trials because it was determined that the majority of children 8 years and older could successfully complete the easier fish trials. The task includes two different start points in order to reduce participant burden and create a task with a shorter administration time. Because all children in the ECLS-K:2011 study were at least 8 years of age in the fifth-grade data collection, all of them began with the arrow trials and were given credit in the scoring for successfully completing the fish trials.

processes to a stimulus in the visual field in the service of goal-directed behavior. In the *Flanker* task, children are asked to focus attention on a central stimulus while ignoring or inhibiting attention to stimuli presented on either side of the central stimulus. The stimulus used for children 8 years and older is a series of five arrows, pointing either left of right. The arrows that "flank" the central arrow, which are referred to as "flankers," either point in the same direction as the central arrow (congruent) or in the opposite direction as the central arrow (incongruent). The flanker arrows act as distractors, taking attention away from the central arrow that is supposed to be the focus of the child's attention. Children are presented with 20 arrow trials and are asked to press a button on the computer to indicate the direction the central stimulus (arrow) is pointing. Like the *DCCS*, the score based on the *Flanker* is derived from a formula that takes into consideration both accuracy and reaction time (Zelazo et al. 2013; Slotkin, Nowinski, et al. 2012). Performance on the incongruent trials is used to derive a score that is a measure of inhibitory control in the context of selective visual attention.

At the start of the 20 test trials, children were instructed to "Keep your eyes on the star. Answer as fast as you can without making mistakes. If you make a mistake, just keep going." Each of the test trials began with a picture of a star presented on the screen in the location where the central (target) stimulus was about to appear. The star served to direct the child's gaze and orient the child's attention to a standard location, the location where the child needed to be looking. Next, the word "MIDDLE" appeared on the screen in the same location while a prerecorded female voice said "middle," to remind the child to look at the middle arrow and to indicate the direction of that arrow. Next, a series of five arrows appeared on the screen in a line, and the child's task was to press the left arrow key if the arrow in the middle of the five arrows (i.e., the central arrow) was pointing to the left or press the right arrow key if the central arrow was pointing to the right.

The 20 test trials were the same for all children. The direction of the central arrow was counterbalanced across the 20 trials, and there were more congruent trials than incongruent trials. There were 13 congruent trials (central arrow pointed in the same direction as the arrows flanking it) and 7 incongruent trials (central arrow pointed in the opposite direction as the arrows flanking it). For example, the central arrow for trial 1 was left-facing, and the flankers were congruent; the central arrow for trial 2 was right-facing, and the flankers were congruent; and the center arrow for trial 3 was right-facing, and the flankers were incongruent (i.e., left-facing). Like the *DCCS*, the congruent and incongruent trials in the *Flanker* were intermixed across the trials, and the number of congruent trials preceding an incongruent trial did not follow a pattern. Congruent trials were more frequent in order to build a response tendency (i.e., a response that is "preferred" because it happens more frequently, resulting in a predisposition to respond in that manner). A predisposition to respond based on the orientation of the distractors flanking the central stimulus further increases the difficulty of the incongruent trials; the child must ignore or inhibit attention to the distractors, and this is easier to do when the flankers are congruent. Congruent trials are easier because there is no conflict between the central stimulus and its flankers since all the arrows are pointing in the same direction. Incongruent trials are more difficult because the flankers pointing in the opposition direction from the central stimulus create a distraction with conflicting information. The child needs to respond based solely on the direction of the central stimulus rather than the conflicting and distracting information. To do this, the child must selectively attend to the central arrow, inhibit attention to the conflicting and distracting information provided by the flankers, and inhibit an automatic tendency to respond based on the direction of the flankers.

There is a “cost” in performance that is associated with the conflicting and distracting information presented in the incongruent trials. As discussed in the section on the *DCCS*, the “cost” to the child’s performance on this task that is associated with this conflict can be seen in either more errors or a slower reaction or response time on incongruent trials. The type of “cost” that is demonstrated (more errors vs. slower reaction time) tends to differ by the age of the participant (Davidson et al. 2006). Younger children tend to demonstrate this cost by having more errors in performance, whereas older children tend to demonstrate this cost by having slower reaction times. Younger children tend to make more errors on incongruent trials because they tend to respond quickly without making an adjustment for the need to ignore the conflict presented by the distractors. Younger children do not slow themselves down in favor of higher accuracy, and, therefore, accuracy is a better metric of performance for young children (Zelazo et al. 2013). In contrast, older children and adults tend to demonstrate a speed/accuracy tradeoff; they slow down the pace at which they respond in order to maintain accuracy. Thus, older children and adults demonstrate their “cost” to ignore the conflict of the incongruent flankers in terms of their reaction time on incongruent trials.

Using a scoring method that takes both speed and accuracy into consideration is a strategy for overcoming the challenge of comparing scores of children with developmental differences in the ability to make a speed accuracy tradeoff. The scoring algorithm used to produce scores from the data collected by the *Flanker* is analogous to the formula used for the computerized *DCCS*. The scoring algorithm factors in reaction time on the incongruent trials but only when the child demonstrates sufficiently accurate performance across all the test trials, defined as being accurate on more than 80 percent of the trials (Zelazo et al. 2013). Thus, the *Flanker* provides a measure of performance through this developmental shift to learning to trade speed for accuracy. More information on scoring is provided below.

The 20 test trials were administered only to children who successfully completed the practice portion of the *Flanker*. The assessor instructed the child on how to do the task by reading the standardized task instructions that appeared on the screen alongside example stimuli and by familiarizing the child with the response buttons to use on the computer keyboard (left and right arrow key). The child could be presented with up to three sets of four practice trials. Each set of practice trials included two congruent trials (one with all arrows pointing to the left and one with all arrows pointing to the right) and two incongruent trials (one with a left-facing central arrow and one with a right-facing central arrow). In order to pass the practice and progress to the test or scored trials, the child had to have three or more correct practice trials within a single set of four practice trials. If the child did not pass the first set of practice trials, a second set was presented. If the child did not pass the second set of practice trials, a third set of practice trials was administered. If the child was not able to pass any of the three sets of practice trials, the *Flanker* ended before any actual scored trials were presented and the child moved into the science assessment.

Before the practice trials started, children were presented with a screen providing the same standardized instructions that are described above for the test trials, which the assessor read. As noted above, the instructions stated, "Keep your eyes on the star. Answer as fast as you can without making mistakes. If you make a mistake, just keep going." The practice trials were like the subsequent test trials in that a star appeared first on the screen to act as focal point and a recorded female voice said "middle" to remind the child to look at and indicate the direction of the middle arrow. However, unlike in the test trials, during the practice trials the recorded voice was used to provide feedback to the child. If the child answered a practice trial correctly, the recorded voice said "That's right!" If the child did not respond correctly to a practice trial, the recorded voice provided feedback to the child to explain the correct answer and why it was correct.

Item-level data for the 20 scored test trials are included in the data file. Data are provided for four aspects of each test trial: (1) correct versus incorrect responses (C9FLKACC1-C9FLKACC20); (2) the type of trial, reported as congruent (more frequently presented but not included in reaction time scores; central arrow faces in the same direction as the flanking arrows) or incongruent (less frequently presented and used to calculate reaction time scores; central arrow faces in the direction opposite from the flanking arrows) (C9FLKCIC1-C9FLKCIC20); (3) reaction time reported in milliseconds (C9FLKRT1-C9FLKRT20); and (4) the direction that the central arrow faces (C9FLKARW1-C9FLKARW20).[19] Therefore, there are four variables associated with each of the 20 test trials. Children who did not pass any of the three sets of practice trials do not have item-level data because the item-level data correspond to the actual scored trials. Variable names for the item-level data begin with "C9" for spring fifth grade.

[19] A variable to describe the direction that the central arrow faces is not necessary for analyzing task performance. It is included on the data file to allow researchers to reconstruct the exact trials that were presented in case there is interest in doing so.

The overall computed score reported for the fifth-grade *Flanker* is derived using a formula provided by the task developer and follows the scoring algorithm used for this task in the NIH Toolbox (see *NIH Toolbox Scoring and Interpretation Guide* (Slotkin, Nowinski et al. 2012) for additional information on scoring). This is the same formula used to score the computerized *DCCS* score, adjusted for task parameters (number of administered trials). Like the *DCCS*, the overall *Flanker* score ranges from 0 to 10, with weight given to accuracy (0 to 5 units) and reaction time (0 to 5 units) in the computation of scores. Accuracy is considered first. If the child's accuracy rate is less than or equal to 80 percent, the child's overall computer score is based entirely on accuracy. If the child's accuracy rate is more than 80 percent, the child's overall computed score is based on a combination of accuracy and reaction time. Children who did not pass any of the three sets of practice trials do not have an overall *Flanker* score.

The accuracy score factored into the computation of the overall score can range from 0 to 5. Because all children used the *Flanker* start point for children 8 years and older, each child who successfully passed the practice was administered 20 test trials and was automatically given 20 accuracy points for 20 trials that are only administered to children younger than 8 years old. Therefore, there are a total of 40 accuracy points that are scaled down to a maximum score of 5: for each correct response, the child earns a score of .125 (5 points divided by 40). The accuracy component of the overall computed *Flanker* score is calculated as follows:

Flanker accuracy score = 0.125 * number of correct responses[20]

If the child's accuracy rate is higher than 80 percent, a reaction time score is added to the child's accuracy score.[21] Like the accuracy score, the reaction time score ranges from 0 to 5 points.

The reaction time component of the overall computed score for the *Flanker* is computed using the child's median reaction time to correct incongruent trials (i.e., the trials with the flanking arrows

[20] The number of correct responses = 20 + the number of correct arrow trials out of the 20 administered trials. Thus, once the child has passed the practice trials and advanced into the scored portion of the assessment, 20 accuracy points are automatically awarded due to the chosen start point for the task. For this reason, it is not possible for ECLS-K:2011 children to get an accuracy score of 0. Therefore, the minimum possible value for the *Flanker* accuracy score is 2.5, and the maximum possible *Flanker* accuracy score is 5.

[21] The criterion of *greater than* 80 percent accuracy is calculated based on all 40 trials (20 administered arrow trials plus the 20 nonadministered trials that are only administered to children younger than 8 years old and are assumed to be correct and automatically awarded in this administration). That is, 80 percent of 40 trials is 32 items. However, this can also be thought of in terms of how many items out of the 20 administered arrow trials are required. If the criterion is 80 percent of the 40 trials, this translates to 12 of the 20 administered trials (12 administered trials + 20 nonadministered trials = 32; 32 is 80 percent of the total of 40 trials). For example, if a child responds accurately on 13 of the 20 administered arrow trials, the child's accuracy rate equals 82.5 percent (20 points automatically awarded for the nonadministered 20 trials plus the 13 correct arrow trials divided by 40; 33/40 = .825). In this example, the child's accuracy score would be [(20 + 13) * .125] = 4.125. Because the accuracy rate is *greater than* 80 percent, the child's reaction time score would be added to this accuracy score to obtain the overall computed score for the *Flanker*. Alternatively, if the child responded accurately on 12 of the 20 administered arrow trials, the child's accuracy rate would equal 80 percent and, therefore, the child's accuracy is not *greater than* 80 percent and the child's overall score would be based solely on accuracy (overall computed score = [(20 + 12) * .125] = 4).

facing in a direction opposite the central arrow), following the same scoring algorithm outlined in the scoring manual for the NIH Toolbox (Slotkin, Nowinski, et al. 2012). First, for those children with greater than 80 percent accuracy on the 40 trials, the median reaction time is calculated based on reaction times for correct incongruent trials with reaction times greater than or equal to 100 milliseconds (msec) and within plus or minus three standard deviations from the child's mean reaction time on the correct incongruent trials. The minimum median reaction time allowed is 500 msec; the maximum median reaction time is 3,000 msec. If the child's median reaction time falls outside this range, the child's median reaction is set to the minimum or maximum allowable range: reaction times between 100 msec and 500 msec were set to 500 msec and reaction times between 3,000 msec and 10,000 msec (the maximum trial duration) are set to 3,000 msec. A log (base 10) transformation is applied to the median reaction times to create a more normal distribution. The log values are then algebraically rescaled to a range of 0 to 5 and then reversed such that faster (better) reaction times have higher values and slower reaction times have lower values. The formula for rescaling the median reaction times is the following:

$$\text{Reaction time score} = 5 - \left(5 * \left[\frac{\log RT - \log(500)}{\log(3000) - \log(500)}\right]\right)$$

where *RT* is the median reaction time on incongruent trials within set outer limits.[22]

To summarize, the overall computed score on the computerized *Flanker* is equal to the child's accuracy score if the child's accuracy rate is less than or equal to 80 percent. If the child's accuracy rate is greater than 80 percent, the child's overall computed score is equal to the child's accuracy score plus the child's reaction time score, which is derived from the child's reaction time on correct incongruent trials as described above. Additional details on the calculation of the computed score are available in the *NIH Toolbox Scoring and Interpretation Guide* (Slotkin, Nowinski, et al. 2012) and the *NIH Toolbox Technical Manual* (Slotkin, Kallen, et al. 2012).

It is important for researchers using the *Flanker* data to be aware of the characteristics of the overall *Flanker* scores and determine how best to use these scores in their analyses. As noted above, the NIH-developed scoring model computes scores differently depending on accuracy. The use of this scoring model with the data collected from children in the ECLS-K:2011 resulted in a non-normal distribution. For example, 32 children who have a computed overall *Flanker* score in the fifth-grade data collection failed to achieve greater than 80 percent accuracy (0.3 percent). The score for these children is calculated

[22] The median reaction time (*RT*) used to calculate the reaction time score falls within the range of 500 msec through 3,000 msec. Calculation of the median score requires a minimum of at least one correct incongruent trial reaction time that is greater than 100 msec. When the child reached the accuracy threshold for including the reaction time component in the scoring but did not have any within-range reaction times on correct incongruent trials, the child's overall computed score on the *Flanker* was set equal to the child's accuracy score, and reaction time was not factored into the child's score.

based solely on accuracy. There are 11 children in the fifth-grade data collection (0.1 percent) who met the accuracy threshold but did not have any correct incongruent trials; therefore, their score was set equal to their accuracy score because it was not possible to have a reaction time score for correct, incongruent trials. Thus, there were a total of 43 children (32 + 11) whose overall *Flanker* score is based on accuracy alone (0.4 percent). The remaining children (99.6 percent in fifth grade) who have a computed overall score have scores calculated based on both accuracy and reaction time.

The non-normal distribution may be problematic for statistical analyses. For this reason, users may want to run analyses that do not use the overall *Flanker* score as is with the full sample. For example, users could conduct their analyses separately for the two groups of children so that each analysis only includes children with scores calculated in the same way, or they may decide to limit their analyses to only one group. Users who want to analyze all children using the score indicating accuracy alone should recognize that this score is highly skewed, as most children were able to indicate the direction the central arrow was pointing with at least 80 percent accuracy. Users may also want to consider investigating alternative scoring models using the item-level accuracy and reaction time data available on the data file. The decision about how best to use the *Flanker* overall score in analysis is left to the user, given the research questions being addressed. Analysts may choose to examine other ways researchers have analyzed data with similar distributions, or other executive function or flanker data, in deciding how best to utilize the ECLS-K:2011 *Flanker* data. Table 3-7 presents the *Flanker* variable names, descriptions, value ranges, weighted means, and standard deviations for the spring of fourth grade and the spring of fifth grade.

Table 3-7. *Flanker* variable names, descriptions, value ranges, weighted means, and standard deviations for spring fourth grade and spring fifth grade: Spring 2015 and spring 2016

Variable name	Description	*n*	Value ranges[1]	Weighted mean	Standard deviation
X8FLANKER	X8 Flanker Computed (Overall) Score	12,009	0–10	7.98	0.984
X8FLKACC	X8 Flanker Accuracy Component (0-5) Scr	12,009	0–5	4.96	0.129
X8FLKICRT	X8 Flanker Incon RT Component (0-5) Scr	11,934	0–5	3.03	0.923
X8FLKCAC	X8 Flanker Congruent Accuracy Count	12,009	0–13	12.93	0.484
X8FLKICAC	X8 Flanker Incongruent Accuracy Count	12,009	0–7	6.78	0.770
X9FLANKER	X9 Flanker Computed (Overall) Score	11,399	0–10	8.41	0.872
X9FLKACC	X9 Flanker Accuracy Component (0-5) Scr	11,399	0–5	4.97	0.107
X9FLKICRT	X9 Flanker Incon RT Component (0-5) Scr	11,355	0–5	3.45	0.830
X9FLKCAC	X9 Flanker Congruent Accuracy Count	11,399	0–13	12.94	0.389
X9FLKICAC	X9 Flanker Incongruent Accuracy Count	11,399	0–7	6.81	0.643

[1] Because 20 accuracy points are automatically awarded due to the chosen start point for the task, it is not possible for ECLS-K:2011 children to obtain an accuracy score of 0. Therefore, the lowest accuracy component (0-5) score in the data file is 2.5, and the lowest computed (overall) score in the data file is also 2.5.

NOTE: Spring fourth-grade estimates (X8) are weighted by W8C8P_20. Spring fifth-grade estimates (X9) are weighted by W9C9P_20. The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2015 and spring 2016.

3.2.3.1 *Flanker* Data Flag

There are two flags to indicate the presence or absence of *Flanker* data. X8FLNKFLG indicates the presence of data for the overall computed *Flanker* score (X8FLANKER) for the spring of fourth grade, and X9FLNKFLG indicates the presence of data for the overall computed *Flanker* score (X9FLANKER) for the spring of fifth grade. The flag values indicate whether the task was administered, whether the overall computed *Flanker* score is present and, if a score is not present, the reason why it is not present. Reasons why a score is not present when the *Flanker* was administered include failing the practice trials or having an administrative breakoff (meaning the assessor ended the task) either before or after passing the practice trials. Administrative breakoffs could have occurred for a variety of reasons such as an external event (for example, a fire drill or the child needing to return to class) that interrupted an assessment session.

The *Flanker* flags for the spring of fourth grade and the spring of fifth grade have five possible values. A description of the values of this completion flag is presented in exhibit 3-3. The flag is equal to system missing when the child was not a participant in the round of data collection.

Exhibit 3-3. Data flag description for the *Flanker* for the spring of fourth grade and spring of fifth grade: Spring 2015 and spring 2016

X8FLNKFLG/X9FLNKFLG	Value
Not Administered	0
Flanker computed (overall) score present	1
Failed Arrows practice	2
Breakoff before passing practice trials	3
Breakoff after passing practice trials	4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2015 and spring 2016.

3.3 Child Questionnaire

In the spring of third grade, the spring of fourth grade, and the spring of fifth grade, a child questionnaire was administered to children at the beginning of the child assessment session. As discussed in section 2.1.1, the ECLS-K:2011 child questionnaire was administered on a computer using audio computer-assisted self-interview (audio-CASI) technology and headphones. In third grade, the child questionnaire had 37 questions and took approximately 11 minutes to complete. In fourth grade, the child questionnaire had 35 questions and took approximately 8 minutes to complete. In fifth grade, the child questionnaire had 48 items and took approximately 10 minutes to complete.

The fifth-grade child questionnaire included both new items and items that were selected from the third-grade and fourth-grade child questionnaires. In the third-grade, fourth-grade, and fifth-grade child questionnaires, children were asked about social anxiety, specifically fear of negative evaluation by peers, and about peer victimization. The fifth-grade child questionnaire also included a subset of items asked in third-grade about how satified the children were with aspects of the life including questions about their parents, neighborhood, and belongings. Much of the content from the fourth-grade questionnaire was asked again in fifth grade. As in the fourth-grade questionniare, the fifth-grade questionnaire included questions that asked children about their behavioral engagement in school, peer social support, feelings of loneliness at school, and media usage and family rules about media useage. The fifth-grade child questionnaire added new questions that asked children about their feelings about schoool belonging, grit (i.e., perseverance over the very long term in pursuit of a goal), worry about school, and parental monitoring. The questions about school belonging were originally asked in the grade 8 student questionnaire from ECLS-K, and questions about worry about school were selected from a larger set of items on internalizing problem behaviors that were developed and used in grades 3, 5, and 8 in ECLS-K.

Exhibit 3-4 shows the content areas included in the third-grade, fourth-grade, and fifth-grade child questionnaires and the corresponding item-level variables along with their sources. Variable names for the item-level data begin with “C7” for spring third grade, “C8” for spring fourth grade, and “C9” for spring fifth grade. Many of the items in the child questionnaire were adapted from existing scales and were used with the permission of the author. Data for the individual items are included in the K-5 data file, but composite variables for each construct are not provided; it is left to analysts to decide how best to use these data in their analyses. The *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), Third-Grade, Fourth-Grade, and Fifth-Grade Psychometric Report* (Najarian et al. forthcoming) contains additional information on the items from the third-grade, fourth-grade, and fifth-grade child questionnaires.

Exhibit 3-4. Child questionnaire topics and item-level variables for spring third grade, spring fourth grade, and spring fifth grade: Spring 2014, spring 2015, and spring 2016

Child questionnaire topics	Grade	Number of items	Item-level variable names
Perceived Interest/Competence in Reading[1]	3	5	C7LKREAD, C7INTREAD, C7CTWREAD, C7GDREAD, C7ENJREAD
Perceived Interest/Competence in Math[1]	3	5	C7LIKMTH, C7INTMTH, C7CTWMTH, C7GDMTH, C7ENJMTH
Perceived Interest/Competence in Science[1]	3	5	C7LKSCI, C7INTSCI, C7CTWSCI, C7GDSCI, C7ENJSCI
Perceived Interest/Competence in Peer Relationships[1]	3	6	C7HASFRNDS, C7MKFRNDS, C7GETALNG, C7EASYLIK,C7WTMEFRND, C7MORFRND
Peer Victimization[2]	3, 4, 5	4	C*TEASED, C*LIESABT, C*PUSHCH, C*EXCLDCH
Social Anxiety/Fear of Negative Evaluation[3]	3, 4, 5	3	C*WRYTHK, C*WRYDTLK, C*AFRDNTLK
Prosocial Behavior[4]	3	3	C7CHEERUP, C7HLPOTH, C7NICEOTH
Life Satisfaction[5]	3, 5	6, 3[6]	C7HAPHOB, C*HAPTHGS, C*HAPATTN, C7HAPFRND, C7HAPSKIL, C*HAPNBHD
Behavioral Engagement[7]	4, 5	5	C*TRYHRD, C*WRKHRD, C*PARDIS, C*PAYATT, C*LSTNCL
Peer Social Support[8]	4, 5	6	C*KIDBTR, C*KIDPLY, C*KIDHAP, C*KIDHLP, C*FRIEND, C*HELPMN
Loneliness[9]	4, 5	3	C*LONELY, C*LFTOUT, C*ALONE
Media Usage[10]	4, 5	3, 5[11]	C8OFTTXT/C9OFTTXT, C8RULWHO/C9RULWHO, C8RULWHN/C9RULWHN. C9ONLINE, C9SOCLNET
Pets[12]	4	18	C8CURPET, C8EVRPET, C8AGEPET, C8NUMPET, C8PETDOG, C8PETCAT, C8PETRAB, C8PETBRD, C8PETFSH, C8PETSNK, C8PETHRS, C8PETOTH, C8HVFVPET, C8FAVPET, C8PLYPET, C8PETHMW, C8PETSAD, C8PETFAM
School Belonging[13]	5	5	C9FITIN, C9CLOSCL, C9CLOSTC, C9ENJOY, C9SAFE
Grit[14]	5	6	C9FINISH, C9TRYMST, C9WKGOAL, C9WKHDQT, C9WKSETDO, C9TRYIMPRV
Worry/Stress About School[15]	5	5	C9WRYTST, C9HARDFIN, C9ASHAME, C9WRYWEL, C9WRYFIN
Parental Monitoring[16,17]	5	3	C9KNWFREE, C9KNWHW, C9KNWGRD

[1] Adapted from the Self Description Questionnaire I (SDQI) © Herbert Marsh. SELF Research Centre (Bankstown Campus) University of Western Sydney, Australia. Used with permission.
[2] Peer victimization items were adapted from a 21-item scale by Espelage, D.L., and Holt, M. (2001). Bullying and victimization during early adolescence: Peer influences and psychosocial correlates. *Journal of Emotional Abuse*, *2*: 123–142.
[3] Adapted from the Social Anxiety Scale for Children—Revised ©1993 Annette M. La Greca, University of Miami. Used with permission. La Greca, A.M. and Stone, W.L. (1993). Social anxiety scale for children—revised: Factor structure and concurrent validity. *Journal of Clinical Child Psychology*, *22*(1): 17–27.
[4] Adapted from the Children's Social Behavior Scale—Self Report (CSBS-S). Crick, N.R., and Grotpeter, J.K. (1995). Relational aggression, gender, and social psychological adjustment. *Child Development*, *66*: 710–722.
[5] Adapted from the NIH Toolbox for Assessment of Neurological and Behavioral Function (version 1.0): Domain-Specific Life Satisfaction Survey from the NIH Toolbox Emotion Battery (www.NIHToolbox.org) © 2012 Northwestern University and the National Institutes of Health. Used with permission.
[6] There were six items from the Domain-Specific Life Satisfaction Scale administered in third grade, but only three of these six items were repeated in fifth grade.
[7] Adapted from Skinner, E.A., Kindermann, T.A., and Furrer, C.J. (2009). A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities in the classroom. *Educational and Psychological Measurement*, *69*(3): 493-525.

[8] Adapted from Vandell, D.L. (2000). Peer Social Support, Bullying, and Victimization (Form FLV05GS: *Kids in My Class at School*) [measurement instrument]. NICHD Study of Early Child Care and Youth Development: Phase III, 2000-2004.
[9] Adapted from Parker, J.G., and Asher, S.R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, *29*(4): 611-621.
[10] Adapted from the PEW September Tracking Survey 2009. Princeton Survey Research Associates International (2009). PEW September Tracking Survey 2009. Pew Internet and American Life Project.
[11] There were three items on media usage in fourth grade that asked children about frequency of online activity and family rules. These items along with two additional items about particular types of online activities were asked in fifth grade
[12] Adapted from the CENSHARE Pet Attachment Survey. Holcomb, R., Williams, R.C., and Richards, P.S. (1985). The elements of attachment: Relationship maintenance and intimacy. *Journal of the Delta Society*, *2*(1): 28-34.
[13] Grade 8 Student Questionnaire, ECLS-K.
[14] Adapted from the Character Growth Card in collaboration with Angela Duckworth for the ECLS-K:2011.
[15] Adapted from the Internalizing Problems Scale that was developed for ECLS-K and used in the ECLS-K grade 3 and grade 5 child-reported Self-Description Questionnaire and the Grade 8 Student Questionnaire.
[16] Adapted from the Self-Disclosure & Parental Monitoring/Knowledge Scale (Kerr and Stattin, 2000). Kerr, M., and Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology, 36:* 366-380.
[17] In the spring of fourth grade, parents were also asked about parental monitoring of media usage. Parents were asked if they monitor how many hours their child spends online (P8MONTIM) and if they monitor what their child looks at online or what websites and accounts their child can join online (P8MONCON). These questions complement questions asked of the child on the child questionnaire.
NOTE: An asterisk "*" is a placeholder for the round number in variable names. Third grade is round 7, fourth grade is round 8, and fifth grade is round 9. For example, the variable C*TEASED is listed in the table; this indicates that the variables C7TEASED, C8TEASED, and C9TEASED are available in the dataset.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2014, spring 2015, and spring 2016.

3.4 Teacher- and Parent-Reported Measures of Child Behavior and Peer Relationships

In the fifth-grade data collection, teachers and parents reported their perceptions of the child's behavior and the child's friendships or relationships with peers. This section provides information on teacher-reported social skills, approaches to learning behaviors, attentional focusing, inhibitory control, peer relationships, and school liking and avoidance behaviors. This section also provides information on parents' perceptions of their child's friendships and their child's school avoidance behaviors. This section focuses on child behaviors and relationships reported by teachers and parents in the fifth-grade data collection. Prior-round manuals contain information on additional measures of child behavior and relationships that were collected in earlier rounds (e.g., teachers completed the Student-Teacher-Relationship Scale in kindergarten through third grades, and information on this scale can be found in the *User's Manual for the ECLS-K:2011 Kindergarten–Third Grade Data File and Electronic Codebook, Public Version* [NCES 2018-034] [Tourangeau et al. 2018a]; parents and teachers reported on child behaviors related to working memory in prior rounds, and information on these items can be found in the *User's Manual for the ECLS-K:2011 Kindergarten–Fourth Grade Data File and Electronic Codebook, Public Version* [NCES 2018-032] [Tourangeau et al. 2018b]).

In kindergarten through third grade, the child's classroom teacher completed a child-level teacher questionnaire that included questions about the child's behavior. A single classroom teacher was asked to report for each child in these earlier grades because it is more typical for a child to have only one teacher or to be taught by one teacher for a majority or significant portion of the day. The ECLS-K:2011 made a major change in its approach to collecting the teacher questionnaire data starting in fourth grade because it becomes increasingly more likely that students have different teachers for different subjects as students progress through elementary school. In fourth and fifth grades, instead of having a single child-level teacher questionnaire, there were three separate subject-specific child-level teacher questionnaires: one for the child's reading and language arts teacher, one for the child's mathematics teacher, and one for the child's science teacher. (See chapter 2 for additional information on the structure of the teacher questionnaires.) The reading, mathematics, and science subject-specific child-level teacher questionnaires each contained classroom-level questions related to the content of the class but also a few child-level questions specifically related to either the child's reading, mathematics, or science experience and one question related to classroom-level social and self-regulatory child behaviors in the specific class. The reading teacher was asked to answer additional child-level questions that were not included in the mathematics and science teacher questionnaires, many of which were asked of the classroom teacher in prior rounds of data collection (kindergarten through third grade), including reports of the teacher's perceptions of the child's behaviors. In fourth and fifth grades, the teacher identified as the child's reading and language arts teacher reported his or her perceptions of the child's behavior, including social skills, approaches to learning, attentional focusing, inhibitory control, school liking, and social interactions and relationships in the classroom.

3.4.1 Teacher-Reported Social Skills

In the fall and spring data collections in kindergarten through second grade, and the spring data collections in third, fourth, and fifth grade, teachers reported how often their ECLS-K:2011 students exhibited certain social skills and behaviors using a four-option frequency scale ranging from "never" to "very often." Teachers also had the option of indicating that they had not had an opportunity to observe the described behavior for the child being asked about. The items measuring children's social skills and behaviors are based on items from the *Social Skills Rating System* (Gresham and Elliott 1990)[23] and were included in the self-administered child-level teacher questionnaire in kindergarten, first grade, second grade, and third grades and in the child-level reading and language arts teacher questionnaire in fourth and fifth grades. The social skills battery includes some items taken verbatim from the *Social Skills Rating System*, some items that are modifications of original *Social Skills Rating Systems* items, and some items that measure the same kinds of skills and behaviors captured in the *Social Skills Rating System* but use wording developed specifically for the ECLS studies. Sections 2.1.3 and 2.1.4 in chapter 2 have additional information on the teacher questionnaires.

[23] The *Social Skills Rating System* is a copyrighted instrument (1990 NCS Pearson) and has been adapted with permission. These are items developed by Gresham and Elliott (1990).

Four social skill scales were developed based on teachers' responses to these questionnaire items. The score on each scale is the mean rating on the items included in the scale. The four teacher scales are as follows: Self-Control (4 items), Interpersonal Skills (5 items), Externalizing Problem Behaviors (6 items),[24] and Internalizing Problem Behaviors (4 items). A score was computed when the respondent provided a rating on at least a minimum number of the items that composed the scale. The minimum numbers of items that were required to compute a score were as follows: Self-Control (3 out of 4 items), Interpersonal Skills (4 out of 5 items), Externalizing Problem Behaviors (4 out of 6 items), and Internalizing Problem Behaviors (3 out of 4 items). Higher scores indicate that the child exhibited the behavior represented by the scale more often (e.g., higher Self-Control scores indicate that the child exhibited behaviors indicative of self-control more often; higher Interpersonal Skills scores indicate that the child interacted with others in a positive way more often). Variable names for the teacher scale scores, descriptions, value ranges, weighted means, and standard deviations for these scales are shown in table 3-8.[25]

Data for the individual items contributing to each scale for each round of data collection are presented in the K–5 data file for the first time. These items were not included in any prior data file due to copyright restrictions. Permission was granted from the publisher to include them in this last file produced for the study.

Table 3-9 presents the internal consistency reliability (Cronbach's alpha) estimates of the Self-Control, Interpersonal Skills, Externalizing Problem Behaviors, and Internalizing Problem Behaviors scales derived from information reported by the teacher.

[24] For children who were in first grade during the first-grade data collections (rounds 3 and 4) and for all children in subsequent rounds of data collection (rounds 5, 6, 7, 8, and 9), the externalizing problem behaviors composite is based on 6 items. This is different from how the composite was created for the kindergarten rounds (rounds 1 and 2). One additional item was included at the end of the "Social Skills" section of the questionnaire in first, second, third, fourth grades. The item asked about the child's tendency to talk at times when the child was not supposed to be talking. The item was added because it had been included in the first-grade round of the ECLS-K and was factored into the calculation of that study's first-grade composite score.

[25] Two versions of the teacher-level and child-level teacher questionnaires were used in the spring of first grade: one version for students who were in first grade or higher during the data collection period and one for students who had been retained in kindergarten for the 2011–12 school year. Details of the differences in these questionnaires are presented in chapter 2 of the *ECLS-K:2011 User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data File and Electronic Codebook, Public Version* (NCES 2015-078) (Tourangeau et al. 2015b).

Table 3-8. Teacher-reported social skills scales variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Variable name	Description	*n*	Value ranges	Weighted mean	Standard deviation
X1TCHCON	X1 Teacher Report Self-Control	13,550	1–4	3.07	0.629
X1TCHPER	X1 Teacher Report Interpersonal Skills	13,708	1–4	2.98	0.639
X1TCHEXT	X1 Teacher Report Externalizing Problem Behaviors	14,385	1–4	1.61	0.631
X1TCHINT	X1 Teacher Report Internalizing Problem Behaviors	14,239	1–4	1.47	0.494
X2TCHCON	X2 Teacher Report Self-Control	15,796	1–4	3.17	0.637
X2TCHPER	X2 Teacher Report Interpersonal Skills	15,799	1–4	3.13	0.650
X2TCHEXT	X2 Teacher Report Externalizing Problem Behaviors	15,903	1–4	1.64	0.639
X2TCHINT	X2 Teacher Report Internalizing Problem Behaviors	15,865	1–4	1.51	0.498
X3TCHCON	X3 Teacher Report Self-Control	4,658	1–4	3.21	0.591
X3TCHPER	X3 Teacher Report Interpersonal Skills	4,724	1–4	3.14	0.613
X3TCHEXT	X3 Teacher Report Externalizing Problem Behaviors	4,964	1–4	1.67	0.590
X3TCHINT	X3 Teacher Report Internalizing Problem Behaviors	4,848	1–4	1.48	0.483
X4TCHCON	X4 Teacher Report Self-Control	13,202	1–4	3.21	0.621
X4TCHPER	X4 Teacher Report Interpersonal Skills	13,288	1–4	3.14	0.657
X4TCHEXT	X4 Teacher Report Externalizing Problem Behaviors	13,398	1–4	1.73	0.619
X4TCHINT	X4 Teacher Report Internalizing Problem Behaviors	13,306	1–4	1.55	0.508
X4KTCHCON	X4K Teacher Report Self-Control	418	1–4	3.09	0.616
X4KTCHPER	X4K Teacher Report Interpersonal Skills	418	1–4	3.04	0.671
X4KTCHEXT	X4K Teacher Report Externalizing Problem Behaviors	419	1–4	1.78	0.614
X4KTCHINT	X4K Teacher Report Internalizing Problem Behaviors	418	1–4	1.62	0.498
X5TCHCON	X5 Teacher Report Self-Control	4,174	1–4	3.23	0.614
X5TCHPER	X5 Teacher Report Interpersonal Skills	4,178	1–4	3.13	0.621
X5TCHEXT	X5 Teacher Report Externalizing Problem Behaviors	4,426	1–4	1.65	0.610
X5TCHINT	X5 Teacher Report Internalizing Problem Behaviors	4,342	1–4	1.50	0.522
X6TCHCON	X6 Teacher Report Self-Control	12,472	1–4	3.22	0.629
X6TCHPER	X6 Teacher Report Interpersonal Skills	12,518	1–4	3.12	0.664
X6TCHEXT	X6 Teacher Report Externalizing Problem Behaviors	12,657	1–4	1.72	0.625
X6TCHINT	X6 Teacher Report Internalizing Problem Behaviors	12,577	1–4	1.59	0.528
X7TCHCON	X7 Teacher Report Self-Control	11,736	1–4	3.27	0.619
X7TCHPER	X7 Teacher Report Interpersonal Skills	11,768	1–4	3.14	0.657
X7TCHEXT	X7 Teacher Report Externalizing Problem Behaviors	11,898	1–4	1.69	0.615
X7TCHINT	X7 Teacher Report Internalizing Problem Behaviors	11,830	1–4	1.61	0.535

See notes at end of table.

Table 3-8. Teacher-reported social skills scales variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016—Continued

Variable name	Description	n	Value ranges	Weighted mean	Standard deviation
X8TCHCON	X8 Teacher Report Self-Control	10,848	1–4	3.28	0.604
X8TCHPER	X8 Teacher Report Interpersonal Skills	10,867	1–4	3.12	0.648
X8TCHEXT	X8 Teacher Report Externalizing Problem Behaviors	11,000	1–4	1.65	0.594
X8TCHINT	X8 Teacher Report Internalizing Problem Behaviors	10,923	1–4	1.58	0.534
X9TCHCON	X9 Teacher Report Self-Control	10,235	1–4	3.29	0.609
X9TCHPER	X9 Teacher Report Interpersonal Skills	10,224	1–4	3.13	0.650
X9TCHEXT	X9 Teacher Report Externalizing Problem Behaviors	10,359	1–4	1.63	0.590
X9TCHINT	X9 Teacher Report Internalizing Problem Behaviors	10,294	1–4	1.57	0.518

NOTE Fall kindergarten estimates (X1) and spring kindergarten estimates (X2) are weighted by W1C0. Fall first-grade estimates (X3) are weighted by W3CF3P3T0, and spring first-grade estimates (X4) are weighted by W4CS4P_2T0. Fall second-grade estimates (X5) are weighted by W6CF6P_2A0, and spring second-grade estimates (X6) are weighted by W6CS6P_2T0. Spring third-grade estimates (X7) are weighted by W7C27P_7T70. Spring fourth-grade estimates (X8) are weighted by W8C28P_8T80. Spring fifth-grade estimates (X9) are weighted by W9C29P_9T90. Items contributing to the teacher-reported social skill scales were adapted with permission from the Social Skills Rating System (©1990 NCS Pearson). Variables that begin with "X4K" are for data collected in the spring first grade data collection for children who were retained in kindergarten. The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight. The respondent in kindergarten through third grades (rounds 1-7) was the child's classroom teacher. The respondent in fourth grade (round 8) and fifth grade (round 9) was the child's reading and language arts teacher.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

Table 3-9. Teacher-reported social skill scales reliability estimates for fall and spring kindergarten, fall and spring first grade, and fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Variable name	Description	Number of items	Reliability coefficient
X1TCHCON	X1 Teacher Report Self-Control	4	.81
X1TCHPER	X1 Teacher Report Interpersonal Skills	5	.86
X1TCHEXT	X1 Teacher Report Externalizing Problem Behaviors	5	.88
X1TCHINT	X1 Teacher Report Internalizing Problem Behaviors	4	.79
X2TCHCON	X2 Teacher Report Self-Control	4	.82
X2TCHPER	X2 Teacher Report Interpersonal Skills	5	.87
X2TCHEXT	X2 Teacher Report Externalizing Problem Behaviors	5	.89
X2TCHINT	X2 Teacher Report Internalizing Problem Behaviors	4	.78
X3TCHCON	X3 Teacher Report Self-Control	4	.79
X3TCHPER	X3 Teacher Report Interpersonal Skills	5	.85
X3TCHEXT	X3 Teacher Report Externalizing Problem Behaviors	5	.88
X3TCHINT	X3 Teacher Report Internalizing Problem Behaviors	4	.77
X4TCHCON	X4 Teacher Report Self-Control	4	.81
X4TCHPER	X4 Teacher Report Interpersonal Skills	5	.86
X4TCHEXT	X4 Teacher Report Externalizing Problem Behaviors	5	.86
X4TCHINT	X4 Teacher Report Internalizing Problem Behaviors	4	.76
X4KTCHCON	X4K Teacher Report Self-Control	4	.79
X4KTCHPER	X4K Teacher Report Interpersonal Skills	5	.88
X4KTCHEXT	X4K Teacher Report Externalizing Problem Behaviors	5	.87
X4KTCHINT	X4K Teacher Report Internalizing Problem Behaviors	4	.73
X5TCHCON	X5 Teacher Report Self-Control	4	.80
X5TCHPER	X5 Teacher Report Interpersonal Skills	5	.85
X5TCHEXT	X5 Teacher Report Externalizing Problem Behaviors	6	.88
X5TCHINT	X5 Teacher Report Internalizing Problem Behaviors	4	.78
X6TCHCON	X6 Teacher Report Self-Control	4	.81
X6TCHPER	X6 Teacher Report Interpersonal Skills	5	.86
X6TCHEXT	X6 Teacher Report Externalizing Problem Behaviors	6	.87
X6TCHINT	X6 Teacher Report Internalizing Problem Behaviors	4	.78
X7TCHCON	X7 Teacher Report Self-Control	4	.80
X7TCHPER	X7 Teacher Report Interpersonal Skills	5	.86
X7TCHEXT	X7 Teacher Report Externalizing Problem Behaviors	6	.87
X7TCHINT	X7 Teacher Report Internalizing Problem Behaviors	4	.78
X8TCHCON	X8 Teacher Report Self-Control	4	.80
X8TCHPER	X8 Teacher Report Interpersonal Skills	5	.86
X8TCHEXT	X8 Teacher Report Externalizing Problem Behaviors	6	.87
X8TCHINT	X8 Teacher Report Internalizing Problem Behaviors	4	.79
X9TCHCON	X9 Teacher Report Self-Control	4	.80
X9TCHPER	X9 Teacher Report Interpersonal Skills	5	.86
X9TCHEXT	X9 Teacher Report Externalizing Problem Behaviors	6	.88
X9TCHINT	X9 Teacher Report Internalizing Problem Behaviors	4	.79

NOTE: Items contributing to the teacher-reported social skill scales were adapted with permission from the *Social Skills Rating System* (SSRS) (©1990 NCS Pearson). The respondent in kindergarten through third grades (rounds 1-7) was the child's classroom teacher. The respondent in fourth grade (round 8) and fifth grade (round 9) was the child's reading and language arts teacher.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015,and spring 2016.

3.4.2 Teacher-Reported Approaches to Learning Items and Scale

The child-level teacher questionnaire fielded in every round of data collection from the fall of kindergarten to the spring of third grade and the child-level reading and language arts teacher subject-specific child-level teacher questionnaire in fourth and fifth grades included seven items, referred to as "Approaches to Learning" items, that asked the teachers to report how often their ECLS-K:2011 students exhibited a selected set of learning behaviors (keeps belongings organized; shows eagerness to learn new things; works independently; easily adapts to changes in routine; persists in completing tasks; pays attention well; and follows classroom rules).[26] These items were presented in the same item set as the social skills items adapted from the *Social Skills Rating System* (described above in section 3.4.1), and teachers used the same frequency scale to report how often each child demonstrated the behaviors described. The Approaches to Learning scale score is the mean rating on the seven items included in the scale. A score was computed when the respondent provided a rating on at least 4 of the 7 items that composed the scale. Higher scale scores indicate that the child exhibited positive learning behaviors more often. The item-level data for the teacher-reported Approaches to Learning items are included in the data file along with the other child-level teacher questionnaire data. Variable names for the item-level data from the fall and spring kindergarten child-level teacher questionnaire begin with "T1" and "T2," respectively. Variable names for the item-level data from the fall first-grade child-level teacher questionnaire begin with "T3." Those for the item-level data from the spring first-grade child-level teacher questionnaire for children in first grade begin with "T4," while those for children held back in kindergarten begin with "T4K." Variable names for the fall of second grade begin with "T5," and those for the spring of second grade begin with "T6." Variable names for the spring of third grade begin with "T7," and those for spring of fourth grade begin with "G8." Variable names for the spring of fifth grade begin with "G9." The variable names, descriptions, value ranges, weighted means, and standard deviations for the teacher-reported Approaches to Learning scale scores are shown in table 3-10. The Approaches to Learning scale has a reliability estimate of .91 for each round of data collection from kindergarten through fourth grade and .92 for fifth grade, as measured by Cronbach's alpha.

[26] The Approaches to Learning teacher items were developed specifically for the ECLS-K; they were not taken from an existing source. These items were fielded as part of what was called the Teacher Social Rating Scale in the ECLS-K. The first six items (i.e., keeps belongings organized; shows eagerness to learn new things; works independently; easily adapts to changes in routine; persists in completing tasks; pays attention well) were included in the Teacher Social Rating Scale used in the kindergarten rounds of the ECLS-K. The seventh item (i.e., follows classroom rules) was added in the first-grade round of the ECLS-K.

Table 3-10. Teacher-reported Approaches to Learning scale variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten, fall and spring first grade, fall and spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School years 2010–11, 2011–12, 2012–13; spring 2014; spring 2015; and spring 2016

Variable name	Description	*n*	Value ranges	Weighted mean	Standard deviation
X1TCHAPP	X1 Teacher Report Approaches to Learning	14,770	1–4	2.93	0.680
X2TCHAPP	X2 Teacher Report Approaches to Learning	15,978	1–4	3.09	0.689
X3TCHAPP	X3 Teacher Report Approaches to Learning	5,022	1–4	3.04	0.677
X4TCHAPP	X4 Teacher Report Approaches to Learning	13,449	1–4	3.07	0.700
X4KTCHAPP	X4K Teacher Report Approaches to Learning	417	1–4	2.94	0.704
X5TCHAPP	X5 Teacher Report Approaches to Learning	4,507	1–4	3.05	0.688
X6TCHAPP	X6 Teacher Report Approaches to Learning	12,689	1–4	3.07	0.707
X7TCHAPP	X7 Teacher Report Approaches to Learning	11,913	1–4	3.08	0.711
X8TCHAPP	X8 Teacher Report Approaches to Learning	11,028	1–4	3.09	0.696
X9TCHAPP	X9 Teacher Report Approaches to Learning	10,403	1–4	3.11	0.696

NOTE: Fall kindergarten estimates (X1) and spring kindergarten estimates (X2) are weighted by W1C0. Fall first-grade estimates (X3) are weighted by W3CF3P3T0, and spring first-grade estimates (X4) are weighted by W4CS4P_2T0. Fall second-grade estimates (X5) are weighted by W6CF6P_2A0, and spring second-grade estimates (X6) are weighted by W6CS6P_2T0. Spring third-grade estimates (X7) are weighted by W7C27P_7T70. Spring fourth-grade estimates (X8) are weighted by W8C28P_8T80. Spring fifth-grade estimates (X9) are weighted by W9C29P_9T90. Variables that begin with "X4K" are for data collected in the spring first grade data collection for children who were retained in kindergarten. The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight. The respondent in kindergarten through third grades (rounds 1-7) was the child's classroom teacher. The respondent in fourth grade (round 8) and fifth grade (round 9) was the child's reading and language arts teacher.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, fall 2011, spring 2012, fall 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

3.4.3 Teacher-Reported Attentional Focusing and Inhibitory Control: *Children's Behavior Questionnaire (CBQ) and Temperament in Middle Childhood Questionnaire (TMCQ)*

The fall kindergarten, spring kindergarten, and spring first-grade child-level teacher questionnaires (both the version for students in first grade and the version for students in kindergarten) included 12 items from the Short Form of the *Children's Behavior Questionnaire (CBQ)* (Putnam and Rothbart 2006)[27] asking teachers to indicate how often their ECLS-K:2011 children exhibited certain social skills and behaviors related to inhibitory control and attentional focusing, two indicators related to executive functioning. Rothbart describes inhibitory control as the "capacity to plan and to suppress inappropriate approach responses under instructions or in novel or uncertain situations" (Rothbart et al. 2001, p. 1406). Teachers were presented with statements about how the children might have reacted to a number of situations in the past 6 months and were asked to indicate how "true" or "untrue" those statements were about that child on a 7-point scale ranging from "extremely untrue" to "extremely true,"

[27] The *Children's Behavior Questionnaire* is a copyrighted instrument: Putnam, S.P., and Rothbart, M.K. (2006). Development of Short and Very Short Forms of the Children's Behavior Questionnaire. *Journal of Personality Assessment, 87*(1): 103-113. Used with permission.

with a middle option of "neither true nor untrue." If a statement or situation did not apply to that child, the teacher could indicate "not applicable."

The *CBQ* is appropriate for assessment of children ages 3 through 7 years, so it could not be used past the first-grade rounds of data collection. To remain age appropriate, the *CBQ* was replaced with the *Temperament in Middle Childhood Questionnaire* (*TMCQ)* (Simonds and Rothbart 2004)[28] in the spring of second grade. The *TMCQ* was designed as an upward age-extension of the *CBQ* and is appropriate for children ages 7 through 10 years. While many of the items from the *TMCQ* are different from the items on the *CBQ*, the items are believed to assess the same or similar constructs in an age-appropriate way. Teachers received the same instructions for the *CBQ* and *TMCQ* items, although the *TMCQ* items were rated on a 5-point scale instead of the 7-point scale used for the *CBQ* items. For the *TMCQ* items, teachers used a 5-point scale ranging from "almost always untrue" to "almost always true," with a middle option of "sometimes true, sometimes untrue." Like the *CBQ*, there was a "not applicable" option that the teacher could select if the statement or situation did not apply to the child.

Item-level data for the items that make up the Attentional Focusing and Inhibitory Control scales are provided on the kindergarten-fifth grade data file. Variable names for the item-level data from the fall and spring kindergarten child-level teacher questionnaire begin with "T1" and "T2," respectively. Variable names for the item-level data from the spring first-grade child-level teacher questionnaire for children in first grade begin with "T4," while variable names for children held back in kindergarten during spring 2012 begin with "T4K." Variable names for the spring second grade begin with "T6," and those for spring third grade begin with "T7." Variable names from the reading subject-specific child-level questionnaire begin with "G8" in fourth grade and "G9" in fifth grade.

The data file includes two scale scores for each round of data collection in which each measure was included: (1) Attentional Focus and (2) Inhibitory Control. In kindergarten and first grade these scores are derived from the *CBQ*, and in second, third, fourth, and fifth grade these scores are derived primarily from the *TMCQ*, as explained further below. The scale scores were developed using guidelines from the developers of both the *CBQ* and *TMCQ*.

In kindergarten and first grade, the ECLS-K:2011 fielded all 6 items from the Attentional Focusing subscale and all 6 items from the Inhibitory Control subscale of the *CBQ Short Form*. As such, the kindergarten and first-grade Attentional Focus and Inhibitory Control scores are each based on all 6 items in the relevant *Short Form* subscale. Because the *CBQ* was initially designed as a parent-report

[28] The *Temperament in Middle Childhood Questionnaire* is a copyrighted instrument: Adapted from the *Temperament in Middle Childhood Questionnaire.* © 2004 Jennifer Simonds and Mary K. Rothbart, University of Oregon. Used with permission.

measure, the item wording for 3 of the items from the *CBQ* Inhibitory Control subscale was modified slightly for use in the ECLS-K:2011 to make the items more appropriate for a school setting.

In second, third, fourth and fifth grade, the ECLS-K:2011 fielded 6 of the 7 items from the original *TMCQ* Attentional Focusing subscale. For the inhibitory control dimension, the ECLS-K:2011 fielded 6 of the 8 items from the *TMCQ* Inhibitory Control subscale and one item from the *CBQ* Inhibitory Control subscale. Therefore, the second-, third-, fourth-, and fifth-grade Attentional Focusing scale scores reflect the 6 items fielded by the ECLS-K:2011, not the full set of items in the original *TMCQ* scale. The second-, third-, fourth-, and fifth-grade Inhibitory Control scale scores reflect the 7 items fielded by the ECLS-K:2011 (6 from the *TMCQ* and one from the *CBQ*), again not the full set of items in the original *TMCQ* scale. Because the *TMCQ* was designed as a parent-report measure, the item wording on one item from the *TMCQ* Attentional Focusing subscale was modified slightly to make it more appropriate for a school setting and, similarly, one item on the *TMCQ* Inhibitory Control subscale was modified.

For the kindergarten, first-grade, second-grade, third-grade, fourth-grade, and fifth-grade Attentional Focusing and Inhibitory Control scales, the score on each scale is the mean rating on the items included in the scale. A score was computed when the respondent provided a rating on at least 4 of the 6 or 7 items that made up the scale. Higher scale scores on the Attentional Focus scale indicate that the child exhibited more behaviors that demonstrate the ability to focus attention on cues in the environment that are relevant to the task. Higher scale scores on the Inhibitory Control scale indicate that the child exhibited more behaviors that demonstrate the ability to hold back or suppress a behavior as necessary for a particular situation. The variable names, descriptions, value ranges, weighted means, and standard deviations for these scales are shown in tables 3-11 and 3-12.

Table 3-11. *Children's Behavior Questionnaire* variable names, descriptions, value ranges, weighted means, and standard deviations for fall and spring kindergarten and spring first grade: School year 2010–11 and spring 2012

Variable name	Description	*n*	Value ranges	Weighted mean	Standard deviation
X1ATTNFS	X1 Teacher Report Attentional Focus	14,562	1–7	4.68	1.323
X1INBCNT	X1 Teacher Report Inhibitory Control	14,556	1–7	4.88	1.291
X2ATTNFS	X2 Teacher Report Attentional Focus	15,937	1–7	4.90	1.329
X2INBCNT	X2 Teacher Report Inhibitory Control	15,925	1–7	5.06	1.292
X4ATTNFS	X4 Teacher Report Attentional Focus	13,390	1–7	4.84	1.292
X4INBCNT	X4 Teacher Report Inhibitory Control	13,399	1–7	5.04	1.287
X4KATTNFS	X4K Teacher Report Attentional Focus	417	1–7	4.61	1.323
X4KINBCNT	X4K Teacher Report Inhibitory Control	417	1–7	4.88	1.267

NOTE: Fall kindergarten estimates (X1) and spring kindergarten estimates (X2) are weighted by W1C0. Spring first-grade estimates (X4) are weighted by W4CS4P_2T0. Items contributing to these scales come from the *Children's Behavior Questionnaire* (Putnam and Rothbart 2006). Variables that begin with "X4K" are for data collected in the spring first grade data collection for children who were retained in kindergarten. The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, and spring 2012.

Table 3-12. *Temperament in Middle Childhood Questionnaire* variable names, descriptions, value ranges, weighted means, and standard deviations for spring second grade, spring third grade, spring fourth grade, and spring fifth grade: Spring 2013, spring 2014, spring 2015, and spring 2016

Variable name	Description	*n*	Value ranges	Weighted mean	Standard deviation
X6ATTMCQ	X6 TMCQ Teacher Report Attentional Focus	12,661	1–5	3.47	1.122
X6INTMCQ	X6 TMCQ Teacher Report Inhibitory Control	12,659	1–5	3.67	0.845
X7ATTMCQ	X7 TMCQ Teacher Report Attentional Focus	11,879	1–5	3.48	1.119
X7INTMCQ	X7 TMCQ Teacher Report Inhibitory Control	11,882	1–5	3.69	0.825
X8ATTMCQ	X8 TMCQ Teacher Report Attentional Focus	11,008	1–5	3.54	1.112
X8INTMCQ	X8 TMCQ Teacher Report Inhibitory Control	11,002	1–5	3.73	0.812
X9ATTMCQ	X9 TMCQ Teacher Report Attentional Focus	10,367	1–5	3.61	1.083
X9INTMCQ	X9 TMCQ Teacher Report Inhibitory Control	10,355	1–5	3.80	0.802

NOTE: Spring second-grade estimates (X6) are weighted by W6CS6P_2T0. Spring third-grade estimates (X7) are weighted by W7C27P_7T70. Spring fourth-grade estimates (X8) are weighted by W8C28P_8T80. Spring fifth-grade estimates (X9) are weighted by W9C29P_9T90. Items contributing to these scales come from the *Children's Behavior Questionnaire* (Putnam and Rothbart 2006) and the *Temperament in Middle Childhood Questionnaire* (Simonds and Rothbart 2004).The unweighted sample *n* indicates the number of cases with valid data regardless of the presence of a valid analytic weight. The respondent in kindergarten through third grades (rounds 1-7) was the child's classroom teacher. The respondent in fourth grade (round 8) and in fifth grade (round 9) was the child's reading and language arts teacher.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2013, spring 2014, spring 2015, and spring 2016.

Table 3-13 presents the internal consistency reliability coefficients (Cronbach's alpha) for the teacher-reported Attentional Focus and Inhibitory Control scales for kindergarten through fifth grade. The Attentional Focus scale for the fall and spring kindergarten data collections (X1ATTNFS, X2ATTNFS) has an internal consistency reliability coefficient of .87, and the Inhibitory Control scale for the fall and spring kindergarten data collections (X1INBCNT, X2INBCNT) has a reliability estimate of .87. For the spring of first grade, the Attentional Focus scale (X4ATTNFS) has an internal consistency reliability coefficient of .83 for children in first grade and .86 for children retained in kindergarten, and the Inhibitory Control scale (X4INBCNT) has an internal consistency reliability coefficient of .86 for both children in first grade and those retained in kindergarten. For the spring of second grade, the Attentional Focus scale (X6ATTMCQ[29]) has an internal consistency reliability coefficient of .96, and the Inhibitory Control scale (X6INTMCQ[30]) has an internal consistency reliability coefficient of .87. For the spring of third grade, the Attentional Focus scale (X7ATTMCQ) has an internal consistency reliability coefficient of .96, and the Inhibitory Control scale (X7INTMCQ) has an internal consistency reliability coefficient of .85. In the spring of fourth grade, the internal consistency reliability coefficient is .96 for the Attentional Focus scale (X8ATTMCQ) and .85, for the Inhibitory Control scale (X8INTMCQ). In the spring of fifth grade, the internal consistency reliability coefficient is .96 for the Attentional Focus scale (X9ATTMCQ) and .85 for the Inhibitory Control scale (X9INTMCQ).

The study received copyright permission to include item-level data from both the *CBQ* and the *TMCQ* in the ECLS-K:2011 data files. Therefore, these data have been included in the kindergarten through fifth-grade data file with the other child-level teacher questionnaire data. Variable names for the item-level data from the fall of kindergarten, the spring of kindergarten, the spring of first grade, the spring of second grade, and the spring of third grade begin with "T1," "T2," "T4," "T6," and "T7," respectively. Variable names from the item-level data begin with "G8" for the spring of fourth grade and "G9" for the spring of fifth grade. Variable names that begin with "T4K" are for item-level data from the spring of first grade for students retained in kindergarten in spring 2012.

---

[29] The variable name for the Attentional Focus composite was changed from X*ATTNFS to X*ATTMCQ starting in second grade. Although the construct is believed to be the same, the items used to derive the composite were from the *CBQ* for kindergarten and first grade but were from the TMCQ starting at second grade. Thus, the name of the composite variable was changed.

[30] The variable name for the Inhibitory Control composite was changed from X*INBCNT to X*INTMCQ starting in second grade. Although the construct is believed to be the same, the items used to derive the composite were from the *CBQ* for kindergarten and first grade but were from the TMCQ starting at second grade. Thus, the name of the composite variable was changed.

Table 3-13. Reliability estimates for the teacher-reported Attentional Focus and Inhibitory Control scales for fall and spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade: School year 2010–11, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016

Variable name	Description	Number of items	Reliability coefficient
X1ATTNFS	X1 Teacher Report Attentional Focus	6	.87
X1INBCNT	X1 Teacher Report Inhibitory Control	6	.87
X2ATTNFS	X2 Teacher Report Attentional Focus	6	.87
X2INBCNT	X2 Teacher Report Inhibitory Control	6	.87
X4ATTNFS	X4 Teacher Report Attentional Focus	6	.83
X4INBCNT	X4 Teacher Report Inhibitory Control	6	.86
X4KATTNFS	X4 Teacher Report Attentional Focus	6	.86
X4KINBCNT	X4 Teacher Report Inhibitory Control	6	.86
X6ATTMCQ	X6 TMCQ Teacher Report Attentional Focus	6	.96
X6INTMCQ	X6 TMCQ Teacher Report Inhibitory Control	7	.87
X7ATTMCQ	X7 TMCQ Teacher Report Attentional Focus	6	.96
X7INTMCQ	X7 TMCQ Teacher Report Inhibitory Control	7	.85
X8ATTMCQ	X8 TMCQ Teacher Report Attentional Focus	6	.96
X8INTMCQ	X8 TMCQ Teacher Report Inhibitory Control	7	.85
X9ATTMCQ	X9 TMCQ Teacher Report Attentional Focus	6	.96
X9INTMCQ	X9 TMCQ Teacher Report Inhibitory Control	7	.85

NOTE: Items contributing to these scales come from the *Children's Behavior Questionnaire* (Putnam and Rothbart 2006) and the *Temperament in Middle Childhood Questionnaire* (Simonds and Rothbart 2004). The respondent in kindergarten through third grades (Rounds 1-7) was the child's classroom teacher. The respondent in fourth grade (round 8) and in fifth grade (round 9) was the child's reading and language arts teacher.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

3.4.4 Teacher- and Parent-Reports of Children's Peer Relationships

Teachers reported their perceptions of the child's peer relationships in the child-level teacher questionnaire in spring of second grade and spring of third grade and in the reading subject-specific child-level teacher questionnaire in spring of fourth grade and spring of fifth grade. Parents reported their perceptions of the child's peer relationships in the parent interview.

Exhibit 3-5 shows the constructs on peer relationships included in the second-, third-, fourth-, and fifth-grade child-level teacher questionnaires and the corresponding item-level variables along with their sources. In second, third, fourth, and fifth grade, teachers provided information on peer victimization, both with the child as the victim and with the child as the aggressor. In the spring of third grade, spring of fourth grade, and spring of fifth grade, teachers were asked about whether the child was excluded or ignored by peers and about whether the child exhibited prosocial behaviors with peers. In the spring of fourth grade and the spring of fifth grade, teachers were asked about the behaviors of the peers in the child's peer group and about the child's social skills with peers. These items were adapted from existing scales and were used with the permission of the authors. Data for the individual items are included in the K-5 data file. Variable names for the item-level data from the child-level teacher questionnaire in the spring of second grade and the spring of third grade begin with "T6" and "T7," respectively. Variable names from the item-level data from the reading subject-specific child-level teacher questionnaire for the spring of fourth grade and the spring of fifth grade begin with "G8," and "G9," respectively. Composite variables for each construct are not provided; it is left to analysts to decide how best to use these data in their analyses.

Exhibit 3-5. Teacher-reported item-level variables on peer relationships in spring second grade, spring third grade, spring fourth grade, and spring fifth grade: Spring 2013, spring 2014, spring 2015, and spring 2016

Construct/scale	Grade administered	Number of items	Item-level variable names
Peer Victimization (child as victim)[1]	2-5	4	T6OSTEAS/T7OSTEAS/G8OSTEAS/G9OSTEAS; T6OSLIES/T7OSLIES/G8OSLIES/G9OSLIES; T6OSPUSH/T7OSPUSH/G8OSPUSH/G9OSPUSH; T6OSLFTO/T7OSLFTO/G8OSLFTO/G9OSLFTO
Peer Victimization (child as aggressor)[1]	2-5	4	T6TSTEAS/T7TSTEAS/G8TSTEAS/G9TSTEAS; T6TSLIES/T7TSLIES/G8TSLIES/G9TSLIES; T6TSPUSH/T7TSPUSH/G8TSPUSH/G9TSPUSH; T6TSLFTO/T7TSLFTO/G8TSLFTO/G9TSLFTO
Excluded by Peers[2]	3-5	4	T7PLYMTE/G8PLYMTE/G9PLYMTE; T7PAVOID/G8PAVOID/G9PAVOID; T7EXLUED/G8EXLUED/G9EXLUED; T7IGNRED/G8IGNRED/G9IGNRED
Prosocial with Peers[2]	3-5	5	T7OTDIST/G8OTDIST/G9OTDIST; T7ISKIND/G8ISKIND/G9ISKIND; T7COPRTV/G8COPRTV/G9COPRTV; T7CNMORL/G8CNMORL/G9CNMORL; T7HLPUPS/G8HLPUPS/G9HLPUPS
Positive Peer Group[3]	4-5	9	G8GOODGP/G9GOODGP; G8WORYGP/G9WORYGP; G8BADINF/G9BADINF; G8SUPVIS/G9SUPVIS; G8TRBLGP/G9TRBLGP; G8EXCSTU/G9EXCSTU; G8HRDWKR/G9HRDWKR; G8FUNGRP/G9FUNGRP; G8KINDGP/G9KINDGP
Social Skills with Peers[4]	4-5	4	G8UNDFEL/G9UNDFEL; G8INTPER/G9INTPER, G8SOLINT/G9SOLINT, G8EFFBEV/G9EFFBEV

[1] Peer victimization items were adapted from a 21-item scale by Espelage, D.L. and Holt, M. (2001). Bullying and victimization during early adolescence: Peer influences and psychosocial correlates. *Journal of Emotional Abuse, 2:* 123–142.
[2] Adapted from the Child Behavior Scale © Gary W. Ladd. Used with permission. A subset of items from the Excluded by Peers and Prosocial with Peers scales from the Child Behavior Scale were adapted and used in the spring of third grade.
[3] Adapted from Vandell, D L. (2001). *Relationships With Peers: Part D (Teacher).* Unpublished scale, NICHD Study of Early Child Care and Youth Development, Form FSV10G3. These items reflect positive and negative peer group characteristics. The NICHD Study of Early Child Care and Youth Development decided to form one composite for "Positive Peer Group" with these items, reverse coding 4 of the 9 items when creating a composite.
[4] Adapted from Pierce, K.M., Hamm, J.V., and Vandell, D.L. (1999). Experiences in after-school programs and children's adjustment in first-grade classrooms. *Child Development, 70:* 756-767. These items include 4 of 7 items from the "Mock Report Card" (e.g., Form FSV08G3) used in the NICHD Study of Early Child Care and Youth Development and were originally adapted from Coie and Dodge (1988).
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2013, spring 2014, spring 2015, and spring 2016.

There are questions in the parent interview that complement the teacher-reported information on peer relationships. Exhibit 3-6 shows the constructs on peer relationships included in the second-, third-, fourth-, and fifth-grade parent interviews and the corresponding item-level variables along with their sources. The teacher- and parent-provided information complements information collected from children on peer victimization, which is described above in section 3.3, however children were asked only about their experiences as a victim, not as the aggressor. In fourth and fifth grade, parents were asked how many close friends the child had and about the influence of the child's best friend.

Exhibit 3-6. Parent-reported item-level variables on peer relationships and friendships in spring second grade, spring third grade, spring fourth grade, and spring fifth grade: Spring 2013, spring 2014, spring 2015, and spring 2016

Construct/scale	Number of items (grade)	Response categories	Item-level variable names
Peer Victimization [1] (child as victim)	3 (second grade) 4 (third grade)	Yes, No	P*OTHTEA P7OTHLIE[2] P*OTHHIT P*OTHEXC
Peer Victimization [1] (child as victim)	3 (second grade) 4 (third grade)	Rarely, Sometimes, Often, Very Often	P*OFTTEA P7OFTLIE[2] P*OFTHIT P*OFTEXC
Number of Close Friends	1 (fourth/fifth grade)	Number	P*NUMFRD
Influence of Best Friend	1 (fourth/fifth grade)	Always a good influence, Usually a good influence, Neither a good nor a bad influence, Usually a bad influence, Always a bad influence	P*FRINFL

[1] Peer victimization items were adapted from a 21-item scale by Espelage, D.L., and Holt, M. (2001). Bullying and victimization during early adolescence: Peer influences and psychosocial correlates. *Journal of Emotional Abuse, 2:* 123–142.
[2] In second grade, parents were not asked about whether other children told lies or untrue stories about their child. An item was added in third grade so that parents, teachers, and children were asked about the same forms of peer victimization.
NOTE: An asterisk "*" is a placeholder for round number in variable names. Third grade is round 7, fourth grade is round 8, and fifth grade is round 9. For example, the variable P*OTHTEA is listed in the table; this indicates that the variables P7OTHTEA, P8OTHTEA, and P9OTHTEA are available in the dataset.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2013, spring 2014, spring 2015, and spring 2016.

3.4.5 Teacher- and Parent-Reports of Children's School Liking and Avoidance

In the spring of fourth grade and the spring of fifth grade, teachers and parents reported their perceptions of the child's school liking and avoidance behaviors using items adapted from the parent and teacher versions of the School Liking and Avoidance Questionnaire (SLAQ) (Ladd and Price 1987; Ladd 1990). Teachers rated perceptions of school liking with seven items, four positively worded items (e.g., "Likes to come to school") and three negatively worded items (e.g., "Dislikes school"), on a 3-point Likert-type scale to indicate whether the item "doesn't apply," "applies sometimes," or "certainly applies." Ladd used these seven items to create a single teacher-reported school liking construct by combining these seven items (reverse scoring the negatively worded items). Parents rated five items about the parent's perception of school avoidance behaviors on a 5-point Likert-type scale, using response items similar to the SLAQ (almost never, rarely, sometimes, a lot, almost always). Ladd used these five items to create a single parent-reported school avoidance scale (exhibit 3-7). Composite variables for these teacher and parent constructs are not provided; it is left to analysts to decide how best to use these data in their analyses.

Exhibit 3-7. Teacher- and parent-reported item-level variables on school liking and avoidance in spring fourth grade and spring fifth grade: Spring 2015 and spring 2016

Construct/scale	Grade administered	Number of items	Item-level variable names
Teacher-reported School Liking[1]	4, 5	7	G*LIKSCH, G*DISLSH, G*FUNSCH, G*LBESCH, G*UNHAPY, G*ENJACT, G*GRNACT
Parent-reported School Avoidance[1]	4, 5	5	P*MKREAS, P*CDREAD, P*CUPSET, P*STAYHM, P*CMPLNS

[1] Adapted from the parent and teacher versions of the School Liking and Avoidance Questionnaire (SLAQ; Adapted from Ladd and Price, 1987; Ladd, 1990)

NOTE: An asterisk "*" is a placeholder for round number in variable names. Fourth grade is round 8, and fifth grade is round 9. For example, the variable G*LIKSCH is listed in the table; this indicates that the variables G8LIKSCH and G9LIKSCH are available in the dataset.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2015 and spring 2016.

4. SAMPLE DESIGN AND SAMPLING WEIGHTS

The Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) provides national data on children's characteristics as they progressed from kindergarten through the 2015–16 school year, when most of the children were in fifth grade. In the 2010–11 school year, the ECLS-K:2011 collected data from a nationally representative sample of 18,174 children enrolled in 968 schools.[1] This chapter summarizes the process used to select the sample for the study in the base year (i.e., kindergarten), describes how the sample design changed for the first- through fifth-grade years, and provides information necessary to properly analyze the data that were collected.

4.1 Sample Design

The optimal sample design for collecting data to produce national child-level estimates is to sample children with probabilities that are approximately the same for each child. In most studies, this is achieved using a multistage sampling design that involves sampling primary sampling units (PSUs) and schools with probabilities proportional to the targeted number of children attending the school and selecting a fixed number of children per school. Such a sampling procedure was used for the ECLS-K:2011. Additionally, a clustered design was used to minimize data collection costs, which are strongly related to the dispersion of the children in the sample. Restricting data collection to a limited number of geographic areas and to as few schools as possible helps to minimize costs while still achieving an acceptable level of precision in the estimates produced with the data.

The sample for the ECLS-K:2011 was selected using a three-stage process. In the first stage of sampling, the country was divided into PSUs, or geographic areas that are counties or groups of contiguous counties, and 90 PSUs were sampled for inclusion in the study. In the second stage, samples of public and private schools with kindergarten programs or that educated children of kindergarten age (i.e., 5-year-old children) in ungraded settings were selected within the sampled PSUs. Both PSUs and schools were selected with probability proportional to measures of size (defined as the population of 5-year-old children) that took into account a desired oversampling of Asians, Native Hawaiians, and Other Pacific Islanders (APIs).[2] In the third stage of sampling, children enrolled in kindergarten and 5-year-old

[1] This is the number of schools with at least one child or parent respondent at the end of the spring data collection; this number includes originally sampled schools and substitute schools. Children who transferred from the school in which they were originally sampled during the kindergarten year were retained in the study and followed into their new school; this number does not include schools to which study children transferred during the kindergarten year.

[2] API children were oversampled as one group, not as three groups that were distinct from one another.

children in ungraded schools or classrooms were selected within each sampled school. For a detailed description of the three stages of sampling, see chapter 4 of the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook, Public Version* (NCES 2015-074) (Tourangeau et al. 2015a), hereinafter referred to as the base-year User's Manual.

4.1.1 ECLS-K:2011 School Sample

A total of 1,221 clusters of schools[3] were originally selected for the ECLS-K:2011, of which 1,003 were clusters of public schools and 218 were clusters of private schools. This resulted in 1,036 sampled public schools and 283 sampled private schools, for a total of 1,319 sampled schools.

The sample frames used to select schools were the 2006–07 Common Core of Data (CCD) and the 2007–08 Private School Survey (PSS), which were the most recent CCD and PSS data available at the time of sampling. Because the 2006–07 CCD and the 2007–08 PSS school frames were several years old, additional schools were sampled from supplemental frames that included newly opened schools and existing schools that added a kindergarten program after the 2006–07 CCD and the 2007–08 PSS data were collected. These additional schools were added to the original school sample. In total, 33 new schools were added, of which 16 were public, 4 were Catholic, and 13 were non-Catholic private schools. The total number of sampled schools after updating was 1,352 (1,052 public schools and 300 private schools). For a detailed discussion of the supplemental school sample, see section 4.1.2.7 of the base-year User's Manual.

Early in the process of recruiting schools that had been sampled for the study, it was determined that the rate at which public schools were agreeing to participate was lower than expected and it would be difficult to meet the target number of participating schools by the end of the recruitment period. The decision was made to select public schools not selected into the original ECLS-K:2011 sample that would replace those sampled public schools that had already refused to participate. For a detailed discussion of school substitution, see section 4.1.2.8 of the base-year User's Manual. The characteristics of the school sample are presented in table 4-1. This table includes characteristics for sampled schools after substitution, which makes it different from table 4-2 in the base-year User's Manual, which shows characteristics for the originally sampled schools before substitution.

[3] Public schools with fewer than 23 children and private schools with fewer than 12 children were clustered together for sampling. Thus, clusters of schools were sampled, each cluster comprising one or more schools. For a discussion of school clustering, see section 4.1.2.3 of the base-year User's Manual.

Table 4-1. The ECLS-K:2011 school sample after school substitution

Characteristic	Total	Public	Private
Total	1,352	1,052	300
Census region[1,2]			
Northeast	240	170	70
Midwest	280	220	60
South	480	390	90
West	350	270	80
Locale			
City	421	314	107
Suburb	522	400	122
Town	113	91	22
Rural	296	247	49
Kindergarten enrollment			
Fewer than 25	252	75	177
25–49	197	119	78
50–99	490	451	39
100–149	267	264	3
150–199	91	89	2
200–249	24	23	1
250–299	7	7	0
300 or more	24	24	0
Religious affiliation			
Catholic	74	†	74
Other religious	136	†	136
Nonreligious, private	90	†	90
Percent of students eligible for the free lunch program			
0–25 percent	472	472	†
26–50 percent	267	267	†
51–75 percent	188	188	†
Greater than 75 percent	125	125	†
Other school types			
Bureau of Indian Affairs school	3	3	†
Ungraded school	177	168	9

† Not applicable.
[1] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[2] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: Data for these school characteristics are taken from the original school sampling frame. Therefore, the table estimates for these characteristics cannot be replicated with variables on the released data file.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010 and spring 2011.

4.1.2 The Sample of Children

The goal of the sample design was to obtain an approximately self-weighting sample of children, with the exception of APIs who needed to be oversampled to meet sample size goals. Table 4-2 shows the distribution of the eligible children sampled for the ECLS-K:2011, by selected characteristics. Table 4-3 shows the distribution of the children who were respondents in the base year, by selected characteristics. To be considered a base-year respondent, a student had to have child assessment data (defined as having at least one set of scoreable mathematics/reading/science data OR a height or weight measurement, or having been excluded from the assessment due to lack of accommodation for a disability) or parent interview data from the fall or spring data collection, or both, in the base year. Later rounds of data collection were conducted only with base-year respondents. Sampled students who did not participate in the base year were not recontacted for later rounds of data collection, and no new students were added to the study sample after the base year.

As mentioned in the base-year User's Manual, operational problems prevented the study from conducting data collection activities in some areas of the country where API and American Indian/Alaska Native students sampled for the study resided. For this reason, base-year response rates for these groups of students were lower than response rates for students of other racial/ethnic backgrounds. As a result, a relatively small number of ECLS-K:2011 sample children in the Native Hawaiian/Other Pacific Islander group resided in Hawaii. Additionally, nonresponse on the child assessment, parent interview, or both, leads to some of these sampled cases not being included in weighted analyses depending on the weight used. Also, none of the ECLS-K:2011 sample children in the American Indian/Alaska Native group resided in Alaska at the time of sampling. Users are encouraged to consider these sample characteristics when making statements about children in these two racial groups. As a reminder, however, the study was not designed to be representative at the state level or for subgroups within any specific racial or ethnic group.

Table 4-2. Number (unweighted) of eligible children sampled for the ECLS-K:2011, by selected characteristics: School year 2010–11

Characteristic	Total	Public school	Private school
Total	20,234	17,733	2,501
Census region[1,2,3]			
Northeast	3,500	2,930	570
Midwest	4,240	3,520	710
South	7,230	6,620	610
West	5,270	4,660	610
Locale[1,4]			
City	6,675	5,822	853
Suburb	7,657	6,461	1,196
Town	1,557	1,383	174
Rural	4,345	4,067	278
Religious affiliation[1]			
Catholic	974	†	974
Other religious	1,002	†	1,002
Nonreligious, private	525	†	525
Child's race/ethnicity[5]			
White, non-Hispanic	9,673	8,167	1,506
Black, non-Hispanic	2,619	2,357	262
Hispanic	4,832	4,491	341
Asian, non-Hispanic	1,830	1,597	233
Native Hawaiian/Other Pacific Islander, non-Hispanic	152	130	22
American Indian or Alaska Native, non-Hispanic	218	207	11
Other, non-Hispanic [6]	910	784	126

† Not applicable.

[1] Data for this school characteristic are taken from the original school sampling frame. Therefore, the table estimates for this characteristic cannot be replicated with variables on the released data file.

[2] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

[4] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.

[5] Race/ethnicity information was obtained from schools at the time of sampling.

[6] This category includes children who are more than one race (non-Hispanic) and children whose race/ethnicity is unknown.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010 and spring 2011.

Table 4-3. Number (unweighted) of sampled children who are base-year respondents, by selected characteristics: School year 2010–11

Characteristic	Total	Public school	Private school
Total	18,174	15,953	2,221
Census region[1,2,3]			
Northeast	3,010	2,540	470
Midwest	3,870	3,220	650
South	6,640	6,070	570
West	4,660	4,130	530
Locale[1,4]			
City	6,014	5,252	762
Suburb	6,793	5,746	1,047
Town	1,405	1,254	151
Rural	3,962	3,701	261
Religious affiliation[1]			
Catholic	863	†	863
Other religious	903	†	903
Nonreligious, private	455	†	455
Child's race/ethnicity[5]			
White, non-Hispanic	8,488	7,174	1,314
Black, non-Hispanic	2,396	2,159	237
Hispanic	4,592	4,269	323
Asian, non-Hispanic	1,543	1,357	186
Native Hawaiian/Other Pacific Islander, non-Hispanic	117	100	17
American Indian or Alaska Native, non-Hispanic	168	159	9
Two or more races, non-Hispanic	827	709	118
Unknown	43	26	17

† Not applicable.

[1] Data for this school characteristic are taken from the original school sampling frame. Therefore, the table estimates for this characteristic cannot be replicated with variables on the released data file.

[2] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

[4] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.

[5] Race/ethnicity information is from the fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2010, spring 2011, and spring 2016.

4.2 Sample Design for the First- Through Fifth-Grade Years

4.2.1 Fall First Grade and Fall Second Grade

This section describes the sample design for the fall data collections that occurred in first and second grades. Beginning with third grade, data collections occurred only in the spring of the school year. A subsample of students was selected for the fall first-grade and second-grade data collections from the full study sample described above via a three-step procedure. This subsample was designed to be representative of the full sample. In the first step, 30 PSUs were sampled from the 90 PSUs selected for the base year. Within the 30 subsampled PSUs, the 10 self-representing PSUs are large in population size and were included in the fall first-grade sample with certainty. The remaining 20 PSUs were selected from the 80 non-self-representing PSUs in 40 strata. To select the 20 non-self-representing PSUs, 20 strata were sampled with equal probability, and then one PSU was sampled within each stratum also with equal probabilities. This is equivalent to selection with probability proportional to size since the original PSU sample was selected with probability proportional to size.

In the second step, all schools within the 30 subsampled PSUs that were eligible for the base-year collection were included in the fall subsample for both first and second grades. However, data collection was not conducted in the subsampled schools in which no children participated in the base year because the study did not try to recruit base-year nonrespondents for later rounds of data collections. Table 4-4 shows the characteristics of all fall subsampled schools in the 30 PSUs selected in the first stage of sampling.[4] Table 4-5 shows the characteristics for the subsampled schools with base-year respondents; these are the schools in which data collection was conducted. Transfer schools (those schools that children moved into after the fall of kindergarten) are not included in this table. Of the 346 original sampled schools at the start of the fall data collections, 306 schools still cooperated in fall second grade.[5]

In the third step of sampling, students attending the subsampled schools who were respondents in the base year and who had not moved outside of the United States or died before the day assessments began in their school for the fall first-grade data collection were included as part of the fall sample for the first-grade data collection. This sample formed the base sample for the fall second-grade data collection as well, though subsampled children who had died or moved outside of the United States before the day assessments began in their school for the fall second-grade data collection were excluded.

---

[4] The fall second-grade data collection also included schools to which the children sampled for the fall collections in the third step of sampling had moved after sampling. These schools were not part of the original subsample selected in the second step of sampling and, therefore, are not included in table 4-4.

[5] After the base year, some original sampled schools no longer have students originally sampled in them, but the schools remain in the study because students originally sampled in other schools have moved into them. Other original sampled schools include both students originally sampled in them and transfer students.

Table 4-6 shows the characteristics of base-year respondents in the fall subsample who were selected in the third sampling step.

Table 4-4. Number (unweighted) of original sampled schools in the 30 PSUs selected for the fall data collections, by selected characteristics: Fall 2011 and fall 2012

Characteristic	Total	Public	Private
Total	568	462	106
Census region[1,2]			
Northeast	90	60	30
Midwest	100	90	10
South	170	150	30
West	210	170	40
Locale[3]			
City	241	202	39
Suburb	224	175	49
Town	19	15	4
Rural	84	70	14
Religious affiliation			
Catholic	29	†	29
Other religious	43	†	43
Nonreligious, private	34	†	34

† Not applicable.
[1] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[2] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[3] Locale information was taken from the school sampling frame for most schools. For a very small number of schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
NOTE: Data for these school characteristics are taken from the original school sampling frame. Therefore, the table estimates for these characteristics cannot be replicated with variables on the released data file.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2011 and fall 2012.

Table 4-5. Number (unweighted) of original sampled schools with base-year respondents at the start of the fall data collections, by selected characteristics: Fall 2011 and fall 2012

Characteristic	Total	Public	Private
Total	346	305	41
Census region[1,2]			
Northeast	50	40	10
Midwest	60	50	10
South	120	110	10
West	120	100	20
Locale[3]			
City	144	132	12
Suburb	134	112	22
Town	15	12	3
Rural	53	49	4
Religious affiliation			
Catholic	16	†	16
Other religious	12	†	12
Nonreligious, private	13	†	13

† Not applicable.
[1] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[2] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[3] Locale information was taken from the school sampling frame for most schools. For a very small number of schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
NOTE: Data for these school characteristics are taken from the original school sampling frame. Therefore, the table estimates for these characteristics cannot be replicated with variables on the released data file.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2011 and fall 2012.

Table 4-6. Number (unweighted) of base-year respondents in the fall first- and second-grade sample, by selected characteristics: Fall 2011 and fall 2012

Characteristic	Total	Public	Private
Total	6,109	5,458	651
Census region[1,2,3]			
Northeast	820	730	90
Midwest	1,120	1,010	110
South	2,000	1,840	170
West	2,170	1,880	280
Locale[1,4]			
City	2,549	2,295	254
Suburb	2,461	2,101	360
Town	250	227	23
Rural	849	835	14
Religious affiliation[1]			
Catholic	242	†	242
Other religious	233	†	233
Nonreligious, private	176	†	176
Race/ethnicity[5]			
White, non-Hispanic	2,260	1,916	344
Black, non-Hispanic	675	611	64
Hispanic	2,290	2,157	133
Asian, non-Hispanic	476	422	54
Native Hawaiian/Other Pacific Islander, non-Hispanic	33	27	6
American Indian or Alaska Native, non-Hispanic	117	110	7
Two or more races, non-Hispanic	245	208	37
Unknown	13	7	6

† Not applicable.

[1] Data for this school characteristic are taken from the original school sampling frame. Therefore, the table estimates for this characteristic cannot be replicated with variables on the released data file.

[2] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

[4] Locale information was taken from the school sampling frame for most schools. For a very small number of schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.

[5] Race/ethnicity is from the fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.

NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2011, fall 2012, and spring 2016.

Tables 4-7 and 4-8 show the characteristics of base-year respondents in the fall samples, by whether the students were still in the original sampled schools or had transferred to other schools by the end of first grade and second grade, respectively.

Table 4-7 shows that 81 percent of students were still attending their original sampled schools in the fall of first grade. Table 4-8 shows that 70 percent of students were still attending their original sampled schools in the fall of second grade. In the fall of first grade, the lowest percentages of students who were still attending their original sample schools are for students in non-Catholic private schools, students in the West, students in the suburbs, and Black students. The same is true for the fall of second grade with the percentage of students in non-Catholic private schools even lower than in first grade.[6]

[6] Significance tests were not conducted for the comparisons in this chapter because the differences discussed were based on the same sample of base-year respondents.

Table 4-7. Number (unweighted) of base-year respondents in fall first grade, by type of sampled school and selected characteristics: Fall 2011

Characteristic	Total	Original sampled school	Transfer school	Percent in original sampled school
Total	6,109	4,945	1,164	80.9
School type[1]				
Public	4,900	4,414	486	90.1
Private	552	468	84	84.8
Catholic	232	208	24	89.7
Other private	320	260	60	81.3
Unknown/home school	657	63	594	9.6
Census region[1,2,3]				
Northeast	760	660	90	87.8
Midwest	980	900	80	91.6
South	1,780	1,620	160	90.8
West	1,960	1,720	240	87.9
Unknown	640	50	590	7.2
Locale[1,4]				
City	2,354	2,127	227	90.4
Suburb	2,057	1,831	226	89.0
Town	217	198	19	91.2
Rural	781	718	63	91.9
Unknown	700	71	629	10.1
Race/ethnicity[5]				
White, non-Hispanic	2,260	1,905	355	84.3
Black, non-Hispanic	675	487	188	72.1
Hispanic	2,290	1,826	464	79.7
Asian, non-Hispanic	476	400	76	84.0
Native Hawaiian/Other Pacific Islander, non-Hispanic	33	26	7	78.8
American Indian or Alaska Native, non-Hispanic	117	97	20	82.9
Two or more races, non-Hispanic	245	197	48	80.4
Unknown	13	7	6	53.8

[1] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school census region and school locale are taken from the first-grade composite variables X3REGION and X3LOCALE. There was no school administrator questionnaire in the fall of first grade. Therefore, the composite for school type, X3SCTYP, was constructed specially for the User's Manual and not included in the data file.
[2] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[4] Locale information was taken from the school sampling frame for most schools. For a very small number of schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[5] Race/ethnicity is from the fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2011.

Table 4-8. Number (unweighted) of base-year respondents in the fall second grade, by type of sampled school and selected characteristics: Fall 2012

Characteristic	Total	Original sampled school	Transfer school	Percent in original sampled school
Total	6,109	4,274	1,835	70.0
School type[1]				
Public	5,036	3,951	1,085	78.5
Private	424	323	101	76.2
Catholic	220	161	59	73.2
Other private	204	162	42	79.4
Unknown/home school	649	0	649	0.0
Census region[1,2,3]				
Northeast	760	630	130	83.4
Midwest	950	760	190	80.0
South	1,700	1,410	300	82.6
West	1,930	1,480	460	76.3
Unknown	770	#	770	0.3
Locale[1,4]				
City	2,201	1,786	415	81.1
Suburb	2,032	1,617	415	79.6
Town	182	159	23	87.4
Rural	801	687	114	85.8
Unknown	893	25	868	2.8
Race/ethnicity[5]				
White, non-Hispanic	2,260	1,700	560	75.2
Black, non-Hispanic	675	387	288	57.3
Hispanic	2,290	1,574	716	68.7
Asian, non-Hispanic	476	347	129	72.9
Native Hawaiian/Other Pacific Islander, non-Hispanic	33	22	11	66.7
American Indian or Alaska Native, non-Hispanic	117	75	42	64.1
Two or more races, non-Hispanic	245	162	83	66.1
Unknown	13	7	6	53.8

Rounds to zero.

[1] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school census region and school locale are taken from the second-grade composite variables X5REGION and X5LOCALE. There was no school administrator questionnaire in the fall of second grade; therefore, the composite for school type, X5SCTYP, was constructed specially for the User's Manual and not included in the data file.

[2] States in each region: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

[4] Locale information was taken from the school sampling frame for most schools. For a very small number of schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.

[5] Race/ethnicity is from the fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.

NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), fall 2012 and spring 2016.

4.2.2 Spring First Grade Through Spring Fifth Grade

All base-year respondents were statistically eligible for the spring data collections from first grade through fifth grade, with the exception of those who moved outside the United States or died before the assessments began in their school. Table 4-9 shows the characteristics of the original sample schools with base-year respondents in all 90 study PSUs. This sample constituted the starting school sample, exclusive of transfer schools, for each spring round of data collection after the base year. Transfer schools (those schools that children moved into after the fall of kindergarten) are not included in this table. Of the 989 original sampled schools at the start of the spring data collections, 910 cooperated in spring first grade, 896 cooperated in spring second grade, 891 cooperated in spring third grade, 854 cooperated in spring fourth grade, and 830 cooperated in spring fifth grade.

Table 4-9. Number (unweighted) of original sampled schools in the 90 PSUs selected for the spring data collections with base-year respondents, by selected characteristics: Spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016

Characteristic	Total	Public	Private
Total	989	858	131
Census region[1,2]			
Northeast	170	150	30
Midwest	200	150	40
South	360	330	40
West	260	230	30
Locale[3]			
City	321	278	43
Suburb	357	302	55
Town	86	73	13
Rural	225	205	20
Religious affiliation			
Catholic	52	†	52
Other religious	55	†	55
Nonreligious, private	24	†	24

† Not applicable.
[1] States in each region: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[2] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[3] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
NOTE: Data for these school characteristics are taken from the original school sampling frame. Therefore, the table estimates for these characteristics cannot be replicated with variables on the released data file.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2012, spring 2013, spring 2014, spring 2015, and spring 2016.

The characteristics of base-year respondents who were eligible for the spring data collections for first through fifth grade are those presented above in table 4-3; since there was no subsampling for the spring rounds of data collection, all base-year respondents were initially eligible for data collection if they had not moved outside the United States or died prior to data collection. By the end of the fifth-grade data collections, about 210 base-year respondents had moved out the country and 10 had died.

Tables 4-10 to 4-18 show the characteristics of base-year respondents in the spring samples, by whether the students were still in their original sampled schools or had transferred to other schools. In the spring of first grade, 78 percent of base-year respondents were still attending their original sampled schools. This percent is 68 for the spring of second grade, 59 for the spring of third grade, 52 for the spring of fourth grade, and 45 for the spring of fifth grade. As is seen with the fall subsample, the lowest percentages of students who were still attending their original sample schools in the spring of first grade are for students in non-Catholic private schools, students in the West, students in the suburbs, and Black students. For the spring of second grade, for third grade, and fifth grade the pattern is the same except that students in different types of private schools moved at about the same rate, while students in public schools moved at a higher rate than students in Catholic schools and in non-Catholic private schools, and students in the Northeast moved at a higher rate than students in other census regions. In fourth grade, the pattern is similar to the first-grade data collection; namely, Black students moved at a higher rate, and so did students in the suburbs, students in the West, and students in non-Catholic private schools.

As discussed in chapter 2, in the spring of fifth grade, as in fourth grade, separate child-/classroom-level questionnaires were given to reading, mathematics, and science teachers to accommodate variations in the organization of instruction, with study children having different teachers for the different subject areas. Reading teacher questionnaires were distributed for all children. Mathematics teacher questionnaires were distributed for half of the children, and science teacher questionnaires were distributed for the other half. Selection was done with equal probability, using the third-grade response status of child and parent for stratification (respondent, nonrespondent/unknown eligibility, and ineligible/non-followed movers). There is a flag variable (X9MSFLAG) on the data file that indicates whether a child case was selected for mathematics (X9MSFLAG=0) or science (X9MSFLAG=1). These flags have the same values as for fourth grade. Each teacher linked to a study child was also asked to complete a teacher-level questionnaire. Every teacher received the same teacher-level questionnaire; it was not tailored to a specific subject. Tables 4-17 and 4-18 show the characteristics of base-year respondents in fifth grade who were selected for the mathematics teacher questionnaires, and those who were selected for the science teacher questionnaires, respectively.

Table 4-10. Number (unweighted) of base-year respondents in spring first grade, by type of sampled school and selected characteristics: Spring 2012

Characteristic	Total	Original sampled school	Transfer school[1]	Percent in original sampled school
Total	18,174	14,104	4,070	77.6
School type[2]				
Public	13,772	12,361	1,411	89.8
Private	1,946	1,736	210	89.2
Catholic	774	726	48	93.8
Other private	1,172	1,010	162	86.2
Unknown/home school	2,456	7	2,449	0.3
Census region[2,3,4]				
Northeast	2,600	2,350	250	90.5
Midwest	3,280	2,960	320	90.2
South	5,690	5,190	490	91.3
West	4,160	3,600	560	86.5
Unknown	2,460	10	2,500	0.3
Locale[2,5]				
City	5,231	4,643	588	88.8
Suburb	5,613	4,961	652	88.4
Town	1,221	1,140	81	93.4
Rural	3,344	3,162	182	94.6
Unknown	2,765	198	2,567	7.2
Race/ethnicity[6]				
White, non-Hispanic	8,488	6,821	1,667	80.4
Black, non-Hispanic	2,396	1,623	773	67.7
Hispanic	4,592	3,542	1,050	77.1
Asian, non-Hispanic	1,543	1,254	289	81.3
Native Hawaiian/Other Pacific Islander, non-Hispanic	117	87	30	74.4
American Indian or Alaska Native, non-Hispanic	168	122	46	72.6
Two or more races, non-Hispanic	827	635	192	76.8
Unknown	43	20	23	46.5

[1] Transfer school totals include those children who became ineligible after the base year.
[2] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school census region and school locale are taken from the first-grade composite variables X4SCTYP, X4REGION, and X4LOCALE.
[3] States in each region: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[5] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[6] Race/ethnicity is from fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2012 and spring 2016.

Table 4-11. Number (unweighted) of base-year respondents in spring second grade, by type of sampled school and selected characteristics: Spring 2013

Characteristic	Total	Original sampled school	Transfer school[1]	Percent in original sampled school
Total	18,174	12,274	5,900	67.5
School type[2]				
Public	13,116	11,029	2,087	84.1
Private	1,388	1,245	143	89.7
Catholic	655	587	68	89.6
Other private	733	658	75	89.8
Unknown/home school	3,670	0	3,670	0.0
Census region[2,3,4]				
Northeast	2,400	2,060	350	85.6
Midwest	3,020	2,570	450	85.0
South	5,180	4,500	690	86.8
West	3,860	3,150	720	81.5
Unknown	3,700	#	3,700	0.1
Locale[2,5]				
City	4,762	3,968	794	83.3
Suburb	5,139	4,248	891	82.7
Town	1,070	976	94	91.2
Rural	3,149	2,906	243	92.3
Unknown	4,054	176	3,878	4.3
Race/ethnicity[6]				
White, non-Hispanic	8,488	6,078	2,410	71.6
Black, non-Hispanic	2,396	1,298	1,098	54.2
Hispanic	4,592	3,095	1,497	67.4
Asian, non-Hispanic	1,543	1,101	442	71.4
Native Hawaiian/Other Pacific Islander, non-Hispanic	117	73	44	62.4
American Indian or Alaska Native, non-Hispanic	168	98	70	58.3
Two or more races, non-Hispanic	827	516	311	62.4
Unknown	43	15	28	34.9

Rounds to zero.
[1] Transfer school totals include those children who became ineligible after base-year.
[2] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school type, school census region, and school locale are taken from the second-grade composite variables X6SCTYP, X6REGION, and X6LOCALE.
[3] States in each region: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[5] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[6] Race/ethnicity is from fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2013 and spring 2016.

Table 4-12. Number (unweighted) of base-year respondents in spring third grade, by type of sampled school and selected characteristics: Spring 2014

Characteristic	Total	Original sampled school	Transfer school[1]	Percent in original sampled school
Total	18,174	10,641	7,533	58.6
School type[2]				
Public	12,369	9,532	2,837	77.1
Private	1,286	1,109	177	86.2
Catholic	631	545	86	86.4
Other private	655	564	91	86.1
Unknown/home school	4,519	0	4519	0.0
Census region[2,3,4]				
Northeast	2,280	1,740	550	76.1
Midwest	2,850	2,210	640	77.6
South	4,840	3,860	970	79.9
West	3,700	2,840	860	76.7
Unknown	4,520	0	4520	0.0
Locale[2,5]				
City	4,467	3,503	964	78.4
Suburb	4,841	3,594	1247	74.2
Town	990	814	176	82.2
Rural	2,993	2574	419	86.0
Unknown	4,883	156	4727	3.2
Race/ethnicity[6]				
White, non-Hispanic	8,488	5,317	3,171	62.6
Black, non-Hispanic	2,396	1,058	1,338	44.2
Hispanic	4,592	2,686	1,906	58.5
Asian, non-Hispanic	1,543	978	565	63.4
Native Hawaiian/Other Pacific Islander, non-Hispanic	117	63	54	53.8
American Indian or Alaska Native, non-Hispanic	168	85	83	50.6
Two or more races, non-Hispanic	827	440	387	53.2
Unknown	43	14	29	32.6

[1] Transfer school totals include those children who became ineligible after base-year.
[2] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school type, school census region, and school locale are taken from the third-grade composite variables X7SCTYP, X7REGION, and X7LOCALE.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[5] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[6] Race/ethnicity is from the fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2014 and spring 2016.

Table 4-13. Number (unweighted) of base-year respondents in spring fourth grade, by type of sampled school and selected characteristics: Spring 2015

Characteristic	Total	Original sampled school	Transfer school[1]	Percent in original sampled school
Total	18,174	9,496	8,678	52.3
School type[2]				
Public	11,770	8,493	3,277	72.2
Private	1,198	1,003	195	83.7
Catholic	590	503	87	85.3
Other private	608	500	108	82.2
Unknown/home school	5,206	0	5,206	0.0
Census region[2,3,4]				
Northeast	2,160	1,470	690	68.2
Midwest	2,710	2,010	700	74.3
South	4,560	3,440	1,120	75.4
West	3,540	2,570	970	72.7
Unknown	5,210	0	5,210	0.0
Locale[2,5]				
City	4,113	3,071	1,042	74.7
Suburb	5,422	3,824	1,598	70.5
Town	851	630	221	74.0
Rural	2,237	1,848	389	82.6
Unknown	5,551	123	5,428	2.2
Race/ethnicity[6]				
White, non-Hispanic	8,488	4,766	3,722	56.1
Black, non-Hispanic	2,396	907	1,489	37.9
Hispanic	4,592	2428	2,164	52.9
Asian, non-Hispanic	1,543	862	681	55.9
Native Hawaiian/Other Pacific Islander, non-Hispanic	117	54	63	46.2
American Indian or Alaska Native, non-Hispanic	168	79	89	47.0
Two or more races, non-Hispanic	827	387	440	46.8
Unknown	43	13	30	30.2

[1] Transfer school totals include those children who became ineligible after base-year.
[2] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school type, school census region, and school locale are taken from the fourth-grade composite variables X8SCTYP, X8REGION, and X8LOCALE.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[5] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[6] Race/ethnicity is from the fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2015 and spring 2016.

Table 4-14. Number (unweighted) of base-year respondents in spring fourth grade who were selected for the mathematics teacher questionnaire, by type of sampled school and selected characteristics: Spring 2015

Characteristic	Total	Original sampled school	Transfer school[1]	Percent in original sampled school
Total	9,087	4,724	4,363	52.0
School type[2]				
Public	5,899	4,235	1,664	71.8
Private	589	489	100	83.0
Catholic	292	245	47	83.9
Other private	297	244	53	82.2
Unknown/home school	2,599	0	2,599	0.0
Census region[2,3,4]				
Northeast	1,080	730	350	67.4
Midwest	1,350	1,010	340	74.7
South	2,290	1,710	580	74.7
West	1,770	1,280	490	72.3
Unknown	2,600	0	2,600	0.0
Locale[2,5]				
City	2,051	1,517	534	74.0
Suburb	2,709	1,894	815	69.9
Town	439	329	110	74.9
Rural	1,118	922	196	82.5
Unknown	2,770	62	2,708	2.2
Race/ethnicity[6]				
White, non-Hispanic	4,206	2,357	1,849	56.0
Black, non-Hispanic	1,198	454	744	37.9
Hispanic	2,310	1,203	1,107	52.1
Asian, non-Hispanic	764	428	336	56.0
Native Hawaiian/Other Pacific Islander, non-Hispanic	56	25	31	44.6
American Indian or Alaska Native, non-Hispanic	83	40	43	48.2
Two or more races, non-Hispanic	443	208	235	47.0
Unknown	27	9	18	33.3

[1] Transfer school totals include those children who became ineligible after base-year.
[2] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school type, school census region, and school locale are taken from the fourth-grade composite variables X8SCTYP, X8REGION, and X8LOCALE.
[3] States in each region: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[5] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[6] Race/ethnicity is from the fourth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2015.

Table 4-15. Number (unweighted) of base-year respondents in spring fourth grade who were selected for the science teacher questionnaire, by type of sampled school and selected characteristics: Spring 2015

Characteristic	Total	Original sampled school	Transfer school[1]	Percent in original sampled school
Total	9,087	4,772	4,315	52.5
School type[2]				
Public	5,871	4,258	1,613	72.5
Private	609	514	95	84.4
Catholic	298	258	40	86.6
Other private	311	256	55	82.3
Unknown/home school	2,607	0	2,607	0.0
Census region[2,3,4]				
Northeast	1,080	740	330	68.9
Midwest	1,360	1,000	350	73.9
South	2,280	1,740	540	76.2
West	1,770	1,290	480	73.1
Unknown	2,610	0	2,610	0.0
Locale[2, 5]				
City	2,062	1,554	508	75.4
Suburb	2,713	1,930	783	71.1
Town	412	301	111	73.1
Rural	1,119	926	193	82.8
Unknown	2,781	61	2,720	2.2
Race/ethnicity[6]				
White, non-Hispanic	4,282	2,409	1,873	56.3
Black, non-Hispanic	1,198	453	745	37.8
Hispanic	2,282	1,225	1,057	53.7
Asian, non-Hispanic	779	434	345	55.7
Native Hawaiian/Other Pacific Islander, non-Hispanic	61	29	32	47.5
American Indian or Alaska Native, non-Hispanic	85	39	46	45.9
Two or more races, non-Hispanic	384	179	205	46.6
Unknown	16	4	12	25.0

[1] Transfer school totals include those children who became ineligible after base-year.
[2] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school type, school census region, and school locale are taken from the fourth-grade composite variables X8SCTYP, X8REGION, and X8LOCALE.
[3] States in each region: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[5] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[6] Race/ethnicity is from the fourth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2015.

Table 4-16. Number (unweighted) of base-year respondents in spring fifth grade, by type of sampled school and selected characteristics: Spring 2016

Characteristic	Total	Original sampled school	Transfer school[1]	Percent in original sampled school
Total	18,174	8,157	10,017	44.9
School type[2]				
Public	11,260	7,227	4,033	64.2
Private	1,148	930	218	81.0
Catholic	568	464	104	81.7
Other private	580	466	114	80.3
Unknown/home school	5,766	0	5,766	0.0
Census region[2,3,4]				
Northeast	2,060	1,180	880	57.4
Midwest	2,580	1,630	950	63.2
South	4,340	2,990	1,350	68.9
West	3,430	2,350	1,080	68.6
Unknown	5,770	0	5,770	0.0
Locale[2,5]				
City	3,873	2,735	1,138	70.6
Suburb	5,214	3,240	1,974	62.1
Town	850	514	336	60.5
Rural	2,114	1,556	558	73.6
Unknown	6,123	112	6,011	1.8
Race/ethnicity[6]				
White, non-Hispanic	8,488	4,011	4,477	47.3
Black, non-Hispanic	2,396	769	1,627	32.1
Hispanic	4,592	2,129	2,463	46.4
Asian, non-Hispanic	1,543	781	762	50.6
Native Hawaiian/Other Pacific Islander, non-Hispanic	117	47	70	40.2
American Indian or Alaska Native, non-Hispanic	168	76	92	45.2
Two or more races, non-Hispanic	827	332	495	40.1
Unknown	43	12	31	27.9

[1] Transfer school totals include those children who became ineligible after base-year.
[2] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school type, school census region, and school locale are taken from the fifth-grade composite variables X9SCTYP, X9REGION, and X9LOCALE.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[5] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[6] Race/ethnicity is from the fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 4-17. Number (unweighted) of base-year respondents in spring fifth grade who were selected for the mathematics teacher questionnaire, by type of sampled school and selected characteristics: Spring 2016

Characteristic	Total	Original sampled school	Transfer school[1]	Percent in original sampled school
Total	9,087	4,037	5,050	44.4
School type[2]				
Public	5,645	3,587	2,058	63.5
Private	562	450	112	80.1
Catholic	277	224	53	80.9
Other private	285	126	59	44.2
Unknown/home school	2,880	0	2,880	0.0
Census region[2,3,4]				
Northeast	1,040	590	450	56.4
Midwest	1,290	820	470	63.5
South	2,180	1,470	700	67.6
West	1,710	1,160	540	68.1
Unknown	2,880	0	2,880	0.0
Locale[2,5]				
City	1,937	1,354	583	69.9
Suburb	2,596	1,587	1,009	61.1
Town	434	267	167	61.5
Rural	1,055	772	283	73.2
Unknown	3,065	57	3,008	1.9
Race/ethnicity[6]				
White, non-Hispanic	4,206	1,986	2,220	47.2
Black, non-Hispanic	1,198	379	819	31.6
Hispanic	2,310	1,046	1,264	45.3
Asian, non-Hispanic	764	384	380	50.3
Native Hawaiian/Other Pacific Islander, non-Hispanic	56	23	33	41.1
American Indian or Alaska Native, non-Hispanic	83	37	46	44.6
Two or more races, non-Hispanic	443	173	270	39.1
Unknown	27	9	18	33.3

[1] Transfer school totals include those children who became ineligible after base-year.
[2] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school type, school census region, and school locale are taken from the fifth-grade composite variables X9SCTYP, X9REGION, and X9LOCALE.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[5] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[6] Race/ethnicity is from the fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 4-18. Number (unweighted) of base-year respondents in spring fifth grade who were selected for the science teacher questionnaire, by type of sampled school and selected characteristics: Spring 2016

Characteristic	Total	Original sampled school	Transfer school[1]	Percent in original sampled school
Total	9,087	4,120	4,967	45.3
School type[2]				
Public	5,615	3,640	1,975	64.8
Private	586	480	106	81.9
Catholic	291	240	51	82.5
Other private	295	240	55	81.4
Unknown/home school	2,886	0	2,866	0.0
Census region[2,3,4]				
Northeast	1,020	600	420	58.4
Midwest	1,300	820	480	62.9
South	2,160	1,520	650	70.2
West	1,720	1,190	530	69.1
Unknown	2,890	0	2,890	0.0
Locale[2,5]				
City	1,936	1,381	555	71.3
Suburb	2,618	1,653	965	63.1
Town	416	247	169	59.4
Rural	1,059	784	275	74.0
Unknown	3,058	55	3,003	1.8
Race/ethnicity[6]				
White, non-Hispanic	4,282	2,025	2,257	47.3
Black, non-Hispanic	1,198	390	808	32.6
Hispanic	2,282	1,083	1,199	47.5
Asian, non-Hispanic	779	397	382	51.0
Native Hawaiian/Other Pacific Islander, non-Hispanic	61	24	37	39.3
American Indian or Alaska Native, non-Hispanic	85	39	46	45.9
Two or more races, non-Hispanic	384	159	225	41.4
Unknown	16	3	13	18.8

[1] Transfer school totals include those children who became ineligible after base-year.
[2] Because this table includes transfer schools that were not in the original school frame, school frame data could not be used for school characteristics. Data for school type, school census region, and school locale are taken from the fifth-grade composite variables X9SCTYP, X9REGION, and X9LOCALE.
[3] States in each region: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
[5] Locale information was taken from the school sampling frame for most schools. For approximately 30 schools sampled via the new school procedure (see section 4.1.2.7 of the base-year User's Manual), locale information was not available in the school frame and was imputed for the estimates in this table. Imputed values for locale are not included in the data file.
[6] Race/ethnicity is from the fifth-grade race/ethnicity composite X_RACETH_R. The counts of children by race/ethnicity are slightly different from the counts in similar tables in the user's manuals from previous years. X_RACETH_R was revised after every data collection.
NOTE: A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

4.2.3 Following Movers

Sections 4.2.1 and 4.2.2 discuss the samples of eligible students included in the fall and spring data collections in first and second grades and in the spring data collections in third, fourth, and fifth grades. As noted, students who moved outside the United States or died prior to data collection in their schools became ineligible for the study. Their exclusion represents a limitation on the population to which the study generalizes in later rounds of data collection. For example, the data collected in spring 2016 are representative of the experiences of children in the kindergarten class of 2010–11 who were living in the United States in the spring of 2016.

In order to control data collection costs, there are some students who are part of the statistical samples for the first-, second-, third-, fourth-, and fifth-grade data collections but were excluded from actual data collection. These students, while statistically eligible for the study, were operationally ineligible. Specifically, not all students who moved away from their original base-year schools after the spring base-year data collection (known as "movers") were followed into their new schools. While some movers were followed with certainty, some subsampling of other movers occurred, as described below. Although information was not collected from all students in every round, the study sampling procedures, combined with the use of sampling weights that include mover subsampling adjustments (described below in section 4.3.2.2) in data analysis, result in the collected data being representative of the students in the kindergarten class of 2010–11 who remain living in the United States.

Homeschooled children (i.e., those who were enrolled in a school at the time of sampling in the base year but left school to become homeschooled) were followed with certainty; they were assessed in their home if there was parental consent to do so.

Destination schools. When four or more students moved from an original sampled school into the same transfer school, all those movers were followed into the new school, which is referred to as a *destination school*. This type of movement occurred for children who attended sampled schools that ended at a particular grade, which are referred to as terminal schools. For example, study students who attended an original sample school that ended with third grade would move as a group to a new school for fourth grade. In some cases, an original sample school did not terminate in a particular grade, but for some reason four or more students from that school moved together into the same transfer school for the subsequent data collections. For example, this would happen if an original sample school closed after the spring third-grade data collection. More than one destination school may be identified for an original school if separate clusters of four or more students moved into different transfer schools.

Language minority (LM) students, students with an Individualized Education Program (IEP), and students who had an Individualized Family Service Plan (IFSP). Students who were identified as language minority (LM) based on parent report of home language in the base year, as well as students identified as currently having an Individualized Education Program (IEP), or who had an Individualized Family Service Plan (IFSP) were followed at a rate of 100 percent in fifth grade. The IEP status of the child was obtained during the preassessment call when the team leader asked the school coordinator whether the child had an IEP or equivalent program on record with the school. The school records also may have indicated that a child had an IFSP when he or she was younger, even if the child did not have an IEP at the time of data collection, which the team leader could have noted during the call. Additionally, information about whether a child had had an IFSP prior to kindergarten was collected in the base-year parent interview. Due to an identification error before third grade, a number of these children who moved from their originally sampled school were not flagged to be followed with certainty in first grade and second grade. Despite this lack of sample protection, approximately 92 percent of the students who had had an IFSP were followed into second grade, either because they did not change schools, they had an IEP and became part of the protected group as a result of the IEP, or because they were already identified as part of the mover subsample that was followed at a rate of 50 percent.[7] In third grade, the identification error was corrected, and an additional 350 students who had had an IFSP were identified and followed with certainty. In fourth grade, about 590 students who had had an IFSP were followed with certainty, and about 520 had child or parent data. In fifth grade, about 590 students[8] who had had an IFSP were followed with certainty, and about 510 had child or parent data.

[7] There are some differences between the group of IFSP children who were followed and those who were not. However, some of these differences appear to be related to the likelihood that a child had an IEP (and, therefore, whether the child became part of the protected group as a result of the IEP). For example, compared to those IFSP children who were not followed, a higher percentage of IFSP children who were followed attended public schools, which are required to provide disability services through an IEP.

The subsampling process itself should not have introduced bias into the sample of IFSP children who were followed, because cases were randomly flagged to be followed. Additionally, the sampling weights developed for use with second-grade data account for this random subsampling. A comparison of key weighted estimates (such as school type, region of residence, school locale, percent of students in the school who were races other than White, and student race/ethnicity, gender, and year of birth) between kindergarten and first grade generally suggests the loss of those children who were not followed has little impact on the overall estimates for children who had IFSPs before age 3. Where slight differences between the kindergarten and first-grade estimates were noticed (for example, in the percent of students of race other than White in a school), the pattern with the sample of IFSP children is reflective of differences seen in the full ECLS-K:2011 sample. Also, it should be kept in mind that identifying a child to be followed with certainty does not necessarily mean that the child would have participated in the round(s) in which he or she was followed. Due to general sample attrition, the IFSP students who were not flagged to be followed with certainty constitute only about half of all IFSP children who did not participate in first grade and second grade. It is unlikely that differences in weighted estimates for the entire group of IFSP children (about 680) are due solely to the absence of the approximately 60 IFSP cases that were not followed neither in first grade nor in second grade.

Nonparticipation of IFSP children in later rounds of the study for any reason does reduce the IFSP sample available for analysis. As is the case for analysis of any small subgroup, users should consider the size of their analytic sample and whether there is enough power in the data to make generalizations about the groups being examined.

[8] Of the 590 students who had an IFSP and who were followed with certainty in fourth grade, less than 10 moved out of the country prior to the fifth-grade data collection.

General procedures for all other movers. Fifty percent of students who did not meet one of the criteria described above (i.e., did not move to a destination school, were not LM, and did not have an IEP) were sampled with equal probability to be flagged as "follow" if they moved from their original sample school. If a student was flagged as "do not follow," no data were collected for him or her once he or she moved school. Students flagged as "do not follow" were not sought for participation in any further data collection unless they were part of the fall subsample, as explained further below. If a student was flagged as "follow," and

1. the student moved into any school in a study PSU (whether or not the school participated in the study), the student was included in all aspects of data collection (child assessment, child questionnaire, parent interview, school administrator questionnaire, and teacher questionnaires);

2. the student moved into a school outside a study PSU: only a parent interview was attempted; and,

3. the student moved into a school outside the country: the student was out of scope and considered ineligible for continuation in the study.

Procedures for students in the fall subsample. Fifty percent of all students in the subsample had their follow flag set to "follow" after the base-year data collection. Children were sampled with equal probability to be flagged as "follow," meaning that if they transferred to a new school they would be followed into that new school for the fall first- and second- grade data collections. As explained in detail below, all students who were subsampled in the fall, regardless of their mover status, were followed in the spring data collections. As a result of these procedures, some subsample students were not followed in the fall collections, because their follow flag applicable to the fall collections was set to "not follow," but they were followed in the spring collections.

Procedures for students in the spring main sample. Fifty percent of the schools in the main sample were subsampled with equal probability to have follow flags (i.e., all students in the 50 percent subsample of schools have flags set to "follow") applicable for the spring data collections. All fall schools in the 30 sampled PSUs were included in the "mover follow" sample for the spring of first, second, third, fourth, and fifth grade. An additional sample of schools that were not part of the fall subsample was selected to arrive at 50 percent of the entire sample of schools being included in the "mover follow" subsample in the spring first-, second-, third-, fourth-, and fifth-grade data collections. In this way, students who were originally sampled for fall data collections were included in the spring data collections with certainty. These fall subsample cases were followed for the spring data collections even if they were movers in the fall and had their fall mover flag set to "not follow" or they were nonrespondents in the fall. Also, this method allows fall subsample movers to continue to be followed in each subsequent round of data collection, as well as more clustering of the movers to be followed, thus cutting down on field costs.

4.3 Calculation and Use of Sample Weights

The ECLS-K:2011 data should be weighted to account for differential probabilities of selection at each sampling stage and to adjust for the effect nonresponse can have on the estimates. For the base year, weights were provided at the child and school levels. Estimates produced using the base-year child-level weights are representative of children who attended kindergarten or who attended an ungraded school or classroom and were of kindergarten age in the United States in the 2010–11 school year. Estimates produced using the base-year school-level weight are representative of schools with kindergarten programs or schools that educate children of kindergarten age in an ungraded setting.

For all data collections after the kindergarten year, weights are provided only at the child level, to produce estimates for the kindergarten cohort during the 2011–12 school year, the 2012–13 school year, the 2013–14 school year, the 2014–15 school year, and the 2015–16 school year, respectively. There are no school-level weights because the school sample is no longer nationally representative; it is not representative of schools with first-grade students, second-grade students, third-grade students, fourth-grade students, fifth-grade students or ungraded schools serving children of first-grade, second-grade, third-grade, fourth-grade, or fifth-grade age. The school sample is simply a set of schools attended by the children in the ECLS-K:2011 cohort during the 2011–12, the 2012–13, the 2013–14, the 2014–15, and the 2015–16 school years.

The use of weights is essential to produce estimates that are representative of the cohort of children who were in kindergarten in 2010–11. Main sampling weights should be used to produce survey estimates. When testing hypotheses (e.g., conducting *t* tests, regression analyses, etc.) using weighted data from a study such as the ECLS-K:2011 that has a complex design, analysts also should use methods to adjust the standard errors. Two such methods are jackknife replication variance estimation and the Taylor series linearization method. Replicate weights are provided in the data file for use with the paired jackknife replication procedure, and PSU and stratum identifiers are provided for use with the Taylor series method.

4.3.1 Types of Sample Weights

Main sampling weights designed for use with data from a complex sample survey serve two primary purposes. When used in analyses, the main sampling weight weights the sample size up to the population total of interest. In the ECLS-K:2011, weighting produces national-level estimates. Also, the main sampling weight adjusts for differential nonresponse patterns that can lead to bias in the estimates. If people with certain characteristics are systematically less likely than others to respond to a survey, the collected data may not accurately reflect the characteristics and experiences of the nonrespondents, which can lead to bias. To adjust for this, respondents are assigned weights that, when applied, result in respondents representing their own characteristics and experiences as well as those of nonrespondents with similar attributes.

A sample weight could be produced for use with data from every component of the study (e.g., data from the fifth-grade parent interview; the fifth-grade child assessment and child questionnaire; the fifth-grade teacher teacher-level questionnaire; the fifth-grade teacher child- and classroom-level reading, mathematics, or science teacher questionnaire; or the fifth-grade school administrator questionnaire) and for every combination of components for the study (e.g., data from the fifth-grade child assessment with data from the fifth-grade school administrator questionnaire, or data from the spring kindergarten child assessment with data from the fifth-grade child assessment or child questionnaire and the fifth-grade parent interview). However, creating all possible weights for a study with as many components as the ECLS-K:2011 would be impractical, especially as the study progresses and the number of possible weights increases. In order to determine which weights would be most useful for researchers analyzing data from fifth grade, completion rates for each fifth-grade component (e.g., response to the child assessment and child questionnaire, the parent interview, various parts of the teacher questionnaire) were reviewed in combination with completion rates from the kindergarten, first-grade, second-grade, third-grade, and fourth-grade years, and consideration was given to how analysts are likely to use the data.

The best approach to choosing a sample weight for a given analysis is to select one that maximizes the number of sources of data included in the analyses for which nonresponse adjustments are made, which in turn minimizes bias in estimates, while maintaining as large an unweighted sample size as possible. Exhibits 4-1 and 4-2 show the 21 weights computed for the analyses of fifth-grade data. It also identifies the survey component(s), or sources of data, for which nonresponse adjustments are made for each weight.

Note that for five sets of weights involving the fifth-grade teacher data, separate weights were computed for the analyses of the teacher child- and classroom-level reading, mathematics, and science questionnaires. Analytic weights that adjust for nonresponse to the reading teacher questionnaire apply to all children enrolled in school since they were all eligible for a reading teacher questionnaire. As discussed above, half of the study children were eligible for a mathematics teacher questionnaire and half were eligible for a science teacher questionnaire. Weights that adjust for nonresponse for each of these questionnaires are not provided in separate mathematics and science weighting variables. Instead, the mathematics and science weight values are combined in the same weight variables. To use weights applicable only to the set of children selected for a mathematics teacher or only to the set of children selected for a science teacher, the user needs to subset the data to a specific subject using the flag variable X9MSFLAG. When analyzing information provided by the mathematics teacher, the user needs to subset data to mathematics by setting the flag X9MSFLAG to 0. When analyzing data provided by science teachers the user needs to subset the data to science by setting the flag X9MSFLAG to 1. When analyzing data that include the reading teacher questionnaire, no subsetting is necessary.

Many of the weights that adjust for nonresponse to the reading teacher questionnaire have parallel weights that adjust for nonresponse to the mathematics/science teacher questionnaires. However, some weights that adjust for nonresponse to the reading teacher questionnaire do not have a similar weight that has mathematics or science nonresponse adjustments. This is because the reading teacher questionnaire contained child-level questions that were not included in the mathematics or science teacher questionnaires. The mathematics and science questionnaires contained only a few child-level questions specifically related to mathematics or science. The reading teacher questionnaire contained questions related not only to reading but also to the child’s academic and social skills, classroom behaviors, and peer relationships. To help users better understand the series of weights include nonresponse adjustments for teacher data, those weights are presented separately in exhibit 4-2.

Since every child who was assessed also had child questionnaire data, the response rates have the same pattern. Therefore, nonresponse adjustments for the child questionnaire did not need to be made separately from nonresponse adjustments for the child assessment. Analyses that include either child assessment data or child questionnaire data should be done with a weight that includes the C9 component.

Exhibit 4-1. ECLS-K:2011 fifth-grade main sampling weights for analysis not including data from teachers

Weight	Description
W9C9P_2	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring fifth grade, and parent data from either fall kindergarten or spring kindergarten (C9)(P1_P2)
W9C19P_2	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from both kindergarten rounds and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten (C1C2C9)(P1_P2)
W9C19P_9	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from both kindergarten rounds and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade (C1C2C9)(P1_P2)(P4P6P7P8P9)
W9C29P_9A	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, and parent data from spring fifth grade (C2C4C6C7C8C9)(P1_P2)(P9)
W9C29P_9B	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade (C2C4C6C7C8C9)(P1_P2)(P4P6P7P8P9)
W9C79	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring third grade, spring fourth grade, and spring fifth grade (C7C8C9)

NOTE: Having child assessment/child questionnaire data includes (1) having reading and/or mathematics and/or science scores, (2) having at least one executive function score, (3) having a height or weight measurement, or (4) being excluded from assessment due to lack of accommodation for a disability. In spring fifth grade, every child who has questionnaire data was assessed. The weight designations (C1, C2, etc.) use the same prefixes that are used for other variables in the kindergarten–fifth grade data file. The prefixes are listed in exhibit 7-1.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), kindergarten–fifth grade (K-5) restricted-use data file.

Exhibit 4-2. ECLS-K:2011 fifth-grade main sampling weights associated with data from teachers

Weight	Description
W9C19P_2T29	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from both kindergarten rounds and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, and either teacher-/classroom- or child-level teacher data from spring kindergarten (from a core or supplemental teacher questionnaire), spring first grade (from a first-grade or a kindergarten teacher questionnaire), spring second grade, and spring third grade, and either reading teacher-/classroom- or child-level reading teacher data from spring fourth grade and spring fifth grade (C1C2C9)(P1_P2)(T2T4T6T7T8T9) Note: This weight was created with nonresponse adjustments for the reading teacher only. There is no similar weight with nonresponse adjustments for the mathematics or science teacher.
W9C19P_9T29A	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from both kindergarten rounds and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, parent data from fifth grade, and either teacher-/classroom- or child-level teacher data from spring kindergarten (from a core or supplemental teacher questionnaire), spring first grade (from a first-grade or a kindergarten teacher questionnaire), spring second grade, and spring third grade, and either reading teacher-/classroom- or child-level reading teacher data from spring fourth grade and spring fifth grade (C1C2C9)(P1_P2)(P9)(T2T4T6T7T8T9) Note: This weight was created with nonresponse adjustments for the reading teacher only. There is no similar weight with nonresponse adjustments for the mathematics or science teacher.
W9C19P_9T29B	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from both kindergarten rounds and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, and either teacher-/classroom- or child-level teacher data from spring kindergarten (from a core or supplemental teacher questionnaire), spring first grade (from a first-grade or a kindergarten teacher questionnaire), spring second grade, and spring third grade, and either reading teacher-/classroom- or child-level reading teacher data from spring fourth grade and spring fifth grade (C1C2C9)(P1_P2)(P4P6P7P8P9)(T2T4T6T7T8T9) Note: This weight was created with nonresponse adjustments for the reading teacher only. There is no similar weight with nonresponse adjustments for the mathematics or science teacher.

See notes at end of exhibit.

Exhibit 4-2. ECLS-K:2011 fifth-grade main sampling weights associated with data from teachers—Continued

Weight	Description
W9C29P_2T29	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, and either teacher-/classroom- or child-level teacher data from spring kindergarten (from a core or supplemental teacher questionnaire), spring first grade (from a first-grade or a kindergarten teacher questionnaire), spring second grade, and spring third grade, and either reading teacher-/classroom- or child-level reading teacher data from spring fourth grade and spring fifth grade (C2C4C6C7C8C9)(P1_P2)(T2T4T6T7T8T9) Note: This weight was created with nonresponse adjustments for the reading teacher only. There is no similar weight with nonresponse adjustments for the mathematics or science teacher.
W9C19P_9T9	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from both kindergarten rounds and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, parent data from fifth grade, and either reading teacher-/classroom- or child-level reading teacher data from spring fifth grade (C1C2C9)(P1_P2)(P9)(T9) Note: This weight was created with nonresponse adjustments for the reading teacher. The similar weight with nonresponse adjustments for the mathematics or science teacher is W9C19P_9T9Z.
W9C19P_9T9Z	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from both kindergarten rounds and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, parent data from fifth grade, and either mathematics/science teacher-/classroom- or child-level mathematics/science teacher data from spring fifth grade (C1C2C9)(P1_P2)(P9)(T9Z) Note: Users must subset records to include cases with mathematics teacher data only (X9MSFLAG=0) or science teacher data only (X9MSFLAG=1) when using this weight.

See notes at end of exhibit.

Exhibit 4-2. ECLS-K:2011 fifth-grade main sampling weights associated with data from teachers—Continued

Weight	Description
W9C19P_9T29C	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from both kindergarten rounds and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, parent data from fifth grade, and either teacher-/classroom- or child-level teacher data from spring kindergarten (from a core or supplemental teacher questionnaire) and either reading teacher-/classroom- or child-level reading teacher data from spring fifth grade (C1C2C9)(P1_P2)(P9)(T2T9) Note: This weight was created with nonresponse adjustments for the reading teacher. The similar weight with nonresponse adjustments for the mathematics or science teacher is W9C19P_9T29Z.
W9C19P_9T29Z	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from both kindergarten rounds and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, parent data from fifth grade, and either teacher-/classroom- or child-level teacher data from spring kindergarten (from a core or supplemental teacher questionnaire) and either mathematics/science teacher-/classroom- or child-level mathematics/science teacher data from spring fifth grade (C1C2C9)(P1_P2)(P9)(T2T9Z) Note: Users must subset records to include cases with mathematics teacher data only (X8MSFLAG=0) or science teacher data only (X8MSFLAG=1) when using this weight.
W9C29P_9T9	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring kindergarten and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, parent data from fifth grade, and either reading teacher-/classroom- or child-level reading teacher data from spring fifth grade (C2C9)(P1_P2)(P9)(T9) Note: This weight was created with nonresponse adjustments for the reading teacher. The similar weight with nonresponse adjustments for the mathematics or science teacher is W9C29P_9T9Z.

See notes at end of exhibit.

Exhibit 4-2. ECLS-K:2011 fifth-grade main sampling weights associated with data from teachers—Continued

Weight	Description
W9C29P_9T9Z	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring kindergarten and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, parent data from fifth grade, and either mathematics/science teacher-/classroom- or child-level mathematics/science teacher data from spring fifth grade (C2C9)(P1_P2)(P9)(T9Z) Note: Users must subset records to include cases with mathematics teacher data only (X9MSFLAG=0) or science teacher data only (X9MSFLAG=1) when using this weight.
W9C29P_2T9	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, and either reading teacher-/classroom- or child-level reading teacher data from spring fifth grade (C2C4C6C7C8C9)(P1_P2)(T9) Note: This weight was created with nonresponse adjustments for the reading teacher. The similar weight with nonresponse adjustments for the mathematics or science teacher is W9C29P_2T9Z.
W9C29P_2T9Z	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, and either mathematics/science teacher-/classroom- or child-level mathematics/science teacher data from spring fifth grade (C2C4C6C7C8C9)(P1_P2)(T9Z) Note: Users must subset records to include cases with mathematics teacher data only (X9MSFLAG=0) or science teacher data only (X9MSFLAG=1) when using this weight.

See notes at end of exhibit.

Exhibit 4-2. ECLS-K:2011 fifth-grade main sampling weights associated with data from teachers—Continued

Weight	Description
W9C29P_9T29	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, and either teacher-/classroom- or child-level teacher data from spring kindergarten (from a core or supplemental teacher questionnaire), spring first grade (from a first-grade or a kindergarten teacher questionnaire), spring second grade, and spring third grade, and either reading teacher-/classroom- or child-level reading teacher data from spring fourth grade and spring fifth grade (C2C4C6C7C8C9)(P1_P2)(P4P6P7P8P9)(T2T4T6T7T8T9) Note: This weight was created with nonresponse adjustments for the reading teacher. The similar weight with nonresponse adjustments for the mathematics or science teacher is W9C29P_9T29Z.
W9C29P_9T29Z	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, spring first grade, spring second grade, spring third grade, spring fourth grade, and spring fifth grade, and either teacher-/classroom- or child-level teacher data from spring kindergarten (from a core or supplemental teacher questionnaire), spring first grade (from a first-grade or a kindergarten teacher questionnaire), spring second grade, and spring third grade, and either mathematics/science teacher-/classroom- or child-level mathematics/science teacher data from spring fourth grade and spring fifth grade (C2C4C6C7C8C9)(P1_P2)(P4P6P7P8P9)(T2T4T6T7T8ZT9Z) Note: Users must subset records to include cases with mathematics teacher data only (X9MSFLAG=0) or science teacher data only (X9MSFLAG=1) when using this weight.

See notes at end of exhibit.

Exhibit 4-2. ECLS-K:2011 fifth-grade main sampling weights associated with data from teachers—Continued

Weight	Description
W9C79P_9T79	Child base weight adjusted for nonresponse associated with child assessment/child questionnaire data from spring third grade, spring fourth grade, and spring fifth grade, as well as parent data from fall kindergarten or spring kindergarten, , spring third grade, spring fourth grade, and spring fifth grade, and either teacher-/classroom- or child-level teacher data from spring third grade, and either reading teacher-/classroom- or child-level reading teacher data from spring fourth grade and spring fifth grade (C7C8C9)(P1_P2)(P7P8P9)(T7T8T9) Note: This weight was created with nonresponse adjustments for the reading teacher only. There is no similar weight with nonresponse adjustments for the mathematics or science teacher.

NOTE: Having child assessment/child questionnaire data includes (1) having reading and/or mathematics and/or science scores, (2) having at least one executive function score, (3) having a height or weight measurement, or (4) being excluded from assessment due to lack of accommodation for a disability. In spring fifth grade, every child who has questionnaire data was assessed. The weight designations (C1, C2, etc.) use the same prefixes that are used for other variables in the kindergarten–fifth grade data file. For the teacher nonresponse adjustments, T1 indicates adjustments for nonresponse associated with teacher/classroom- or child-level teacher data from the fall kindergarten data collection; T2 indicates adjustments for nonresponse associated with teacher/classroom- or child-level teacher data from a teacher questionnaire or supplemental teacher questionnaire from the spring kindergarten data collection; T3 indicates adjustments for nonresponse associated with child-level teacher data from the fall first-grade data collection; T4 indicates adjustments for nonresponse associated with teacher/classroom- or child-level teacher data from a first-grade or a kindergarten teacher questionnaire in the spring first-grade data collection; T5 indicates adjustments for nonresponse associated with child-level teacher data from the fall second-grade data collection; T6 indicates adjustments for nonresponse associated with teacher/classroom- or child-level teacher data from the spring second-grade data collection; T7 indicates adjustments for nonresponse associated with teacher/classroom- or child-level teacher data from the spring third-grade data collection; T8 when not paired with a "z" (T8) indicates adjustments for nonresponse associated with reading teacher-/classroom- or child-level reading teacher data from the spring fourth-grade data collection; and T8 when paired with a "z" (T8Z) indicates adjustments for nonresponse associated with mathematics/science teacher-/classroom- or child-level mathematics/science teacher data from the spring fourth-grade data collection. T9 when not paired with a "z" (T9) indicates adjustments for nonresponse associated with reading teacher-/classroom- or child-level reading teacher data from the spring fifth-grade data collection; and T9 when paired with a "z" (T9Z) indicates adjustments for nonresponse associated with mathematics/science teacher-/classroom- or child-level mathematics/science teacher data from the spring fifth-grade data collection.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), kindergarten–fifth grade (K-5) restricted-use data file.

Exhibit 4-3, which presents the same information as exhibits 4-1 and 4-2 but in matrix format, was developed to further assist researchers in deciding which weight to use for analyses. In exhibit 4-3, the components for which nonresponse adjustments are made for each weight are noted with a "Yes." Researchers should choose a weight that has a "Yes" in the column(s) for the source(s) of data they are using in their analyses. The best weight would have a "Yes" for each and every source used and only those sources. For example, if a researcher is conducting an analysis that includes fifth-grade child assessment/child questionnaire data, and fall kindergarten or spring kindergarten parent interview data, the weight W9C9P_20 should be used since it adjusts for nonresponse on all of those components (i.e., exhibit 4-3 shows a "Yes" in the fall kindergarten and spring kindergarten parent columns and the spring fifth-grade child assessment/child questionnaire column; the italicized *Yes* indicates an "or" condition).

Exhibit 4-3. Weights developed for use with the ECLS-K:2011 fifth-grade data, by components for which nonresponse adjustments were made: Spring 2016

	Fall kindergarten			Spring kindergarten			Spring first grade			Spring second grade			Spring third grade			Spring fourth grade			Spring fifth grade		
Weight	C1	P1	T1[1]	C2	P2	T2[2]	C4	P4	T4[3]	C6	P6	T6[4]	C7	P7	T7[5]	C8	P8	T8[6]	C9	P9	T9[7]
W9C9P_20	†	*Yes*	†	†	*Yes*	†	†	†	†	†	†	†	†	†	†	†	†	†	Yes	†	†
W9C19P_20	Yes	*Yes*	†	Yes	*Yes*	†	†	†	†	†	†	†	†	†	†	†	†	†	Yes	†	†
W9C19P_90	Yes	*Yes*	†	Yes	*Yes*	†	†	Yes	†	†	Yes	†	†	Yes	†	†	Yes	†	Yes	Yes	†
W9C29P_9A0	†	*Yes*	†	Yes	*Yes*	†	Yes	†	†	Yes	†	†	Yes	†	†	Yes	†	†	Yes	Yes	†
W9C29P_9B0	†	*Yes*	†	Yes	*Yes*	†	Yes	Yes	†	Yes	Yes	†	Yes	Yes	†	Yes	Yes	†	Yes	Yes	†
W9C19P_2T290	Yes	*Yes*	†	Yes	*Yes*	Yes	†	†	Yes	†	†	Yes	†	†	Yes	†	†	Yes	Yes	†	Yes
W9C19P_9T29A0	Yes	*Yes*	†	Yes	*Yes*	Yes	†	†	Yes	†	†	Yes	†	†	Yes	†	†	Yes	Yes	Yes	Yes
W9C19P_9T29B0	Yes	*Yes*	†	Yes	*Yes*	Yes	†	Yes	Yes	†	Yes	Yes	†	Yes	Yes	†	Yes	Yes	Yes	Yes	Yes
W9C29P_2T290	†	*Yes*	†	Yes	*Yes*	Yes	Yes	†	Yes	Yes	†	Yes	Yes	†	Yes	Yes	†	Yes	Yes	†	Yes
W9C19P_9T90	Yes	*Yes*	†	Yes	*Yes*	†	†	†	†	†	†	†	†	†	†	†	†	†	Yes	Yes	Yes
W9C19P_9T9Z0[8]	Yes	*Yes*	†	Yes	*Yes*	†	†	†	†	†	†	†	†	†	†	†	†	†	Yes	Yes	Yes
W9C19P_9T29C0	Yes	*Yes*	†	Yes	*Yes*	Yes	†	†	†	†	†	†	†	†	†	†	†	†	Yes	Yes	Yes
W9C19P_9T29Z0[8]	Yes	*Yes*	†	Yes	*Yes*	Yes	†	†	†	†	†	†	†	†	†	†	†	†	Yes	Yes	Yes
W9C29P_9T90	†	*Yes*	†	Yes	*Yes*	†	†	†	†	†	†	†	†	†	†	†	†	†	Yes	Yes	Yes
W9C29P_9T9Z0[8]	†	*Yes*	†	Yes	*Yes*	†	†	†	†	†	†	†	†	†	†	†	†	†	Yes	Yes	Yes
W9C29P_2T90	†	*Yes*	†	Yes	*Yes*	†	Yes	†	†	Yes	†	†	Yes	†	†	Yes	†	†	Yes	†	Yes
W9C29P_2T9Z0[8]	†	*Yes*	†	Yes	*Yes*	†	Yes	†	†	Yes	†	†	Yes	†	†	Yes	†	†	Yes	†	Yes
W9C29P_9T290	†	*Yes*	†	Yes	*Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
W9C29P_9T29Z0[8]	†	*Yes*	†	Yes	*Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
W9C790	†	†	†	†	†	†	†	†	†	†	†	†	Yes	†	†	Yes	†	†	Yes	†	†
W9C79P_9T790	†	*Yes*	† †	†	*Yes*	† †	†	†	† †	†	†	†	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

† Not applicable.

[1] A case had to have either teacher/classroom- or child-level teacher data from the fall kindergarten data collection to have a valid weight.

[2] A case had to have either teacher/classroom- or child-level teacher data from a teacher questionnaire or supplemental teacher questionnaire from the spring kindergarten data collection to have a valid weight.

[3] A case had to have either teacher/classroom- or child-level teacher data from a first-grade or a kindergarten teacher questionnaire in the spring first-grade data collection to have a valid weight.

[4] A case had to have either teacher/classroom- or child-level teacher data from the spring second-grade data collection to have a valid weight.

[5] A case had to have either teacher/classroom- or child-level teacher data from the third-grade data collection to have a valid weight.

[6] A case had to have either teacher/classroom- or child-level teacher data from the fourth-grade data collection to have a valid weight.

[7] A case had to have either teacher/classroom- or child-level teacher data from the fifth-grade data collection to have a valid weight.

[8] This weight is for the analysis of data that include the mathematics/science teacher/classroom or child-level mathematics/science teacher data from the fifth grade.

NOTE: C indicates child assessment/child questionnaire data. P indicates parent interview data. T indicates teacher data. "Yes" indicates that the weight includes nonresponse adjustments for that component. An italicized *Yes* indicates an "or" condition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), kindergarten–fifth grade (K-5) restricted-use data file.

However, for many analyses, there will be no weight that adjusts for nonresponse to all the sources of data that are included and for only those sources. When no weight corresponds exactly to the combination of components included in the desired analysis, researchers might prefer to use a weight that includes nonresponse adjustments for more components than they are using in their analysis (i.e., a weight with "Yes" in columns corresponding to components that are not included in their analyses) if that weight also includes nonresponse adjustments for the components they are using. Although such a weight may result in a smaller analytic sample than would be available when using a weight that corresponds exactly to the components from which the analyst is using data, it will adjust for the potential differential nonresponse associated with the components. If researchers instead choose a weight with nonresponse adjustments for fewer components than they are using in their analysis, missing data should be examined for potential bias.

4.3.2 Computation of Sample Weights

To compute sample weights, first a base weight is computed to reflect the sample design, and then the base weight is adjusted for nonresponse and unknown eligibility. When there is an intermediate adjustment (e.g., a mover subsampling adjustment), it is the intermediate weight that is adjusted for nonresponse and not the base weight.

The nonresponse adjustment was computed as the sum of the base weights for all eligible units in a nonresponse class divided by the sum of the base weights of the respondent units in that nonresponse class. Nonresponse classes were formed separately for students in each type of school (public/Catholic/non-Catholic private). Within school type, analysis of school response propensity was done using school characteristics such as census region, locale, school enrollment size, and percent minority in school.[9] Nonresponse classes were created based on this analysis of response propensity. Similarly, student characteristics such as sex and race/ethnicity were used to analyze response propensity and create nonresponse classes. Rules for collapsing nonresponse adjustment cells were adopted; for example, cells had to have a maximum adjustment factor of 2 and a minimum cell size of 30.

Main sampling weights (indicated by the suffix 0) and replicate weights (indicated by the suffix 1 to 80) were computed and included in the data file. In the sections that follow, only the main sampling weight is discussed, but any adjustment done to the main sampling weight was done to the replicate weights as well.

[9] This was part of the school nonresponse adjustment that was done in the base year.

4.3.2.1 Student Base Weights

Only base-year respondents were eligible to participate in the fifth-grade data collection. The fifth-grade student base weight is the base-year student base weight adjusted for base-year nonresponse. The adjustment factor for base-year nonresponse is the sum of the base weights of the eligible students in the base year divided by the sum of the base weights of the base-year respondents within nonresponse adjustment classes.[10] For a description of the computation of the base-year student base weights, see section 4.2.2.3.1 of the base-year User's Manual.

For weights needed to analyze the child-level mathematics or science data from their teachers, a separate base weight was computed to account for the sampling of children to have mathematics or science teacher data. Only half of the students were selected for the mathematics teacher questionnaire, and the other half for the science teacher questionnaire. Because selection was with equal probability, the base-year student base weight was multiplied by 2 to get the mathematics/science base weight which was then adjusted for base-year nonresponse.

4.3.2.2 Student Weights Adjusted for Mover Subsampling

The student base weight described in section 4.3.2.1 was adjusted to reflect the subsampling of movers described in section 4.2.3. For every student who is a base-year respondent, a "follow" flag was assigned a value of 0 (do not follow if student moves) or 1 (follow if student moves). A mover-subsampling adjustment factor was set to 1 if the student has never moved out of an original sampled school, 2 if the student moved out of the original sampled school at any time after the base year and was followed into his or her new school, and 0 if the student moved out of the original sampled school at any time after the base year and was not followed. The mover-subsampling adjusted weight is the product of the base weight described in section 4.3.2.1 and this mover-subsampling adjustment factor. Note that child assessments were not conducted and school staff questionnaires were not fielded for students who moved into nonsampled PSUs even if their flag was set to "follow"; such students are counted as nonrespondents in the adjustment for nonresponse on weights involving child assessment or teacher data.[11] However, an attempt was made to complete a parent interview for students who moved into nonsampled PSUs if their flag was set to "follow"; therefore, their parents would be counted as

[10] A base-year respondent has child data (scoreable assessment data or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year.

[11] Only homeschooled children were considered "not eligible" for the collection of teacher data; they are the only students who were not included in the adjustment for nonresponse for teacher data.

respondents in the adjustment for parent nonresponse if a parent interview was completed and as nonrespondents if a parent interview was not completed.

4.3.2.3 Student Nonresponse-Adjusted Weights

The mover-subsampling adjusted weight described in section 4.3.2.2 was adjusted for nonresponse to produce each of the student-level weights described in exhibit 4-1. For each weight, a response status was defined based on the presence of data for the particular component(s) and round(s) covered by the weight.

For example, for the weight W9C9P_20, an *eligible respondent* is a base-year respondent who satisfies both of these criteria: (1) the student has child assessment/child questionnaire data[12] from fifth grade, and (2) the student has parent interview data from either the fall or spring of kindergarten. An *ineligible* student is one who moved out of the country or is deceased or moved to another school and was not assigned to be followed. A student of *unknown eligibility* is one who could not be located. The remaining students are *eligible nonrespondents*.

Nonresponse adjustment was done in two steps: (1) adjustment for children whose eligibility was not determined (i.e., those who could not be located, or those who moved to another sampled PSU and who did not have parent interview data because the parent could not be contacted); and (2) adjustment for eligible nonrespondents. In the first step, a portion of cases with unknown eligibility was assumed to be ineligible. This proportion varied between 1.1 and 2.1 percent for the weights that do not include data from the fall collections, and between 1.6 and 3 percent for the weights that include data from the fall collections; it is highest for those weights that adjusted for teacher nonresponse. The latter is because children who were homeschooled were considered not eligible to have teacher data. Nonresponse classes were created using school and child characteristics and used in adjustments for both unknown eligibility and nonresponse.

4.3.2.4 Raking to Sample Control Totals

To reduce the variability due to the subsampling of movers and to ensure that the final weights continue to sum to the base-year population total, the student nonresponse-adjusted weights were

[12] Having child assessment data includes (1) having reading and/or mathematics and/or science scores, (2) having at least one executive function score, (3) having a height or weight measurement, or (4) being excluded from assessment due to lack of accommodation for a disability.

raked to sample-based control totals using the fifth-grade student base weights. Raking is a calibration estimator that is closely related to poststratification. The poststratification adjustment procedure involves applying a ratio adjustment to the weights. Respondents are partitioned into groups, known as poststrata cells, and a single ratio adjustment factor is applied to the weights of all units in a given poststratification cell. The numerator of the ratio is a "control total" usually obtained from a secondary source; the denominator is a weighted total for the survey data. Therefore at the poststratum level, estimates obtained using the poststratified survey weights will correspond to the control totals used. If either the cell-level population counts are not available for all cells or the majority of the cell sample sizes are too small, raking is used to adjust the survey estimates to the known marginal totals of several categorical variables. Raking is essentially a multivariate poststratification. In the ECLS-K:2011, multiple background characteristics from schools, students, and parents were combined to create raking cells.

The student records included in the file used for computing the control totals are records of base-year eligible children. The sum of the base weights from this file is the estimated number of children who were in kindergarten in 2010–11. Raking was done within raking cells (also known as raking dimensions). The raking dimensions were based on single characteristics (e.g., locale) or a combination of characteristics (e.g., age and race/ethnicity). Chi-Square Automatic Interaction Detector (CHAID) analysis was used to determine the best set of raking cells.

The final weight is the product of the raking factor and the student nonresponse-adjusted weight. The raking factor was computed as the ratio of the base-year sample control total for a raking cell over the sum of the nonresponse-adjusted fifth-grade weights in that raking cell.

4.3.3 Characteristics of Sample Weights

The statistical characteristics of the sample weights are presented in table 4-19. For each weight, the number of cases with a nonzero weight is presented along with the mean weight, the standard deviation, the coefficient of variation (i.e., the standard deviation as a percentage of the mean weight), the minimum weight, the maximum weight, the design effect of the final weight, the skewness, the kurtosis, and the sum of weights. The procedure for raking to control totals included respondents and ineligible cases. Afterwards, weights of ineligible cases were set to zero. Because a portion of children of unknown eligibility was assumed to be ineligible (as discussed in section 4.3.2.3) and this adjustment for unknown eligibility was done within adjustment cells, there are small differences in the sums of weights.

Table 4-19. Characteristics of the fifth-grade weights: Spring 2016

Weight	Number of cases	Mean	Standard deviation	*CV* (× 100)	Minimum	Maximum	*DEFF* of the final weight	Skewness	Kurtosis	Sum
W9C9P_20	10,472	380.37	257.09	67.59	26.49	2,215.92	1.46	2.45	9.24	3,983,239.68
W9C19P_20	9,227	431.56	289.82	67.16	31.07	2,365.28	1.45	2.37	8.50	3,981,963.70
W9C19P_90	6,556	606.87	448.22	73.86	45.81	3,436.25	1.55	2.33	7.89	3,978,623.64
W9C29P_9A0	8,542	466.32	318.20	68.24	38.90	2,808.42	1.47	2.36	8.06	3,983,299.06
W9C29P_9B0	7,191	553.47	414.35	74.86	46.51	3,360.17	1.56	2.51	9.14	3,980,023.59
W9C19P_2T290	7,326	537.25	365.33	68.00	37.38	3,303.32	1.46	2.38	9.44	3,935,882.85
W9C19P_9T29A0	6,227	631.36	428.63	67.89	31.73	3,525.92	1.46	2.23	7.69	3,931,508.24
W9C19P_9T29B0	5,320	739.24	568.13	76.85	51.89	4,202.70	1.59	2.21	6.77	3,932,781.24
W9C29P_2T290	7,973	493.88	334.52	67.73	33.30	2,963.51	1.46	2.35	8.76	3,937,697.71
W9C19P_9T90	7,182	548.50	379.61	69.21	39.60	3,331.35	1.48	2.45	9.77	3,939,360.62
W9C19P_9T9Z0[1]	3,559	1,107.03	779.31	70.40	95.15	6,075.95	1.50	2.44	8.36	3,939,934.65
W9C19P_9T9Z0[2]	3,622	1,085.46	765.27	70.50	79.29	5,770.20	1.50	2.38	7.94	3,931,538.13
W9C19P_9T29C0	6,933	568.08	393.66	69.30	39.10	3,420.28	1.48	2.35	8.86	3,938,478.11
W9C19P_9T29Z0[3]	3,435	1,146.77	804.16	70.12	96.96	6,451.27	1.49	2.42	8.26	3,939,172.03
W9C19P_9T29Z0[4]	3,497	1,124.09	791.95	70.45	68.32	6,092.04	1.50	2.28	7.43	3,930,933.78
W9C29P_9T90	7,960	494.86	345.31	69.78	41.85	2,995.05	1.49	2.53	9.96	3,939,125.03
W9C29P_9T9Z0[5]	3,947	998.17	712.43	71.37	97.10	5,586.97	1.51	2.52	8.78	3,939,775.65
W9C29P_9T9Z0[6]	4,017	978.67	686.57	70.15	78.19	5,117.29	1.49	2.45	8.35	3,931,321.85
W9C29P_2T90	9,219	427.23	290.24	67.93	27.41	2,431.65	1.46	2.42	8.86	3,938,673.73
W9C29P_2T9Z0[7]	4,589	858.80	584.92	68.11	101.22	4,647.78	1.46	2.52	8.89	3,941,030.63
W9C29P_2T9Z0[8]	4,633	848.74	585.86	69.03	50.96	4,385.07	1.48	2.41	7.96	3,932,214.68
W9C29P_9T290	5,792	679.50	514.73	75.75	41.30	3,747.39	1.57	2.17	6.45	3,935,669.02
W9C29P_9T29Z0[9]	2,874	1,370.52	1,035.28	75.54	131.95	7,069.77	1.57	2.22	6.58	3,938,887.01
W9C29P_9T29Z0[10]	2,921	1,344.06	1,016.20	75.61	81.12	6,825.56	1.57	2.10	5.98	3,926,012.20
W9C790	11,373	350.56	228.31	65.13	16.64	2,109.55	1.42	2.51	10.17	3,986,950.03
W9C79P_9T790	6,945	566.88	406.23	71.66	40.02	3,378.47	1.51	2.42	8.99	3,936,984.03

[1] This is the same weight as W9C19P_9T90 but for cases where X9MSFLAG=0 (i.e., mathematics).
[2] This is the same weight as W9C19P_9T90 but for cases where X9MSFLAG=1 (i.e., science).
[3] This is the same weight as W9C19P_9T29C0 but for cases where X9MSFLAG=0 (i.e., mathematics).
[4] This is the same weight as W9C19P_9T29C0 but for cases where X9MSFLAG=1 (i.e., science).
[5] This is the same weight as W9C29P_9T90 but for cases where X9MSFLAG=0 (i.e., mathematics).
[6] This is the same weight as W9C29P_9T90 but for cases where X9MSFLAG=1 (i.e., science).
[7] This is the same weight as W9C29P_2T90 but for cases where X9MSFLAG=0 (i.e., mathematics).
[8] This is the same weight as W9C29P_2T90 but for cases where X9MSFLAG=1 (i.e., science).
[9] This is the same weight as W9C29P_9T290 but for cases where X9MSFLAG=0 (i.e., mathematics).
[10] This is the same weight as W9C29P_9T290 but for cases where X9MSFLAG=1 (i.e., science).
NOTE: *CV* is the coefficient of variation. *DEFF* is the design effect.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), kindergarten–fifth grade (K-5) restricted-use data file.

A simple random sample (SRS) is completely self-weighting (i.e., no weights are necessary to produce estimates from this sample). In the ECLS-K:2011, the sample design is multistaged, with nonresponse encountered at both school and student levels. Weighting adjustments were necessary, but they tend to increase the variance of the estimates. As described in section 4.3, the design effect (*DEFF*)—defined as the ratio of the variance estimate under the actual sample design to the variance estimate obtained with an SRS of the same sample size—shows an estimate of the variance increase. One way of approximating this increase due to weighting is by way of the coefficient of variation (CV):

$$DEFF\ due\ to\ weighting = 1 + CV^2$$

In table 4-19, the design effect due to weighting is included for each weight. For example, for weight W9C9P_20, the design effect due to weighting is $1+(0.6759)^2 = 1.46$ (i.e., the variance is increased by 46 percent due to weight adjustments). The design effect due to weighting varies between 1.42 and 1.59.

4.3.4 Variance Estimation

The precision of the sample estimates derived from a survey can be evaluated by estimating the variances of these estimates. For a complex sample design such as the one employed in the ECLS-K:2011, replication and Taylor Series methods have been developed to correctly estimate variance. These methods take into account the clustered, multistage sampling design and the use of differential sampling rates to oversample targeted subpopulations. For the ECLS-K:2011, in which the first-stage self-representing sampling units (i.e., PSUs) were selected with certainty and the first-stage non-self-representing sampling units were selected with two units per stratum, the paired jackknife replication method (JK2) is recommended. This section describes the JK2 and the Taylor series methods, which can be used to compute correct standard errors for any analysis.

4.3.4.1 Jackknife Method

The final main sampling and replicate weights can be used to compute estimates of variance for survey estimates using the jackknife method with two PSUs per stratum (JK2) using several software packages, including WesVar, AM, SUDAAN, SAS, Stata, and R. In the jackknife method, each survey estimate of interest is calculated for the full sample as well as for each of the g replicates, where g is 80 for the spring weights, and 40 for the fall weights.[13] The variation of the replicate estimates around the full-sample estimate is used to estimate the variance for the full sample. The variance estimator is computed as the sum of squared deviations of the replicate estimates from the full sample estimate:

$$v(\theta) = \sum_{g=1}^{G}\left(\hat{\theta}_{(g)} - \hat{\theta}\right)^2$$

[13] The values of g (80 for spring weights and 40 for fall weights) indicate the degrees of freedom possible when using these weights in analysis.

where θ is the survey estimate of interest,
$\hat{\theta}$ is the estimate of θ based on the full sample,
G is the number of replicates, and
$\hat{\theta}(g)$ is the g^{th} replicate estimate of θ based on the observations included in the g^{th} replicate.

Each main sampling weight that does not include adjustments for nonresponse to components from the fall data collections has 80 corresponding replicate weights for use with the JK2 method. The replicate weights begin with the same characters as the main sampling weight and end with the numbers 1 to 80. For example, the replicate weights corresponding to weight W9C9P_20 are W9C9P_21 through W9C9P_280.

4.3.4.2 Taylor Series Method

Variance stratum and variance unit (first-stage sample unit [i.e., PSU]) identifiers were also created to be used in statistical software that computes variance estimates based on the Taylor series method (for example, AM, SUDAAN, SAS, SPSS, and Stata). In this method, a linear approximation of a statistic is formed and then substituted into the formula for calculating the variance of a linear estimate appropriate for the sample design.

If $Y = \left(Y_1,...,Y_p\right)'$ denotes a p-dimensional vector of population parameters, $\hat{Y} = \left(\hat{Y}_1,...,\hat{Y}_p\right)'$ is the corresponding vector of estimators based on a sample s of size $n(s)$, $\theta = g(\hat{Y})$ is the population parameter of interest, and $\theta = g(\hat{Y})$ is an estimator of θ, then

$$\hat{\theta} - \theta \doteq \sum_{j=1}^{p} \frac{\partial g(Y)}{\partial y_j}\left(\hat{Y}_j - Y_j\right)$$

and

$$v(\hat{\theta}) \doteq v\left(\sum_{j=1}^{p} \frac{\partial g(Y)}{\partial y_i}\left(\hat{Y}_j - Y_i\right)\right) = \sum_{j=1}^{p} \sum_{i=1}^{p} \frac{\partial g(Y)}{\partial y_j}\frac{\partial g(Y)}{\partial y_i} Cov\{\hat{Y}_j, \hat{Y}_i\}.$$

where $\hat{\theta}$ is the estimate of θ based on the full sample,
θ is the survey estimate of interest,
Y is a p-dimensional vector of population parameters,
$\hat{Y}$ is a p-dimensional vector of estimators,
y is an element of the vector Y,
i is 1,…, p,
j is 1,…, p, and
$g(Y)$ is an estimator of θ.

The Taylor series method relies on a simplified procedure for estimating the variance for a linear statistic even with a complex sample design and is valid when analyzing data from large samples in which the first-stage units are sampled with replacement.[14] The stratum and first-stage unit identifiers needed to use the Taylor series method were assigned as follows: all independent sampling strata were numbered sequentially from 1 to h; within each sampling stratum, first-stage sampling units were numbered from 1 to n_h. Care was taken to ensure that there were at least two responding units in each stratum. For instances in which a stratum did not have at least two responding units, the stratum was combined with an adjacent stratum. Stratum and first-stage unit identifiers are provided in the data file. Each main sampling weight has corresponding stratum and PSU identifiers for use with the Taylor series method. The stratum and PSU identifiers begin with the same characters as the main sampling weight and end with either STR or PSU. For example, the stratum and PSU identifiers corresponding to weight W9C9P_20 are W9C9P_2STR and W9C9P_2PSU, respectively.

4.3.4.3 Specifications for Computing Standard Errors

For the jackknife replication method, the main sampling weight, the replicate weights, and the method of replication must be specified. All analyses of the ECLS-K:2011 data using the replication method should be done using JK2. As an example, an analyst using the main sample weight W9C9P_20 to compute child-level estimates of mean reading scores for fifth grade would need to specify W9C9P_20 as the main sampling weight, W9C9P_21 to W9C9P_280 as the replicate weights, and JK2 as the method of replication.

For the Taylor series method, the main sampling weight, the sample design, the nesting stratum, and PSU variables must be specified. As an example, an analyst using the main sample weight W9C9P_20 to compute child-level estimates of mean reading scores for fifth grade must specify the main sampling weight (W9C9P_20), the stratum variable (W9C9P_2STR), and the PSU variable (W9C9P_2PSU). The "with replacement" sample design option, WR, must also be specified if using SUDAAN.

[14] For the ECLS-K:2011, the sample of PSUs was selected using the Durbin method. In this method, two PSUs were selected per stratum without replacement with probability proportional to size and known joint probability of inclusion in such a way to allow variances to be estimated as if the units had been selected with replacement.

4.3.5 Use of Design Effects

An important analytic device is to compare the statistical efficiency of survey estimates from a complex sample survey such as the ECLS-K:2011 with what would have been obtained in a hypothetical and usually impractical SRS of the same size. In a stratified clustered design, stratification generally leads to a gain in efficiency over simple random sampling, but clustering has the opposite effect because of the positive intracluster correlation of the units in the cluster. The basic measure of the relative efficiency of the sample is the *DEFF*, defined as the ratio, for a given statistic, of the variance estimate under the actual sample design to the variance estimate that would be obtained with an SRS of the same sample size:

$$DEFF = \frac{VAR_{DESIGN}}{VAR_{SRS}} \ .$$

The root design effect *(DEFT)* is the square root of the design effect:

$$DEFT = \sqrt{DEFF} = \frac{SE_{DESIGN}}{SE_{SRS}}$$

where *SE* is the standard error of the estimate.

As discussed above, jackknife replication and Taylor Series can be used to compute more precise standard errors for data from complex surveys. If statistical analyses are conducted using software packages that assume the data were collected using simple random sampling (i.e., adjustments are not made using jackknife replication or the Taylor series method), the standard errors will be calculated under this assumption and will be incorrect. They can be adjusted using the average *DEFT*, although this method is less precise than JK2 or Taylor series.[15] The standard error of an estimate under the actual sample design can be approximated as the product of the *DEFT* and the standard error assuming simple random sampling.

In the ECLS-K:2011, a large number of data items were collected from children, parents, teachers, school administrators, and before- and after-school care providers. Each item has its own design effect that can be estimated from the survey data. Standard errors and design effects are presented in the tables below for selected items from the study to allow analysts to see the range of standard errors and

[15] Common procedures in SAS, SPSS, and Stata assume simple random sampling. Data analysts should use the SURVEY procedure (SAS), the Complex Samples module (SPSS), or the SVY command (Stata) to account for complex samples.

design effects for the study variables. They were computed using the paired jackknife replication method in the statistical software package WesVar.

However, as discussed in section 4.3.4, not all statistical analysis software packages have procedures to compute the variance estimate or standard error using the replication method, and some analysts may not have access to software packages that do have such procedures. In such situations the correct variance estimate or standard error can be approximated using the design effect or the root design effect.

As the first step in the approximation of a standard error, the analyst should normalize the overall sample weights for packages that use the weighted population size (*N*) in the calculation of standard errors. The normalized weight will sum to the sample size (*n*) and is calculated as

$$normalized\ weight = weight \times \frac{n}{N}$$

where *n* is the sample size (i.e., the number of cases with a valid main sampling weight) and *N* is the sum of weights. See table 4-19 for the sample size *n* and the sum of weights *N*.

As the second step in the approximation, the standard errors produced by the statistical software, the test statistics, or the sample weight used in analysis can be adjusted to reflect the actual complex design of the study. To adjust the standard error of an estimate, the analyst should multiply the standard error produced by the statistical software by the square root of the *DEFF* or the *DEFT* as follows:

$$SE_{DESIGN} = \sqrt{DEFF \times VAR_{SRS}} = DEFT \times SE_{SRS}$$

A standard statistical analysis package can be used to obtain VAR_{SRS} and SE_{SRS}. The *DEFF* and *DEFT* used to make adjustments can be calculated for specific estimates, can be the median *DEFF* and *DEFT* across a number of variables, or can be the median *DEFF* and *DEFT* for a specific subgroup in the population.

Adjusted standard errors can then be used in hypothesis testing, for example, when calculating *t* and *F* statistics. A second option is to adjust the *t* and *F* statistics produced by statistical software packages using unadjusted (i.e., SRS) standard errors. To do this, first conduct the desired analysis weighted by the normalized weight and then divide a *t* statistic by the *DEFT* or divide an *F* statistic by the *DEFF*. A third alternative is to create a new analytic weight variable in the data file by dividing the normalized analytic weight by the DEFF and using the adjusted weight in the analyses.

Table 4-20 shows estimates, standard errors, and design effects for 58 means and proportions selected from the fifth-grade data collection. Table 4-21 shows the median design effects for the same items but for subgroups. For each survey item, table 4-20 presents the number of cases for which data are nonmissing, the estimate, the standard error taking into account the actual sample design (*Design SE*), the standard error assuming SRS (*SRS SE*), the root design effect (*DEFT*), and the design effect (*DEFF*). Standard errors (*Design SE*) were produced in WesVar using JK2 based on the actual ECLS-K:2011 complex design. For each survey item, the variable name as it appears in the data file is also provided in the table.

Table 4-20. Standard errors and design effects for selected survey items, fifth grade: Spring 2016

Survey item	Variable	*n*	Estimate	*SE*	SE_{SRS}	*DEFT*	*DEFF*
Scores (mean)[1, 2]							
Mathematics scale score	X9MSCALK5	10,390	119.45	0.380	0.170	2.234	4.992
Reading scale score	X9RSCALK5	10,391	136.26	0.293	0.151	1.945	3.784
Science scale score	X9SSCALK5	10,385	73.38	0.284	0.125	2.274	5.172
Mathematics theta score	X9MTHETK5	10,390	1.83	0.010	0.005	2.215	4.908
Reading theta score	X9RTHETK5	10,391	1.45	0.007	0.004	1.957	3.829
Science theta score	X9STHETK5	10,385	1.87	0.015	0.007	2.257	5.096
Difference in mathematics scale score between spring fourth grade and spring fifth grade	X9MSCALK5 – X8MSCALK5	10,309	7.11	0.121	0.077	1.577	2.488
Difference in reading scale score between spring fourth grade and spring fifth grade	X9RSCALK5 – X8RSCALK5	10,305	7.05	0.126	0.080	1.581	2.499
Difference in science scale score between spring fourth grade and spring fifth grade	X9SSCALK5 – X8SSCALK5	10,298	6.64	0.112	0.069	1.620	2.626
Difference in mathematics theta score between spring fourth grade and spring fifth grade	X9MTHETK5 – X8MTHETK5	10,309	0.19	0.003	0.002	1.598	2.553
Difference in reading theta score between spring fourth grade and spring fifth grade	X9RTHETK5 – X8RTHETK5	10,305	0.17	0.003	0.002	1.655	2.739
Difference in science theta score between spring fourth grade and spring fifth grade	X9STHETK5 – X8STHETK5	10,298	0.34	0.006	0.004	1.663	2.765
Approaches to Learning-Teacher	X9TCHAPP	7,899	3.11	0.010	0.008	1.303	1.697
Externalizing Problem Behaviors -Teacher	X9TCHEXT	7,870	1.63	0.008	0.006	1.273	1.620
Internalizing Problem Behaviors -Teacher	X9TCHINT	7,817	1.57	0.009	0.006	1.462	2.137
Interpersonal Skills -Teacher	X9TCHPER	7,755	3.13	0.012	0.008	1.572	2.472
Self-control -Teacher	X9TCHCON	7,774	3.29	0.011	0.007	1.535	2.356
Student characteristics from parent interview (percent)[3]							
Parent is currently married/in civil union/in domestic partnership	P9CURMAR	8,523	70.90	0.921	0.492	1.872	3.505
At least one parent has a high school diploma or equivalent	X9PAR1ED_I, X9PAR2ED_I	8,542	91.79	0.480	0.297	1.617	2.615
Child cares for self	P9SELFCA	8,042	9.78	0.583	0.331	1.759	3.095
Child participated in organized athletic activities	P9ATHLET	8,129	61.51	0.844	0.539	1.565	2.448
Child participated in performing arts programs	P9PERFRM	8,117	23.04	0.525	0.468	1.123	1.261

See notes at end of table.

Table 4-20. Standard errors and design effects for selected survey items, fifth grade: Spring 2016—Continued

Survey item	Variable	*n*	Estimate	*SE*	SE_{SRS}	*DEFT*	*DEFF*
Student characteristics from parent interview (percent)[3]—Continued							
Child has art classes or lessons	P9ARTLSN	8,119	11.55	0.417	0.355	1.175	1.380
Parent volunteered at school	P9VOLSCH	8,500	44.01	1.325	0.538	2.461	6.056
Parent used computer to get information from school	P9CMPSCH	8,504	83.31	0.914	0.404	2.261	5.112
Often or sometimes true that parent could not afford balanced meals in last 12 months	P9BLMEAL	7,854	8.03	0.444	0.307	1.446	2.092
Student characteristics from teacher questionnaire (percent)[2]							
Teacher took course to address using assessment data for teaching reading	A9DATRD	7,857	68.36	1.266	0.525	2.412	5.819
Teacher has regular or standard state certificate or advanced professional certificate	A9STATCT	7,872	89.86	0.786	0.340	2.310	5.336
Teacher has bachelor's degree or higher	A9HGHSTD	7,899	99.91	0.051	0.034	1.501	2.253
Teacher agreed/strongly agreed that school administrator was encouraging of staff	A9ENCOUR	7,898	82.60	0.998	0.426	2.341	5.479
Teacher agreed/strongly agreed that child misbehavior interfered with teaching	A9MISBHV	7,885	26.44	1.052	0.497	2.118	4.487
More than 50 percent of parents volunteered regularly	A9REGHLP	7,833	8.01	0.550	0.307	1.794	3.219
Student reading skills were below grade level as rated by reading teacher	G9RTREAD	7,880	24.34	0.807	0.484	1.669	2.785
Student received individual tutoring in reading/language arts	G9TTRRD	7,851	23.57	0.898	0.479	1.875	3.516
Parent was very involved at the school	G9PARIN	7,865	26.39	0.875	0.497	1.760	3.098
Student was in program to learn English skills	G9PRGES	1,416	37.06	2.847	1.283	2.218	4.921
Student usually worked to best ability in math	M9BESABL	3,895	50.05	1.198	0.801	1.495	2.236
Student math skills were below grade level as rated by math teacher	M9RTMAT	3,896	23.25	0.950	0.677	1.404	1.970
Student solved math problems in small groups almost every day	M9PRBGRP	3,891	60.82	1.397	0.783	1.785	3.187
Student used computer for math almost every day	M9COMPMT	3,884	23.31	1.385	0.679	2.041	4.166
Student usually worked to best ability in science	N9BESABL	3,969	51.48	0.930	0.794	1.172	1.373
Student science skills were below grade level as rated by science teacher	N9RTSCI	3,970	19.43	0.803	0.628	1.278	1.633
Student worked with others on science project almost every day	N9SCIPRJ	3,956	15.20	1.390	0.571	2.435	5.931
Student used science equipment almost every day	N9SCIEQP	3,962	6.96	0.820	0.404	2.029	4.118

See notes at end of table.

Table 4-20. Standard errors and design effects for selected survey items, fifth grade: Spring 2016—Continued

Survey item	Variable	*n*	Estimate	*SE*	SE_{SRS}	*DEFT*	*DEFF*
School characteristics from school administrator questionnaire (percent)[2]							
Taught classroom programs provided by school at least once a year	S9CLASPR	7,488	97.66	0.579	0.175	3.315	10.992
School had staff in computer technology	S9CTECYN	7,447	76.01	2.001	0.495	4.044	16.354
School used electronic communication with parents several times a month	S9ELECOM	7,509	39.11	2.036	0.563	3.616	13.076
School used Response to Intervention	S9RTLUSE	7,418	83.99	1.759	0.426	4.131	17.062
Received Title I funding	S9TT1	6,695	71.80	2.099	0.550	3.816	14.564
Bullying happened on occasion	S9BULLY	7,473	72.32	1.467	0.518	2.834	8.029
Crime in the area of the school was somewhat of a problem or a big problem	S9CRIME	7,450	35.26	1.710	0.554	3.088	9.538
Other student characteristics (mean)[1,3]		10,408	133.07	0.101	0.044	2.286	5.228
Student's age (in months)	X9AGE	10,108	58.11	0.048	0.031	1.530	2.341
Student's height	X9HEIGHT	10,016	99.40	0.371	0.295	1.256	1.578
Student's weight	X9WEIGHT	9,995	20.50	0.063	0.049	1.281	1.640
Student's body mass index (BMI)	X9BMI	8,542	4.65	0.027	0.015	1.767	3.123
Total number of persons in household	X9HTOTAL	8,542	1.63	0.023	0.012	1.849	3.419
Total number of siblings in household	X9NUMSIB	8,520	2.53	0.023	0.013	1.831	3.352
Total number of persons in household less than 18 years of age	X9LESS18	7,488	97.66	0.579	0.175	3.315	10.992

[1] Estimates of assessment scores (X9), age (X9), height (X9), weight (X9), and BMI (X9) computed using weight W9C9P_20.
[2] Estimates of variables from the teacher (A9), reading teacher (G9), and school administrator questionnaires (S9) computed using weight W9C29P_9T90. Estimates of variables from the math (M9) or science (N9) teacher computed using weight W9C29P_9T9Z0.
[3] Estimates of variables from the parent interview (P9) computed using weight W9C29P_9A0.
NOTE: *SE* is the standard error based on the sample design. SE_{srs} is the standard error assuming simple random sampling. *DEFT* is the root design effect. *DEFF* is the design effect. Estimates produced with the restricted-use file. Due to top- and bottom-coding, the same estimates may not be obtained from the public-use file.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 4-21. Median design effects for the spring fifth-grade survey items, by school characteristic: Spring 2016

Characteristic[1]	*DEFT*	*DEFF*
All schools	1.790	3.203
School affiliation		
Public	1.767	3.123
Private	1.527	2.333
Catholic private	1.563	2.443
Other private	1.364	1.860
Census region[2]		
Northeast	1.869	3.493
Midwest	1.918	3.680
South	1.786	3.190
West	1.769	3.129
Locale		
City	1.584	2.508
Suburb	1.783	3.178
Town	1.575	2.481
Rural	1.639	2.688
School enrollment		
1 to 149 students	1.627	2.648
149 to 299 students	1.495	2.234
300 to 499 students	1.544	2.385
500 to 749 students	1.690	2.855
750 or more students	1.667	2.778
Percent minority enrolled	1.937	3.754
0 to 50	1.619	2.620
16 to 45	1.610	2.592
46 to 85	1.603	2.571
86 to 100	1.790	3.203

[1] School characteristics are from the composites X9SCTYP (school affiliation), X9REGION (census region), X9LOCALE (locale), X9ENRLS (school enrollment), and X9RCETH (percent minority enrolled).
[2] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
NOTE: *DEFT* is the root design effect. *DEFF* is the design effect.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

5. RESPONSE RATES

This chapter presents unit response rates and overall response rates for the different instruments included in the fifth-grade round of data collection (spring 2016) for the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011). A unit response rate is the ratio of the number of units with a completed interview, questionnaire, or assessment (for example, the units are students with a completed assessment) to the number of units sampled and eligible for the interview, questionnaire, or assessment. Unit response rates are used to describe the outcomes of data collection activities and to measure the quality of the study. The overall response rate indicates the percentage of eligible units with a completed interview, questionnaire, or assessment, taking all survey stages into account.

5.1 Study Instruments

For the ECLS-K:2011 fifth-grade data collection, there were several survey instruments, as shown in exhibit 5-1. Exhibit 5-1 also indicates how much information had to be collected for each instrument for it to be considered “complete” and, therefore, for a case to be considered a respondent to that instrument for the purpose of calculating response rates. Response rates are presented in section 5.2 for all of these instruments.

Exhibit 5-1. ECLS-K:2011 survey instruments and definition of completed instrument: Spring 2016

Survey instrument	Spring 2016	Definition of completed instrument
Child assessment	Yes	Student has at least one of the following: (1) at least one assessment score (mathematics, reading, or science); (2) at least one executive function score (*DCCS*, numbers reversed, or *Flanker*)[1]; (3) at least one completed item in the child questionnaire (CQ); or (4) has height or weight measurement
Parent interview	Yes	Parent answered all applicable items in the family structure section of the questionnaire (FSQ) through item FSQ200 on current marital status
Teacher teacher-level questionnaire	Yes	Teacher (linked to sampled children) completed at least one item[2] in this questionnaire
Teacher child- and classroom-level questionnaire	Yes	Teacher (linked to sampled children) completed at least one item[2] in this questionnaire
Teacher-level special education teacher questionnaire	Yes	Student has special education teacher or related service provider, and teacher completed at least one item[2] in this questionnaire
Child-level special education teacher questionnaire	Yes	Student has special education teacher or related service provider, and teacher completed at least one item[2] in this questionnaire
School administrator questionnaire	Yes	School administrator completed at least one item in this questionnaire

[1] In first, second, and third grade, numbers reversed and *DCCS* were the only executive function scores included in this criterion.
[2] The one item that needed to be completed could have been anywhere in the child- and classroom-level questionnaire.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

5.2 Unit Response Rates and Overall Response Rates

The tables in this section present both weighted and unweighted response rates for the different components of data collection shown above in exhibit 5-1 (the child assessment, parent interview, teacher teacher-level questionnaire, teacher child- and classroom-level questionnaire, school administrator questionnaire (SAQ), and special education teacher questionnaires) computed at the student level. Response rates for all students and response rates by selected school and student background characteristics are provided.

Only weighted rates are discussed in this section. The unweighted rate provides a useful description of the success of the operational aspects of the survey. The weighted rate gives a better description of the success of the survey with respect to the population sampled since the weights allow for inference of the sample data (including response status) to the population level. Both rates are usually similar unless the probabilities of selection and the unit response rates in the categories with different selection probabilities vary considerably. All of the unit response rates discussed in this chapter are weighted unless noted specifically in the text, since the main purpose of this chapter is to describe the success of the survey with respect to the survey population. The weights used in the computation of the student-level unit response rates are the fifth-grade student base weights. For a description of these weights, see chapter 4.

In order to compute response rates by different characteristics, the selected characteristics must be known for both respondents and nonrespondents. Multiple sources were used to obtain information on school characteristics in order to have data that were as complete as possible for the calculation of response rates. For respondents, data for school census region, school locale, school type, and school enrollment come from the composite variables derived for the data file. For nonrespondents, school characteristic variables were computed for use in the response rate calculations using the same process that was used to compute the data file composite variables. Information on the derivation of variables indicating school region (X9REGION) and school locale (X9LOCALE) is provided in section 7.5.4.7. Information on the derivation of the variable indicating school type (X9SCTYP) is provided in section 7.5.4.1. Information on the derivation of the variable indicating school enrollment (X9ENRLS) is provided in section 7.5.4.3. Information on the derivation of the variable indicating percent minority enrollment (X9RCETH) is provided in section 7.5.4.4.

Information on the child characteristics presented in the tables comes from the fifth-grade data collection. Information on student sex comes from the composite variable X_CHSEX_R (described in section 7.5.1.3). Information on student race/ethnicity comes from the composite variable X_RACETH_R (described in section 7.5.1.4). Information on student year of birth comes from the composite variable X_DOBYY_R (described in section 7.5.1.1). These composites were derived for all base-year respondents; therefore, they exist for fifth-grade respondents as well as nonrespondents.

When necessary, comparisons in this chapter were examined to ensure that the differences discussed were statistically significant at the 95 percent level of confidence. For example, this was done for tables in section 5.3 when comparing characteristics of the data using different weights, or when comparing data from different years. Significance tests were not conducted for statements related to response rates in section 5.2 because the base weights were used to produce all rates, which are calculated over the same sample of eligible cases.

The overall response rate indicates the percentage of possible interviews, questionnaires, or assessments completed, taking all survey stages into account. In the base-year data collection, children were identified for assessment in a two-stage process. The first stage involved the recruitment of sampled schools to participate in the study. Assessments were then conducted for the sampled children whose parents consented to the children's participation. In fifth grade, children were contacted for follow-up unless they (1) became ineligible for the study because they had moved out of the country or had died, or (2) were movers who were not sampled for follow-up and, therefore, were excluded from data collection. The response rate for the child assessment is the percentage of sampled and eligible children not subsampled out as an unfollowed mover who completed the assessment. The overall weighted response rate is the product of the base-year before-substitution school response rate for all schools (62.7 percent) and the fifth-grade weighted child assessment response rate. The overall unweighted response rate is the product of the unweighted base-year before-substitution response rate for all schools (61.3 percent) and the fifth-grade unweighted child assessment response rate. In the overall response rate tables, the response rates by characteristic are also a product of the fifth-grade response rate by the corresponding (weighted or unweighted) overall base-year rate.

Because children were sampled in the base year and school participation after the base year was not required for the children to stay in the study, the school response rates used to calculate the student-level response rates in these tables are those from the base year (the base-year response rates are presented in table 5-2 of the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook, Public Version* (NCES 2015-074) (Tourangeau et al. 2015a, hereinafter referred to as the base-year User's Manual).

In the fifth-grade data collection, all 18,174 base-year respondents were part of the sample. Of these, about 210 became ineligible for the data collection because they had moved out of the country sometime between the base year and the start of the fifth-grade data collection and approximately 10 had died. An additional 3,350 students were not included in the data collection because they were movers who were subsampled out of the study (see section 4.2.3 for information on mover subsampling). After these exclusions for ineligibility and subsampling, the number of children followed for data collection in fifth grade was approximately 14,610. This number is the denominator used to calculate the unweighted parent interview response rate. This is also the basis of the denominator used to calculate the unweighted child assessment response rate. However, children who were excluded from the assessment because the study did not provide needed accommodations for a disability, such as an assessment in Braille, are not included in the calculation of response rates for the child assessment. Therefore, the denominator used to calculate the unweighted child assessment response rate is about 14,530. All children enrolled in school were eligible for a reading teacher questionnaire. Therefore, the denominator used to calculate the reading teacher response rate is 12,285. Similarly, all children enrolled in school were eligible for a school administrator questionnaire; therefore, the denominator used to calculate the school administrator response rate also is 12,285. This denominator is lower than the ones used to calculate response rates for the child assessment and parent interview because it excludes students who were not eligible for the reading teacher and administrator questionnaire components: homeschooled children and children who did not have either a complete child assessment score or parent interview (per the definition of complete provided in exhibit 5-1) for the fifth-grade collection. Because half of the cases were selected for a math teacher questionnaire and the other half for a science teacher questionnaire, the denominators used to calculate the mathematics/science teacher response rates are 6,139 and 6,146, respectively. Again, these numbers vary because while a child may have been selected for a particular questionnaire, the child may not have been eligible because of the exclusion of homeschooled children and children who did not have either a complete child assessment score or parent interview (per the definition of complete provided in exhibit 5-1) for the fifth-grade collection. The parent and teacher rates are computed at the student level, meaning they indicate the percentages of students for whom a parent interview was completed or for whom a teacher questionnaire was received. The school administrator rate is also computed at the student level and indicates the percentage of students whose school administrator completed a questionnaire.

Table 5-1 presents weighted and unweighted response rates for the child assessment and the parent interview in the fifth-grade data collection by selected school characteristics. Response rates for the child questionnaire are the same as for the child assessment because all children with assessment data have child questionnaire data and vice-versa. Researchers should note that the “unknown/homeschool group” has a low response rate, in large part because this group includes unlocatable cases who are, by default, nonrespondents. This unknown/homeschool group (2,200 cases) is about 15 percent of the overall sample of eligible cases. Because their school characteristics are unknown, cases in this group cannot be included in a specific school characteristics category. This may have an impact on the calculation of the response rates by school characteristics that should be considered. Specifically, including these unlocatable cases in a separate category likely results in response rates by different school characteristics being higher than they would be if the unlocatable cases were included as nonrespondents when calculating response rates for the different school characteristic categories. Not including the “unknown” subgroups, the lowest weighted response rate by type of school for the child assessment/child questionnaire was for students in non-Catholic private schools (79.9 percent). For other school characteristics, response rates ranged from 87.7 (students in schools with enrollment less than 150) to

96.1 percent (students in schools in towns). For the parent interview, the lowest weighted response rate by type of school was also for students in non-Catholic private schools (70.9 percent). For all other school characteristics, parent interview response rates ranged from 69.2 (students in schools with minority enrollment greater than 85 percent) to 80.7 percent (students in schools in town).

Table 5-1. Response rates for child assessment and parent interview, by selected school characteristics, fifth grade: Spring 2016

School characteristic[3]	Child assessment[1]			Parent interview[2]		
	Number of respondents	Response rates		Number of respondents	Response rates	
		Weighted	Unweighted		Weighted	Unweighted
All students	11,445	72.4	78.8	10,220	67.6	70.0
School type						
Public	10,380	92.6	92.8	8,517	75.7	75.6
Private	1,007	85.6	87.7	884	76.4	77.0
Catholic	524	92.4	92.3	464	83.0	81.7
Other private	483	79.9	83.3	420	70.9	72.4
Homeschool/ Unknown school type	58	2.8	2.6	819	38.4	37.2
Census region[4,5]						
Northeast	1,880	90.5	91.5	1,540	74.0	74.8
Midwest	2,410	94.2	94.0	2,000	77.1	77.3
South	3,970	92.1	92.3	3,320	76.4	76.5
West	3,130	91.2	91.6	2,550	74.7	74.3
Unknown	60	2.8	2.6	820	38.4	37.2
Locale						
City	3,511	90.5	91.0	2,836	73.2	73.2
Suburb	4,758	91.4	91.8	3,944	75.8	75.6
Town	809	96.1	95.7	690	80.7	81.2
Rural	1,977	93.9	94.5	1,656	77.6	78.3
Unknown	390	13.1	15.3	1,094	42.6	42.8

See notes at end of table.

Table 5-1. Response rates for child assessment and parent interview, by selected school characteristics, fifth grade: Spring 2016—Continued

School characteristic[3]	Child assessment[1]			Parent interview[2]		
	Number of respondents	Response rates		Number of respondents	Response rates	
		Weighted	Unweighted		Weighted	Unweighted
School enrollment						
1 to 149 students	373	87.7	91.4	321	74.2	78.3
150 to 299 students	1,318	90.2	91.7	1,104	76.1	76.7
300 to 499 students	3,064	91.3	91.4	2,563	76.5	75.9
500 to 749 students	4,201	93.3	93.2	3,468	76.4	76.3
750 or more students	2,405	93.4	93.4	1,923	74.5	74.4
Unknown	84	3.9	3.7	841	38.6	37.3
Percent minority enrolled						
0 to 15	2,492	93.4	93.5	2,156	80.0	80.2
16 to 45	3,121	92.6	93.4	2,682	79.4	79.8
46 to 85	2,963	91.5	91.5	2,418	74.2	74.3
86 to 100	2,777	91.7	91.7	2,116	69.2	69.5
Unknown	92	4.1	4.1	848	38.7	37.5

[1] Student had scoreable reading or mathematics or science data, or at least one executive function score, or a height or weight measurement, or a completed item from the child questionnaire.
[2] Parent answered all applicable items in the family structure section of the questionnaire (FSQ) through item FSQ200 on current marital status.
[3] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[4] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[5] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-2 presents weighted and unweighted response rates for the child assessment and the parent interview in the fifth-grade data collection by selected student characteristics. For the child assessment, Hispanic students had the highest weighted response rate at 79.4 percent, while Black students had the lowest child assessment response rates at 59.6 percent. Parents of Pacific Islander children had the lowest response rate (53.8 percent) while parents of White children had the highest weighted response rate (72.0 percent).

Table 5-2. Response rates for child assessment and parent interview, by selected student characteristics, fifth grade: Spring 2016

Student characteristic	Child assessment[1]			Parent interview[2]		
	Number of respondents	Response rates: Weighted	Response rates: Unweighted	Number of respondents	Response rates: Weighted	Response rates: Unweighted
All students	11,445	72.4	78.8	10,220	67.6	70.0
Sex						
Male	5,851	72.1	78.3	5,212	66.9	69.3
Female	5,581	73.0	79.5	5,008	68.6	71.0
Unknown	13	35.7	41.9	0	0.0	0.0
Race/ethnicity						
White, non-Hispanic	5,428	72.8	80.4	5,102	72.0	75.2
Black, non-Hispanic	1,117	59.6	66.2	964	53.9	56.7
Hispanic	3,259	79.4	82.3	2,747	67.6	69.0
Asian, non-Hispanic	1,004	76.6	80.9	827	65.7	66.4
Native Hawaiian/ Other Pacific Islander, non-Hispanic	62	70.0	71.3	46	53.8	52.9
American Indian or Alaska Native, non-Hispanic	101	64.1	67.8	82	57.3	54.7
Two or more races, non-Hispanic	465	66.6	74.2	452	66.6	71.7
Unknown	9	28.5	36.0	0	0.0	0.0
Year of birth[3]						
2003	50	66.6	72.1	50	66.9	68.1
2004	3,520	72.6	79.5	3,180	68.4	71.3
2005	7,870	72.5	78.6	6980	67.3	69.5
2006	10	63.2	65.0	10	56.3	60.0
Unknown	1	7.0	14.3	0	0.0	0.0

[1] Student had scoreable reading or mathematics or science data, or at least one executive function score, or a height or weight measurement, or a completed item from the child questionnaire.
[2] Parent answered all applicable items in the Family Structure Questions (FSQ) section of the questionnaire through item FSQ200 on current marital status.
[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-3 and table 5-4 present weighted and unweighted response rates for the reading teacher questionnaires by selected school characteristics and student characteristics, respectively. The weighted response rates are 82.0 percent for the teacher-level questionnaire and 81.9 percent for the child- and classroom-level teacher questionnaire. In fifth grade (as in fourth grade), teacher questionnaires were separate for reading, mathematics, and science. If a teacher taught both reading and mathematics, he or she would have to fill out the child- and classroom-level questionnaires for each subject (although there were half as many questionnaires for mathematics as for reading). The pattern of response rates is almost the same for both teacher questionnaires. By school characteristics, the highest rates were for students in schools in rural areas (98.0 percent at the teacher level and 97.7 percent at the child and classroom level). The lowest rates were for students in schools with at least 86 percent of students who were racial/ethnic minorities (84.7 percent at the teacher level and 85.3 percent at the child and classroom level). By selected student characteristics, the highest subgroup rates were observed for White students for the teacher-level data (83.6 percent) and for Hispanic students for the child- and classroom-level data (83.8 percent). The subgroup with the lowest rates was Asian students (75.1 percent at the teacher level and 72.6 percent at the child and classroom level), not accounting for subgroups with very small sample size (fewer than 100 children).

Table 5-3. Response rates for reading teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016

School characteristic[2]	Reading teacher questionnaire (teacher level)[1]			Reading teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Response rates: Weighted	Response rates: Unweighted	Number of respondents	Response rates: Weighted	Response rates: Unweighted
All students	10,460	82.0	85.1	10,445	81.9	85.0
School type						
Public	9,505	90.5	90.4	9,486	90.4	90.2
Private	955	93.9	94.4	959	94.5	94.8
Catholic	506	94.1	96.2	508	94.7	96.6
Other private	449	93.6	92.4	451	94.2	92.8
Homeschool/ Unknown school type	0	0.0	0.0	0	0.0	0.0
Census region[3, 4]						
Northeast	1,710	89.6	89.9	1,710	89.7	90.0
Midwest	2,330	95.3	95.3	2,300	94.6	94.3
South	3,680	90.9	91.3	3,680	91.0	91.4
West	2,750	87.5	87.0	2,760	87.6	87.1
Unknown	0	0.0	0.0	0	0.0	0.0

See notes at end of table.

Table 5-3. Response rates for reading teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016—Continued

School characteristic[2]	Reading teacher questionnaire (teacher level)[1]			Reading teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Response rates		Number of respondents	Response rates	
		Weighted	Unweighted		Weighted	Unweighted
Locale						
City	3,040	86.9	85.7	3,056	87.4	86.2
Suburb	4,354	89.7	90.4	4,349	89.6	90.3
Town	778	94.4	95.2	754	92.7	92.3
Rural	1,979	98.0	98.4	1,975	97.7	98.2
Unknown	309	22.9	28.2	311	23.3	28.4
School enrollment						
1 to 149 students	369	95.9	97.4	352	93.6	92.9
150 to 299 students	1,222	92.4	92.1	1,222	92.4	92.1
300 to 499 students	2,914	93.9	93.5	2,914	93.9	93.5
500 to 749 students	3,803	89.1	89.4	3,809	89.2	89.5
750 or more students	2,149	89.5	88.7	2,143	89.2	88.4
Unknown	3	0.4	0.4	5	0.8	0.6
Percent minority enrolled						
0 to 15	2,459	97.3	97.3	2,442	96.9	96.7
16 to 45	3,005	94.9	95.2	3,003	94.8	95.2
46 to 85	2,634	86.9	87.8	2,619	86.4	87.3
86 to 100	2,352	84.7	83.7	2,368	85.3	84.3
Unknown	10	0.9	1.3	13	1.5	1.6

[1] A respondent is defined as a child for whom a teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data.
[2] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-4. Response rates for reading teacher questionnaires, by selected student characteristics, fifth grade: Spring 2016

Student characteristic	Reading teacher questionnaire (teacher level)[1]			Reading teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Response rates		Number of respondents	Response rates	
		Weighted	Unweighted		Weighted	Unweighted
All students	10,460	82.0	85.1	10,445	81.9	85.0
Sex						
Male	5,345	82.0	85.0	5,336	81.9	84.9
Female	5,103	81.9	85.2	5,098	81.9	85.2
Unknown	12	86.3	92.3	11	80.6	84.6
Race/ethnicity						
White, non-Hispanic	5,184	83.6	88.8	5,164	83.4	88.5
Black, non-Hispanic	985	75.5	79.6	989	76.1	79.9
Hispanic	2,915	83.3	84.8	2,932	83.8	85.3
Asian, non-Hispanic	811	75.1	75.8	796	72.6	74.4
Native Hawaiian/ Other Pacific Islander, non-Hispanic	50	72.8	76.9	49	71.1	75.4
American Indian or Alaska Native, non-Hispanic	96	83.0	86.5	95	81.9	85.6
Two or more races, non-Hispanic	410	77.0	79.6	411	77.1	79.8
Unknown	9	93.0	90.0	9	93.0	90.0
Year of birth[2]						
2003	50	84.3	89.8	50	84.3	89.8
2004	3,300	83.5	87.3	3,290	83.4	87.2
2005	7,100	81.3	84.2	7,090	81.3	84.1
2006	10	71.0	66.7	10	71.0	66.7
Unknown	#	100.0	100.0	0	0.0	0.0

Rounds to zero.
[1] A respondent is defined as a child for whom a teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data.
[2] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-5 and table 5-6 present weighted and unweighted response rates for the mathematics teacher questionnaires by selected school characteristics and student characteristics, respectively. The weighted response rates are 82.0 percent for the teacher-level questionnaire and 81.8 percent for the child- and classroom-level teacher questionnaire. By school type, the highest rates are for students in private non-Catholic schools, both at the teacher level (93.0 percent) and at the child and classroom level (93.9 percent). The lowest rates are for students in public schools: 90.8 percent at the teacher level, and 90.5 percent at the child and classroom level. By other school characteristics, the pattern is also similar for the two mathematics and science instruments: lowest for schools in the West and highest for schools in the Midwest; lowest for schools in the cities and highest for schools in rural areas; lowest for schools with minority enrollment of more than 85 percent and highest for schools with minority enrollment of 15 percent or less. By school enrollment, however, response rates are lowest for schools with between 500 and 749 students for the two mathematics instruments, but highest for schools with between 300 and 499. By selected student characteristics, the rates range from 71.6 percent for Asian students for the child- and classroom- level questionnaire to 84.0 percent for students born in 2004 for the teacher-level questionnaire, not accounting for subgroups with very small sample size (fewer than 100 children).

Table 5-5. Response rates for mathematics teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016

	Mathematics teacher questionnaire (teacher level)[1]			Mathematics teacher questionnaire (child and classroom level)[1]		
	Number of	Response rates		Number of	Response rates	
School characteristic[2]	respondents	Weighted	Unweighted	respondents	Weighted	Unweighted
All students	5,234	82.0	85.3	5,213	81.8	84.9
School type						
Public	4,772	90.8	90.8	4,750	90.5	90.4
Private	462	92.7	93.7	463	93.2	93.9
Catholic	242	92.4	95.3	242	92.4	95.3
Other private	220	93.0	92.1	221	93.9	92.5
Homeschool/ Unknown school type	0	0.0	0.0	0	0.0	0.0
Census region[3,4]						
Northeast	890	89.7	89.9	860	89.7	89.9
Midwest	1,150	95.5	95.6	1,140	95.1	94.6
South	1,860	91.3	92.0	1,860	91.3	92.1
West	1,370	87.5	87.0	1,360	87.0	86.3
Unknown	0	0.0	0.0	0	0.0	0.0

See notes at end of table.

Table 5-5. Response rates for mathematics teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016—Continued

School characteristic[2]	Mathematics teacher questionnaire (teacher level)[1]			Mathematics teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Response rates: Weighted	Response rates: Unweighted	Number of respondents	Response rates: Weighted	Response rates: Unweighted
Locale						
City	1,522	86.8	86.2	1,517	87.0	85.9
Suburb	2,178	90.2	90.9	2,172	89.8	90.6
Town	393	95.1	95.6	384	94.1	93.4
Rural	976	96.9	97.7	974	96.7	97.5
Unknown	165	23.8	29.2	166	24.0	29.3
School enrollment						
1 to 149 students	178	95.8	97.3	170	93.6	92.9
150 to 299 students	612	90.8	90.8	612	90.8	90.8
300 to 499 students	1,418	93.9	93.6	1,418	94.1	93.6
500 to 749 students	1,946	89.5	90.2	1,934	89.1	89.7
750 or more students	1,078	90.0	89.2	1,077	89.7	89.1
Unknown	2	0.3	0.5	2	0.3	0.5
Percent minority enrolled						
0 to 15	1,215	97.9	97.7	1,206	97.4	97.0
16 to 45	1,503	94.1	95.1	1,502	94.2	95.0
46 to 85	1,335	87.0	88.1	1,323	86.4	87.3
86 to 100	1,176	85.6	84.4	1,176	85.7	84.4
Unknown	5	0.8	1.2	6	1.1	1.5

[1] A respondent is defined as a child for whom a teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data.
[2] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight for the sample of students selected for the mathematics teacher questionnaires.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-6. Response rates for mathematics teacher questionnaires, by selected student characteristics, fifth grade: Spring 2016

Student characteristic	Mathematics teacher questionnaire (teacher level)[1]			Mathematics teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Response rates		Number of respondents	Response rates	
		Weighted	Unweighted		Weighted	Unweighted
All students	5,234	82.0	85.3	5,213	81.8	84.9
Sex						
Male	2,657	83.1	85.8	2,647	82.9	85.5
Female	2,571	80.9	84.7	2,560	80.7	84.3
Unknown	6	67.4	85.7	6	67.4	85.7
Race/ethnicity						
White, non-Hispanic	2,576	83.9	89.1	2,563	83.6	88.7
Black, non-Hispanic	488	74.2	78.2	493	75.5	79.0
Hispanic	1,472	83.6	85.1	1,466	83.3	84.7
Asian, non-Hispanic	401	73.0	75.1	396	71.6	74.2
Native Hawaiian/ Other Pacific Islander, non-Hispanic	23	76.3	79.3	23	76.3	79.3
American Indian or Alaska Native, non-Hispanic	42	82.2	84.0	42	82.2	84.0
Two or more races, non-Hispanic	224	79.5	81.8	222	78.8	81.0
Unknown	8	100.0	100.0	8	100.0	100.0
Year of birth						
2003	20	79.7	85.7	20	79.7	85.7
2004	1,680	84.0	87.7	1,670	83.6	87.2
2005	3,520	81.0	84.1	3,510	81.0	83.9
2006	10	92.6	87.5	10	92.6	87.5
Unknown	#	100.0	100.0	#	100.0	100.0

Rounds to zero.
[1] A respondent is defined as a child for whom a teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data.
[2] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight for the sample of students selected for the mathematics teacher questionnaires.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-7 and table 5-8 present weighted and unweighted response rates for the science teacher questionnaires by selected school characteristics and student characteristics, respectively. The weighted response rates have the same pattern for both instruments. They are lowest for students in public schools (90.5 percent at the teacher level and 90.2 percent at the child and classroom level), and highest for students in Catholic schools (95.4 percent at the teacher level and 96.2 percent at the child and classroom level). By other school characteristics, the highest rates are 98.3 percent at the teacher level and 97.5 percent at the child and classroom level for students in schools in rural areas. The lowest rates are for students in schools with more than 85 percent minority enrollment (85.1 percent at the teacher level and 84.7 percent at the child and classroom level). By selected student characteristics, the highest rates are for Hispanic students (83.8 percent at both the teacher level and at the child and classroom level), and the lowest rates are for students of two or more races (74.3 at the teacher level, and 73.7 at the child and classroom level) not accounting for subgroups with very small sample size (fewer than 100 children).

Table 5-7. Response rates for science teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016

	Science teacher questionnaire (teacher level)[1]			Science teacher questionnaire (child and classroom level)[1]		
	Number of	Response rates		Number of	Response rates	
School characteristic[2]	respondents	Weighted	Unweighted	respondents	Weighted	Unweighted
All students	5,247	82.1	85.4	5,234	81.9	85.2
School type						
Public	4,758	90.5	90.5	4,743	90.2	90.2
Private	489	94.5	94.2	491	95.0	94.6
Catholic	262	95.4	96.3	263	96.2	96.7
Other private	227	93.5	91.9	228	93.9	92.3
Homeschool/ Unknown school type	0	0.0	0.0	0	0.0	0.0
Census region[3,4]						
Northeast	850	89.8	90.2	850	89.3	89.9
Midwest	1,180	95.3	95.2	1,170	95.0	94.8
South	1,840	90.9	91.7	1,840	90.6	91.5
West	1,380	87.5	86.6	1,380	87.5	86.6
Unknown	0	0.0	0.0	0	0.0	0.0
Locale						
City	1,521	87.1	85.4	1,515	86.7	85.1
Suburb	2,208	90.5	91.3	2,203	90.3	91.1
Town	383	92.5	94.3	381	91.7	93.8
Rural	996	98.3	98.4	992	97.5	98.0
Unknown	139	21.1	26.3	143	22.1	27.1

See notes at end of table.

Table 5-7. Response rates for science teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016—Continued

School characteristic[2]	Science teacher questionnaire (teacher level)[1]			Science teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Response rates		Number of respondents	Response rates	
		Weighted	Unweighted		Weighted	Unweighted
School enrollment						
1 to 149 students	187	94.4	95.4	188	95.3	95.9
150 to 299 students	607	93.5	93.0	605	93.0	92.6
300 to 499 students	1,480	92.3	92.4	1,481	92.2	92.5
500 to 749 students	1,889	89.7	90.1	1,881	89.3	89.7
750 or more students	1,083	90.8	89.2	1,076	90.2	88.6
Unknown	1	0.5	0.3	3	1.3	0.8
Percent minority enrolled						
0 to 15	1,243	96.5	96.9	1,247	96.8	97.2
16 to 45	1,499	94.8	95.2	1,493	94.1	94.9
46 to 85	1,305	87.7	87.9	1,297	87.2	87.3
86 to 100	1,196	85.1	84.5	1,191	84.7	84.1
Unknown	4	0.5	1.0	6	1.4	1.5

[1] A respondent is defined as a child for whom a teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data.
[2] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight for the sample of students selected for the science teacher questionnaires.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-8. Response rates for science teacher questionnaires, by selected student characteristics, fifth grade: Spring 2016

Student characteristic	Science teacher questionnaire (teacher level)[1]			Science teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Response rates: Weighted	Response rates: Unweighted	Number of respondents	Response rates: Weighted	Response rates: Unweighted
All students	5,247	82.1	85.4	5,234	81.9	85.2
Sex						
Male	2,700	81.3	84.6	2,689	80.8	84.3
Female	2,541	83.0	86.1	2,539	83.0	86.1
Unknown	6	100.0	100.0	6	100.0	100.0
Race/ethnicity						
White, non-Hispanic	2,618	83.6	88.8	2,613	83.4	88.7
Black, non-Hispanic	501	77.2	81.6	497	76.7	80.9
Hispanic	1,462	83.8	85.5	1,460	83.8	85.4
Asian, non-Hispanic	401	75.0	74.8	402	74.5	75.0
Native Hawaiian/ Other Pacific Islander, non-Hispanic	28	73.8	77.8	27	65.0	75.0
American Indian or Alaska Native, non-Hispanic	52	82.0	85.2	52	82.0	85.2
Two or more races, non-Hispanic	185	74.3	76.8	183	73.7	75.9
Unknown	0	0.0	0.0	0	0.0	0.0
Year of birth						
2003	30	87.4	93.5	30	87.4	93.5
2004	1,630	83.1	87.3	1,630	83.2	87.4
2005	3,590	81.7	84.6	3,580	81.3	84.2
2006	#	34.2	42.9	#	34.2	42.9

Rounds to zero.
[1] A respondent is defined as a child for whom a teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data.
[2] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight for the sample of students selected for the science teacher questionnaires.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-9 presents weighted and unweighted overall response rates for the child assessment and the parent interview in the fifth-grade data collection by selected school characteristics. The overall response rate is the percentage of possible assessments, interviews, or questionnaires completed, taking into account the base-year school response rate. Of the 2,896 original and transfer schools that were initially eligible for the fifth-grade data collection, 2,789 schools participated in the study, 15 schools refused, and 92 became ineligible because all ECLS-K:2011 students in the school had moved to other schools. The school response rates used in the overall rates are from the base year because children were sampled in the base year and were eligible to stay in the study regardless of school participation after the base year. The overall weighted response rate is the product of the base-year before-substitution school response rate for all schools (62.7 percent) and the fifth-grade weighted response rate. The overall unweighted response rate is the product of the unweighted base-year before-substitution response rate for all schools (61.3 percent) and the fifth-grade unweighted response rate. In the overall response rate tables, the response rates by characteristic are also a product of the fifth-grade response rate by the corresponding (weighted or unweighted) overall base-year rate.

The overall weighted response rate for the child assessment was 45.4 percent. For the parent interview, the overall weighted response rate was 42.4 percent. Because the driving factor of the overall response rate is the base-year school response rate for all schools, the pattern of overall response rates by subgroups is the same as the pattern for the fifth-grade response rates.

Table 5-9. Overall response rates for child assessment and parent interview, by selected school characteristics, fifth grade: Spring 2016

	Child assessment[1]			Parent interview[2]		
	Number of	Overall response rates		Number of	Overall response rates	
School characteristic[3]	respondents	Weighted	Unweighted	respondents	Weighted	Unweighted
All students	11,445	45.4	48.3	10,220	42.4	42.9
School type						
Public	10,380	58.1	56.9	8,517	47.5	46.3
Private	1,007	53.7	53.8	884	47.9	47.2
Catholic	524	57.9	56.6	464	52.0	50.1
Other private	483	50.1	51.1	420	44.5	44.4
Homeschool/ Unknown school type	58	1.8	1.6	819	24.1	22.8

See notes at end of table.

Table 5-9. Overall response rates for child assessment and parent interview, by selected school characteristics, fifth grade: Spring 2016—Continued

School characteristic[3]	Child assessment[1]			Parent interview[2]		
	Number of respondents	Overall response rates Weighted	Overall response rates Unweighted	Number of respondents	Overall response rates Weighted	Overall response rates Unweighted
Census region[4,5]						
Northeast	1,880	56.7	56.1	1,540	46.4	45.9
Midwest	2,410	59.1	58.4	2,000	48.3	47.4
South	3,970	57.7	58.4	3,320	47.9	46.9
West	3,130	57.2	57.3	2,550	46.8	45.5
Unknown	60	1.8	1.6	820	24.1	22.8
Locale						
City	3,511	56.7	55.8	2,836	45.9	44.9
Suburb	4,758	57.3	56.3	3,944	47.5	46.3
Town	809	60.3	58.7	690	50.6	49.8
Rural	1,977	58.9	57.9	1,656	48.7	48.0
Unknown	390	8.2	9.4	1,094	26.7	26.2
School enrollment						
1 to 149 students	373	55.0	56.0	321	46.5	48.0
150 to 299 students	1,318	56.6	56.2	1,104	47.7	47.0
300 to 499 students	3,064	57.2	56.0	2,563	48.0	46.5
500 to 749 students	4,201	58.5	57.1	3,468	47.9	46.8
750 or more students	2,405	58.6	57.3	1,923	46.7	45.6
Unknown	84	2.4	2.3	841	24.2	22.9
Percent minority enrolled						
0 to 15	2,492	58.6	57.3	2,156	50.2	49.2
16 to 45	3,121	58.1	57.3	2,682	49.8	48.9
46 to 85	2,963	57.4	56.1	2,418	46.5	45.5
86 to 100	2,777	57.5	56.2	2,116	43.4	42.6
Unknown	92	2.6	2.5	848	24.3	23.0

[1] Student had scoreable reading or mathematics or science data, or at least one executive function score, or a height or weight measurement, or a completed item from the child questionnaire.
[2] Parent answered all applicable items in the family structure section of the questionnaire (FSQ) through item FSQ200 on current marital status.
[3] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[4] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[5] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted overall response rates were calculated using the school base weight for the school response rate component and the student base weight for the student response rate component. The counts of students by subgroups do not sum to the total because homeschooled students and students with unknown school characteristics are not included in this table.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Tables 5-10 to 5-12 present weighted and unweighted overall response rates for teacher questionnaires in the fifth-grade data collection, by selected school characteristics. The overall response rates for the teacher-level teacher questionnaire were 51.4 percent for the students linked to reading and mathematics teachers and 51.5 percent for students linked to science teachers. The overall response rates for the child- and classroom-level teacher questionnaire were 51.4 percent for students linked to reading and science teachers, and 51.3 percent for those linked to mathematics teachers. The response rates by subgroup follow the same pattern as was seen for the fifth-grade teacher response rates.

Table 5-10. Overall response rates for reading teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016

	Reading teacher questionnaire (teacher level)[1]			Reading teacher questionnaire (child and classroom level)[1]		
	Number of	Overall response rates		Number of	Overall response rates	
School characteristic[2]	respondents	Weighted	Unweighted	respondents	Weighted	Unweighted
All students	10,460	51.4	52.2	10,445	51.4	52.1
School type						
Public	9,505	56.7	55.4	9,486	56.7	55.3
Private	955	58.9	57.9	959	59.3	58.1
Catholic	506	59.0	59.0	508	59.4	59.2
Other private	449	58.7	56.6	451	59.1	56.9
Homeschool/ Unknown school type	0	0.0	0.0	0	0.0	0.0
Census region[3,4]						
Northeast	1,710	56.2	55.1	1,710	56.2	55.2
Midwest	2,330	59.8	58.4	2,300	59.3	57.8
South	3,680	57.0	56.0	3,680	57.1	56.0
West	2,750	54.9	53.3	2,760	54.9	53.4
Unknown	0	0.0	0.0	0	0.0	0.0
Locale						
City	3,040	54.5	52.5	3,056	54.8	52.8
Suburb	4,354	56.2	55.4	4,349	56.2	55.4
Town	778	59.2	58.4	754	58.1	56.6
Rural	1,979	61.4	60.3	1,975	61.3	60.2
Unknown	309	14.4	17.3	311	14.6	17.4

See notes at end of table.

Table 5-10. Overall response rates for reading teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016—Continued

School characteristic[2]	Reading teacher questionnaire (teacher level)[1]			Reading teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Overall response rates: Weighted	Overall response rates: Unweighted	Number of respondents	Overall response rates: Weighted	Overall response rates: Unweighted
School enrollment						
1 to 149 students	369	60.1	59.7	352	58.7	56.9
150 to 299 students	1,222	57.9	56.5	1,222	57.9	56.5
300 to 499 students	2,914	58.9	57.3	2,914	58.9	57.3
500 to 749 students	3,803	55.9	54.8	3,809	55.9	54.9
750 or more students	2,149	56.1	54.4	2,143	55.9	54.2
Unknown	3	0.3	0.2	5	0.5	0.4
Percent minority enrolled						
0 to 15	2,459	61.0	59.6	2,442	60.8	59.3
16 to 45	3,005	59.5	58.4	3,003	59.4	58.4
46 to 85	2,634	54.5	53.8	2,619	54.2	53.5
86 to 100	2,352	53.1	51.3	2,368	53.5	51.7
Unknown	10	0.6	0.8	13	0.9	1.0

[1] A respondent is defined as a child for whom a teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data.
[2] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-11. Overall response rates for mathematics teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016

School characteristic[2]	Mathematics teacher questionnaire (teacher level)[1] Number of respondents	Overall response rates Weighted	Overall response rates Unweighted	Mathematics teacher questionnaire (child and classroom level)[1] Number of respondents	Overall response rates Weighted	Overall response rates Unweighted
All students	5,234	51.4	52.3	5,213	51.3	52.0
School type						
Public	4,772	56.9	55.7	4,750	56.7	55.4
Private	462	58.1	57.4	463	58.4	57.6
Catholic	242	57.9	58.4	242	57.9	58.4
Other private	220	58.3	56.5	221	58.9	56.7
Homeschool/ Unknown school type	0	0.0	0.0	0	0.0	0.0
Census region[3,4]						
Northeast	860	56.2	55.1	860	56.2	55.1
Midwest	1,150	59.9	58.6	1,140	59.6	58.0
South	1,860	57.2	56.4	1,860	57.2	56.5
West	1,370	54.9	53.3	1,360	54.5	52.9
Unknown	0	0.0	0.0	0	0.0	0.0
Locale						
City	1,522	54.4	52.8	1,517	54.5	52.7
Suburb	2,178	56.6	55.7	2,172	56.3	55.5
Town	393	59.6	58.6	384	59.0	57.3
Rural	976	60.8	59.9	974	60.6	59.8
Unknown	165	14.9	17.9	166	15.0	18.0

See notes at end of table.

Table 5-11. Overall response rates for mathematics teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016—Continued

School characteristic[2]	Mathematics teacher questionnaire (teacher level)[1]			Mathematics teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Overall response rates		Number of respondents	Overall response rates	
		Weighted	Unweighted		Weighted	Unweighted
School enrollment						
1 to 149 students	178	60.1	59.6	170	58.7	56.9
150 to 299 students	612	56.9	55.7	612	56.9	55.7
300 to 499 students	1,418	58.9	57.4	1,418	59.0	57.4
500 to 749 students	1,946	56.1	55.3	1,934	55.9	55.0
750 or more students	1,078	56.4	54.7	1,077	56.2	54.6
Unknown	2	0.2	0.3	2	0.2	0.3
Percent minority enrolled						
0 to 15	1,215	61.4	59.9	1,206	61.1	59.5
16 to 45	1,503	59.0	58.3	1,502	59.1	58.2
46 to 85	1,335	54.5	54.0	1,323	54.2	53.5
86 to 100	1,176	53.7	51.7	1,176	53.7	51.7
Unknown	5	0.5	0.7	6	0.7	0.9

[1] A respondent is defined as a child for whom a teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data.
[2] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight for the sample of students selected for the mathematics teacher questionnaires.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-12. Overall response rates for science teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016

School characteristic[2]	Science teacher questionnaire (teacher level)[1]			Science teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Overall response rates		Number of respondents	Overall response rates	
		Weighted	Unweighted		Weighted	Unweighted
All students	5,247	51.5	52.4	5,234	51.4	52.2
School type						
Public	4,758	56.7	55.5	4,743	56.6	55.3
Private	489	59.3	57.7	491	59.6	58.0
Catholic	262	59.8	59.0	263	60.3	59.3
Other private	227	58.6	56.3	228	58.9	56.6
Homeschool/ Unknown school type	0	0.0	0.0	0	0.0	0.0
Census region[3,4]						
Northeast	850	56.3	55.3	850	56.0	55.1
Midwest	1,180	59.8	58.4	1,170	59.6	58.1
South	1,840	57.0	56.2	1,840	56.8	56.1
West	1,380	54.9	53.1	1,380	54.9	53.1
Unknown	0	0.0	0.0	0	0.0	0.0
Locale						
City	1,521	54.6	52.4	1,515	54.4	52.2
Suburb	2,208	56.7	56.0	2,203	56.6	55.8
Town	383	58.0	57.8	381	57.5	57.5
Rural	996	61.6	60.3	992	61.1	60.1
Unknown	139	13.2	16.1	143	13.9	16.6

See notes at end of table.

Table 5-12. Overall response rates for science teacher questionnaires, by selected school characteristics, fifth grade: Spring 2016—Continued

School characteristic[2]	Science teacher questionnaire (teacher level)[1]			Science teacher questionnaire (child and classroom level)[1]		
	Number of respondents	Overall response rates: Weighted	Overall response rates: Unweighted	Number of respondents	Overall response rates: Weighted	Overall response rates: Unweighted
School enrollment						
1 to 149 students	187	59.2	58.5	188	59.8	58.8
150 to 299 students	607	58.6	57.0	605	58.3	56.8
300 to 499 students	1,480	57.9	56.6	1,481	57.8	56.7
500 to 749 students	1,889	56.2	55.2	1,881	56.0	55.0
750 or more students	1,083	56.9	54.7	1,076	56.6	54.3
Unknown	1	0.3	0.2	3	0.8	0.5
Percent minority enrolled						
0 to 15	1,243	60.5	59.4	1,247	60.7	59.6
16 to 45	1,499	59.4	58.4	1,493	59.0	58.2
46 to 85	1,305	55.0	53.9	1,297	54.7	53.5
86 to 100	1,196	53.4	51.8	1,191	53.1	51.6
Unknown	4	0.3	0.6	6	0.9	0.9

[1] A respondent is defined as a child for whom a teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data.
[2] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The weighted response rates were calculated using the fifth-grade student base weight for the sample of students selected for the science teacher questionnaires.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-13 presents the response rates for the two special education teacher questionnaires. Response rates are not presented by subgroup for the special education teacher questionnaires because of the relatively small number of students eligible for this component. The denominator for the special education teacher rates is 1,299. This denominator excludes children who did not have either a complete child assessment score or parent interview for the fifth-grade collection, even if they had special education teacher data. The two special education teacher questionnaires, teacher- and child-level, had almost the same response rates for the fifth-grade data collection (93.6 and 93.1 percent, respectively) and overall (58.7 and 58.4 percent, respectively).

Table 5-13. Response rates for special education teacher questionnaires, fifth grade: Spring 2016

Questionnaire	Number of respondents	Response rates		Overall response rates	
		Weighted	Unweighted	Weighted	Unweighted
Special education teacher					
Teacher-level questionnaire	1,210	93.6	93.1	58.7	57.1
Child-level questionnaire	1,205	93.1	92.8	58.4	56.9

NOTE: A child was eligible for the special education questionnaire if he or she had an Individualized Education Plan (IEP) on file with the school. A respondent is defined as a child for whom a special education teacher questionnaire was returned with at least one response, and who had either child assessment or parent interview data. The weighted response rates were calculated using the fifth-grade student base weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Tables 5-14 and 5-15 present response rates for the SAQ included in the fifth-grade data collection. In the base year, the school sample was representative of schools educating kindergartners and kindergarten-aged children, so the base-year User’s Manual presented response rates at the school level. After the base year, the school sample is the set of schools attended by children in the ECLS-K:2011 and is no longer a nationally representative sample of schools. For this reason, response rates for the SAQ are presented only at the student level.

Table 5-14 presents the weighted and unweighted response rates for the school administrator questionnaire by selected school characteristics. They are rates for students who were not homeschooled and were respondents in the fifth-grade data collection.[1] The denominator for the school administrator rates is 12,285. The weighted response rate for the school administrator questionnaire was 81.6 percent, ranging from 90.2 percent for students in public schools to 93.5 percent for students in non-Catholic private schools. By other school characteristics, the response rates by school characteristics for this

[1] A fifth-grade respondent has child data (scoreable reading or mathematics or science data, or at least one executive function score, or a height or weight measurement, or child questionnaire data, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from the fifth-grade round of data collection.

questionnaire were between 84.6 for students in schools with more than 85 percent of students who were racial/ethnic minorities and 97.6 percent for students in rural areas.

Table 5-15 presents the weighted and unweighted response rates for the SAQ by selected student characteristics. Excluding subgroups with small numbers of sampled students, the highest weighted response rate was for White students (83.5 percent) and the lowest weighted response rate was for Black students (73.7 percent).

Table 5-14. Response rates for school administrator questionnaire, by selected school characteristics, fifth grade: Spring 2016

	Student-level school administrator questionnaire		
		Response rates	
School characteristic[1]	Number of respondents	Weighted	Unweighted
All students	10,407	81.6	84.7
School type			
Public	9,451	90.2	89.9
Private	956	93.4	94.5
Catholic	498	93.2	94.7
Other private	458	93.5	94.2
Homeschool/Unknown school type	0	0.0	0.0
Census region[2,3]			
Northeast	1,640	85.8	86.6
Midwest	2,360	96.8	96.8
South	3,600	90.0	89.5
West	2,800	88.4	88.5
Unknown	0	0.0	0.0
Locale			
City	3,063	86.8	86.4
Suburb	4,288	88.9	89.0
Town	792	96.4	96.9
Rural	1,969	97.6	97.9
Unknown	295	22.0	27.0

See notes at end of table.

Table 5-14. Response rates for school administrator questionnaire, by selected school characteristics, fifth grade: Spring 2016—Continued

	Student-level school administrator questionnaire		
		Response rates	
School characteristic[1]	Number of respondents	Weighted	Unweighted
School enrollment			
1 to 149 students	368	95.4	97.1
150 to 299 students	1,245	93.5	93.8
300 to 499 students	2,917	94.2	93.6
500 to 749 students	3,774	88.9	88.7
750 or more students	2,102	87.4	86.8
Unknown	1	0.2	0.1
Percent minority enrolled			
0 to 15	2,494	98.2	98.7
16 to 45	2,946	93.5	93.4
46 to 85	2,592	86.6	86.4
86 to 100	2,373	84.6	84.4
Unknown	2	0.2	0.3

[1] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[2] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: A respondent is defined as an eligible student for whom the school was eligible for the school administrator questionnaire, the questionnaire was returned with at least one response, and the student had either child assessment or parent interview data. The weighted response rates were calculated using the fifth-grade student base weight.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-15. Response rates for school administrator questionnaire, by selected student characteristics, fifth grade: Spring 2016

Student characteristic	Student-level school administrator questionnaire		
	Number of respondents	Response rates	
		Weighted	Unweighted
All students	10,407	81.6	84.7
Sex			
Male	5,325	81.8	84.7
Female	5,070	81.5	84.7
Unknown	12	94.3	92.3
Race/ethnicity			
White, non-Hispanic	5,172	83.5	88.6
Black, non-Hispanic	952	73.7	76.9
Hispanic	2,858	82.5	83.1
Asian, non-Hispanic	860	78.3	80.4
Native Hawaiian/Other Pacific Islander, non-Hispanic	54	79.1	83.1
American Indian or Alaska Native, non-Hispanic	92	80.4	82.9
Two or more races, non-Hispanic	409	76.8	79.4
Unknown	10	100.0	100.0
Year of birth[1]			
2003	50	83.4	88.1
2004	3,250	82.8	86.0
2005	7,100	81.1	84.1
2006	10	71.0	66.7
Unknown	0	0.0	0.0

[1] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

NOTE: A respondent is defined as an eligible student for whom the school was eligible for the school administrator questionnaire, the questionnaire was returned with at least one response, and the student had either child assessment or parent interview data. The weighted response rates were calculated using the fifth-grade student base weight.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-16 shows the overall response rates for the SAQ. The overall weighted response rate was 51.2 percent. As with other overall response rates, the overall rates by subgroups have the same patterns as the fifth-grade response rates because the base-year school response rate is for all schools and, thus, the same for all subgroups.

Table 5-16. Overall response rates for school administrator questionnaire, by selected school characteristics, fifth grade: Spring 2016

School characteristic[1]	Student-level school administrator questionnaire		
	Number of respondents	Overall response rates	
		Weighted	Unweighted
All students	10,407	51.2	51.9
School type			
Public	9,451	56.6	55.1
Private	956	58.6	57.9
Catholic	498	58.4	58.1
Other private	458	58.6	57.7
Homeschool/Unknown school type	0	0.0	0.0
Census region[2,3]			
Northeast	1,640	53.8	53.1
Midwest	2,360	60.7	59.3
South	3,600	56.4	54.9
West	2,800	55.4	54.3
Unknown	0	0.0	0.0
Locale			
City	3,063	54.4	53.0
Suburb	4,288	55.7	54.6
Town	792	60.4	59.4
Rural	1,969	61.2	60.0
Unknown	295	13.8	16.6
School enrollment			
1 to 149 students	368	59.8	59.5
150 to 299 students	1,245	58.6	57.5
300 to 499 students	2,917	59.1	57.4
500 to 749 students	3,774	55.7	54.4
750 or more students	2,102	54.8	53.2
Unknown	1	0.1	0.1
Percent minority enrolled			
0 to 15	2,494	61.6	60.5
16 to 45	2,946	58.6	57.3
46 to 85	2,592	54.3	53.0
86 to 100	2,373	53.0	51.7
Unknown	2	0.1	0.2

[1] School characteristics were taken from the fifth-grade school administrator questionnaire (SAQ) when available. When fifth-grade SAQ data were not available, information was taken from prior-round SAQ responses, the Common Core of Data (CCD), or the Private School Survey (PSS). The versions of the school characteristics variables used to produce this table were specially derived for the User's Manual and are not included in the data file.
[2] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: A respondent is defined as an eligible student for whom the school was eligible for the school administrator questionnaire, the questionnaire was returned with at least one response, and the student had either child assessment or parent interview data. The weighted overall response rates were calculated using the school base weight for the school response rate component and the fifth-grade student base weight for the student response rate component. The counts of students by subgroups do not sum to the total because students with unknown school characteristics are not included in this table.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

5.3 Nonresponse Bias Analysis

NCES statistical standards require that any survey instrument with a weighted unit response rate less than 85 percent be evaluated for potential nonresponse bias. For the fifth-grade data collection, almost all components had weighted response rates lower than 85 percent. Table 5-17 shows response rates for all instruments.

Table 5-17. Weighted and unweighted response rates for all instruments, fifth grade: Spring 2016

Survey instrument	Number of eligible students	Weighted response rate	Unweighted response rate
Child assessment	14,531	72.4	78.8
Parent interview	14,608	67.6	70.0
Teacher questionnaire A Reading	12,285	82.0	85.1
Teacher questionnaire A Mathematics	6,139	82.0	85.3
Teacher questionnaire A Science	6,146	82.1	85.4
Child- and classroom-level teacher questionnaire Reading	12,285	81.9	85.0
Child- and classroom-level teacher questionnaire Mathematics	6,139	81.8	84.9
Child- and classroom-level teacher questionnaire Science	6,146	81.9	85.2
Teacher-level special education teacher questionnaire	1,299	93.6	93.1
Child- and classroom-level special education teacher questionnaire	1,299	93.1	92.8
School administrator questionnaire	12,285	81.6	84.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

The effect of nonresponse is examined in two ways. Sections 5.3.1 to 5.3.4 discuss the effect of nonresponse on estimates produced from each instrument with weighted response rate lower than 85 percent. Section 5.3.5 compares estimates of selected base-year characteristics between base-year respondents and fifth-grade respondents.[2] A comparison of the study estimates to frame estimates, which pertain to schools with fifth grade and to fifth graders in the United States, cannot be done because the sample of study schools is not a representative sample and the sample of study students is not representative of all fifth graders. After the base year, students in the ECLS-K:2011 can only represent the cohort of children who attended kindergarten or were of kindergarten age in ungraded classrooms in the 2010–11 school year. For a comparison to frame estimates that was conducted in the base year of the study, see chapter 5 of the base-year User's Manual.

5.3.1 Effect of Nonresponse on Child Assessment Data

Estimates weighted by the nonresponse-adjusted weights are compared with estimates weighted by the base weights (which are referred to as unadjusted estimates). Large differences between the estimates weighted by the nonresponse-adjusted weights and the unadjusted weights may indicate the potential for bias in the unadjusted estimates. If the differences are small, then either there is very small bias in the estimates or the characteristics used in the adjustment process are not related to the survey estimates and, therefore, the adjustments do not introduce changes in the estimates.

The unadjusted base weight only takes into account the selection probabilities of the sampling units and the subsampling of movers to be followed. The nonresponse-adjusted weights are the weights used to analyze ECLS-K:2011 data. The nonresponse-adjusted weight used in this analysis of the effect of nonresponse on child assessment data is W9C9P_20, which is adjusted for nonresponse to the child assessment. For a discussion of how the weights were constructed, see chapter 4.

In the ECLS-K:2011, chi-square analyses were used to identify characteristics that are most related to nonresponse, and these characteristics were used in the adjustment. Therefore, the likelihood that the weighted estimates are biased as a result of nonresponse would be lower than if nonresponse adjustment was not implemented. This method of examining nonresponse bias, combined with the comparison of estimates of selected base-year characteristics between base-year respondents and fifth-grade respondents, provides an indication of the degree to which nonresponse adjustments are needed and how effective the adjustments are.

[2] A base-year respondent has child data (scoreable assessment data, or height or weight measurements, or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year. A fifth-grade respondent has child data (scoreable assessment data, or executive function data, or child questionnaire data, or height or weight measurements or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from the fifth-grade round of data collection.

Table 5-18 shows estimates of selected items from the child assessment. Table 5-19 shows the differences between unweighted and weighted estimates, and between estimates produced using base weights (unadjusted estimates) and estimates produced using nonresponse-adjusted weights. The differences are shown in absolute value and as a percent (relative difference), together with their *p* value ($\alpha = 0.05$). For example, for the differences between unweighted and unadjusted estimates, the difference is the absolute value of the unweighted estimate minus the unadjusted estimate, and the percent is the difference divided by the unweighted estimate. A *p* value of less than .05 means that there is a statistically significant difference between the two estimates.

The differences between the unadjusted and adjusted estimates are indications of potential nonresponse bias. As can be seen in table 5-18 and 5-19, many of the differences in the estimates are not statistically significant as shown by the *p* value. For the child assessment, half of the items included in the analysis show statistical differences between unadjusted and adjusted estimates, compared with 18 percent in fourth grade. The increased number of significant differences in fifth grade is due to the reduction in sample size that occurred due to sample attrition between the two rounds. Where there is no statistical difference, it means that the effect of the nonresponse adjustment is neutral (i.e., it does not result in changes between unadjusted and adjusted estimates). The range of absolute differences is 0 to 1.76, with an average of 0.41. The average difference in the range of absolute differences is greater than in fourth grade (0.41 in fifth grade and 0.25 in fourth grade). With every subsequent round of data collection, the sample gets smaller because of attrition and the likelihood of significant differences between unadjusted and adjusted estimates gets larger. For this reason, the nonresponse adjustment is essential to reduce the potential bias.

In terms of interpreting percent difference (relative difference), the percent difference is sensitive not only to sample size but also to the prevalence of a particular characteristic. Large relative differences can be a function of small sample sizes. For example, as seen in table 5-19 for students who attended school in a town, there is an absolute difference between the nonresponse-adjusted and unadjusted estimates of 0.68 and a relative difference of 6.69. For students who attended school in the South, there is an absolute difference between the nonresponse-adjusted and unadjusted estimates of 1.51 and a relative difference of 4.14. Proportionately there are fewer students who attended school in a town than students who attended school in the South; therefore, the relative difference is higher for students who went to school in a town even though the absolute difference is smaller for students in this group compared to students who attended school in the South. The differences found in the analyses show that there is some potential for nonresponse bias in the unweighted assessment data, but the weights used to produce estimates were adjusted for nonresponse and, thus, reduce that potential for bias.

Table 5-18. Estimates using unadjusted and nonresponse-adjusted weights, child assessment, spring fifth grade: Spring 2016

Characteristic	Sample size	Unweighted estimate	Unadjusted[1] Estimate	Unadjusted[1] *SE*	Adjusted[2] Estimate	Adjusted[2] *SE*
Proportion of students by school type						
Public	11,526	91.22	92.28	0.435	91.71	0.390
Private	11,526	8.78	7.72	0.435	8.29	0.390
Proportion of students by census region[3,4]						
Northeast	11,530	16.45	15.74	0.778	15.90	0.173
Midwest	11,530	21.17	22.03	1.053	22.12	0.253
South	11,530	34.93	36.45	0.970	37.96	0.335
West	11,530	27.45	25.78	0.453	24.02	0.269
Proportion of students by locale						
City	11,191	31.70	30.91	1.265	30.88	1.169
Suburb	11,191	43.03	41.10	1.295	39.75	1.177
Town	11,191	7.30	10.17	1.075	10.85	1.136
Rural	11,191	17.97	17.83	1.120	18.51	1.025
Proportion of students by race/ethnicity						
White, non-Hispanic	18,131	46.81	51.23	1.710	51.79	1.691
Black, non-Hispanic	18,131	13.21	13.04	1.132	13.30	1.225
Hispanic	18,131	25.33	25.52	1.337	24.78	1.250
Asian, non-Hispanic	18,131	8.51	4.47	0.587	4.45	0.660
Native Hawaiian/Pacific Islander, non-Hispanic	18,131	0.65	0.45	0.076	0.41	0.082
American Indian/Alaska Native, non-Hispanic	18,131	0.93	1.25	0.585	1.18	0.548
Two or more races, non-Hispanic	18,131	4.56	4.03	0.243	4.10	0.219
Mean estimate of the following student scores and characteristics						
Mathematics scale score	11,426	119.66	119.06	0.370	119.45	0.380
Reading scale score	11,427	136.08	135.76	0.319	136.26	0.293
Science scale score	11,419	73.17	73.02	0.280	73.38	0.284
Mathematics theta score	11,426	1.84	1.82	0.010	1.83	0.010
Reading theta score	11,427	1.45	1.45	0.007	1.45	0.007
Science theta score	11,419	1.86	1.85	0.014	1.87	0.015
Number reversed age percentile	11,429	44.74	43.97	0.417	44.34	0.420
Age (in months)	11,444	132.99	133.04	0.104	133.07	0.101
Height (in inches)	11,106	58.00	58.04	0.045	58.11	0.048
Weight (in pounds)	11,006	98.51	98.83	0.351	99.40	0.371
Body mass index (BMI)	10,983	20.38	20.43	0.064	20.50	0.063

[1] Unadjusted estimates are produced using the fifth-grade student base weight. The sample size is the count of cases with nonzero fifth-grade student base weight.
[2] Adjusted estimates are produced using weight W9C9P_20.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: *SE* = standard error. The sample sizes are the number of cases with a nonzero fifth-grade base weight and a nonmissing value for the characteristic or group of characteristics.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-19. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, child assessment, spring fifth grade: Spring 2016

		Between unweighted and unadjusted[1]			Between unweighted and adjusted[2]			Between unadjusted[1] and adjusted[2]		
Characteristic	Sample	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value
Proportion of students by school type										
Public	11,526	1.06	1.16	0.017	0.49	0.54	0.212	0.57	0.62	0.041
Private	11,526	1.06	12.07	0.017	0.49	5.58	0.212	0.57	7.38	0.041
Proportion of students by census region[3,4]										
Northeast	11,530	0.71	4.32	0.367	0.55	3.34	0.002	0.16	1.02	0.839
Midwest	11,530	0.86	4.06	0.419	0.95	4.49	0.000	0.09	0.41	0.926
South	11,530	1.52	4.35	0.121	3.03	8.67	0.000	1.51	4.14	0.118
West	11,530	1.67	6.08	0.000	3.43	12.50	0.000	1.76	6.83	0.000
Proportion of students by locale										
City	11,191	0.79	2.49	0.534	0.82	2.59	0.490	0.03	0.10	0.975
Suburb	11,191	1.93	4.49	0.139	3.28	7.62	0.007	1.35	3.28	0.050
Town	11,191	2.87	39.32	0.009	3.55	48.63	0.002	0.68	6.69	0.024
Rural	11,191	0.14	0.78	0.899	0.54	3.01	0.597	0.68	3.81	0.171
Proportion of students by race/ethnicity										
White, non-Hispanic	18,131	4.42	9.44	0.012	4.98	10.64	0.004	0.56	1.09	0.163
Black, non-Hispanic	18,131	0.17	1.29	0.878	0.09	0.68	0.948	0.26	1.99	0.613
Hispanic	18,131	0.19	0.75	0.884	0.55	2.17	0.662	0.74	2.90	0.040
Asian, non-Hispanic	18,131	4.04	47.47	0.000	4.06	47.71	0.000	0.02	0.45	0.904
Native Hawaiian/Pacific Islander, non-Hispanic	18,131	0.20	30.77	0.013	0.24	36.92	0.005	0.04	8.89	0.349
American Indian/Alaska Native, non-Hispanic	18,131	0.32	34.41	0.577	0.25	26.88	0.649	0.07	5.60	0.312
Two or more races, non-Hispanic	18,131	0.53	11.62	0.031	0.46	10.09	0.038	0.07	1.74	0.592

See notes at end of table.

Table 5-19. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, child assessment, spring fifth grade: Spring 2016—Continued

Characteristic	Sample	Between unweighted and unadjusted[1]			Between unweighted and adjusted[2]			Between unadjusted[1] and adjusted[2]		
		Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value
Mean estimate of the following student scores and characteristics										
Mathematics scale score	11,426	0.60	0.50	0.108	0.21	0.18	0.572	0.39	0.33	0.015
Reading scale score	11,427	0.32	0.24	0.314	0.18	0.13	0.537	0.50	0.37	0.000
Science scale score	11,419	0.15	0.21	0.600	0.21	0.29	0.449	0.36	0.49	0.002
Mathematics theta score	11,426	0.02	1.09	0.103	0.01	0.54	0.533	0.01	0.55	0.017
Reading theta score	11,427	#	#	0.336	#	#	0.705	#	#	0.000
Science theta score	11,419	0.01	0.54	0.598	0.01	0.54	0.436	0.02	1.08	0.001
Number reversed age percentile	11,429	0.77	1.72	0.070	0.40	0.89	0.352	0.37	0.84	0.017
Age (in months)	11,444	0.05	0.04	0.652	0.08	0.06	0.422	0.03	0.02	0.289
Height (in inches)	11,106	0.04	0.07	0.478	0.11	0.19	0.034	0.07	0.12	0.000
Weight (in pounds)	11,006	0.32	0.32	0.372	0.89	0.90	0.020	0.57	0.58	0.001
Body mass index (BMI)	10,983	0.05	0.25	0.391	0.12	0.59	0.065	0.07	0.34	0.051

Rounds to zero.

[1] Unadjusted estimates are produced using the fifth-grade student base weight. The sample size is the count of cases with nonzero fifth-grade student base weight.

[2] Adjusted estimates are produced using weight W9C9P_20.

[3] States in each region:

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.

West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

NOTE: The sample sizes are the number of cases with a nonzero fifth-grade base weight and a nonmissing value for the characteristic or group of characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

5.3.2 Effect of Nonresponse on Parent Interview Data

The adjusted weight used in the analysis of the effect of nonresponse on parent interview data is W9C29P_9A0. For a discussion of how the weights were constructed, see chapter 4. The group of children with this weight can be referred to as fifth-grade longitudinal respondents as it includes base-year respondents who also had student data from spring kindergarten, first, second, third, fourth, and fifth grades, and parent data from fall or spring kindergarten and fifth grade. Table 5-20 shows estimates of selected items from the parent interview. Table 5-21 shows the differences between unweighted and weighted estimates, and between estimates produced using base weights (unadjusted estimates) and estimates produced using nonresponse-adjusted weights. The range of absolute differences is 0.01 to 2.90, and the average is 0.68; this is similar to fourth grade where the average difference was 0.69.

The discussion of how to interpret the relative difference provided above in the section on the child assessment applies to the parent interview data as well. As noted above, the percent difference is sensitive not only to sample size but also to the prevalence of a particular characteristic. For example, as shown in table 5-20, the percent of students who participated in organized athletic activities is 61.51; the absolute difference between the nonresponse-adjusted estimate and unadjusted estimate is 1.22, and the relative difference between these two estimates is 1.94, as shown in table 5-21. The percent of students whose parents used computer to get information from school is 83.31, with an absolute difference of 0.92 and a relative difference of 1.09 between the nonresponse-adjusted estimate and the unadjusted estimate. The relative difference is smaller for the groups of students with higher prevalence in the characteristic examined.

As with the child assessment data, the differences found in the analyses show that there is some potential for nonresponse bias in the unweighted parent interview data, but the weights used to produce estimates were adjusted for nonresponse and, thus, reduce that potential for bias.

Table 5-20. Estimates using unadjusted and nonresponse-adjusted weights, parent interview, spring fifth grade: Spring 2016

Characteristic	Sample size	Unweighted estimate	Unadjusted[1] Estimate	Unadjusted[1] *SE*	Adjusted[2] Estimate	Adjusted[2] *SE*
Proportion of students by school type						
Public	11,526	91.22	92.28	0.435	91.71	0.388
Private	11,526	8.78	7.72	0.435	8.29	0.388
Proportion of students by census region[3,4]						
Northeast	11,530	16.45	15.74	0.778	15.84	0.181
Midwest	11,530	21.17	22.03	1.053	22.08	0.257
South	11,530	34.93	36.45	0.970	38.08	0.331
West	11,530	27.45	25.78	0.453	24.01	0.270
Proportion of students by locale						
City	11,191	31.70	30.91	1.265	30.70	1.163
Suburb	11,191	43.03	41.10	1.295	39.65	1.136
Town	11,191	7.30	10.17	1.075	11.01	1.126
Rural	11,191	17.97	17.83	1.120	18.64	1.058
Proportion of students by race/ethnicity						
White, non-Hispanic	18,131	46.81	51.23	1.710	51.79	1.690
Black, non-Hispanic	18,131	13.21	13.04	1.132	13.27	1.224
Hispanic	18,131	25.33	25.52	1.337	24.81	1.253
Asian, non-Hispanic	18,131	8.51	4.47	0.587	4.44	0.662
Native Hawaiian/Pacific Islander, non-Hispanic	18,131	0.65	0.45	0.076	0.41	0.094
American Indian/Alaska Native, non-Hispanic	18,131	0.93	1.25	0.585	1.17	0.548
Two or more races, non-Hispanic	18,131	4.56	4.03	0.243	4.11	0.222

See notes at end of table.

Table 5-20. Estimates using unadjusted and nonresponse-adjusted weights, parent interview, spring fifth grade: Spring 2016—Continued

Characteristic	Sample size	Unweighted estimate	Unadjusted[1] Estimate	Unadjusted[1] *SE*	Adjusted[2] Estimate	Adjusted[2] *SE*
Proportion of students with the following characteristics from the parent interview						
Parent is currently married/in civil union/in domestic partnership	10,196	73.75	72.11	0.865	70.90	0.921
At least one parent has a high school diploma or equivalent	10,220	90.56	91.58	0.602	91.79	0.480
Child cares for self	9,549	9.78	10.07	0.587	9.78	0.583
Child participated in organized athletic activities	9,665	62.05	62.73	0.868	61.51	0.844
Child participated in performing arts programs	9,648	23.02	22.96	0.504	23.04	0.525
Child has art classes or lessons	9,651	12.67	12.81	0.449	11.55	0.417
Parent volunteered at school	10,154	46.88	46.47	1.413	44.01	1.325
Parent used computer to get information from school	10,158	83.00	84.23	0.915	83.31	0.915
Often or sometimes true that parent could not afford balanced meals in last 12 months	9,306	7.60	8.09	0.399	8.03	0.444
Household poverty index						
Below poverty threshold	10,220	21.38	21.46	1.008	22.29	0.905
At or above poverty threshold but below 200 percent poverty threshold	10,220	21.78	21.44	0.575	23.51	0.670
At or above 200 percent poverty threshold	10,220	56.84	57.10	1.226	54.20	1.053
Mean estimate of the following student characteristics						
Total number of persons in household	10,220	4.69	4.66	0.025	4.65	0.027
Total number of siblings in household	10,190	2.53	2.55	0.022	2.53	0.023
Total number of persons in household less than 18 years of age	10,220	1.63	1.64	0.023	1.63	0.023

[1] Unadjusted estimates are produced using the fifth-grade student base weight. The sample size is the count of cases with nonzero fifth-grade student base weight.
[2] Adjusted estimates are produced using weight W9C29P_9A0. This weight applies to base-year respondents who also had student data from spring kindergarten, first, second, third, fourth, and fifth grades, and parent interview data from fall or spring kindergarten and fifth grade.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: *SE* = standard error. The sample sizes are the number of cases with a nonzero fifth-grade base weight and a nonmissing value for the characteristic or group of characteristics.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-21. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, parent interview, spring fifth grade: Spring 2016

Characteristic	Sample size	Between unweighted and unadjusted[1]			Between unweighted and adjusted[2]			Between unadjusted[1] and adjusted[2]		
		Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value
Proportion of students by school type										
Public	11,526	1.06	1.16	0.017	0.49	0.54	0.214	0.57	0.62	0.065
Private	11,526	1.06	12.07	0.017	0.49	5.58	0.214	0.57	7.38	0.065
Proportion of students by census region[3,4]										
Northeast	11,530	0.71	4.32	0.367	0.61	3.71	0.001	0.10	0.64	0.906
Midwest	11,530	0.86	4.06	0.419	0.91	4.30	0.001	0.05	0.23	0.958
South	11,530	1.52	4.35	0.121	3.15	9.02	0.000	1.63	4.47	0.089
West	11,530	1.67	6.08	0.000	3.44	12.53	0.000	1.77	6.87	0.000
Proportion of students by locale										
City	11,191	0.79	2.49	0.534	1.00	3.15	0.396	0.21	0.68	0.768
Suburb	11,191	1.93	4.49	0.139	3.38	7.85	0.004	1.45	3.53	0.040
Town	11,191	2.87	39.32	0.009	3.71	50.82	0.001	0.84	8.26	0.023
Rural	11,191	0.14	0.78	0.899	0.67	3.73	0.528	0.81	4.54	0.090
Proportion of students by race/ethnicity										
White, non-Hispanic	18,131	4.42	9.44	0.012	4.98	10.64	0.004	0.56	1.09	0.159
Black, non-Hispanic	18,131	0.17	1.29	0.878	0.06	0.45	0.962	0.23	1.76	0.644
Hispanic	18,131	0.19	0.75	0.884	0.52	2.05	0.679	0.71	2.78	0.045
Asian, non-Hispanic	18,131	4.04	47.47	0.000	4.07	47.83	0.000	0.03	0.67	0.844
Native Hawaiian/Pacific Islander, non-Hispanic	18,131	0.20	30.77	0.013	0.24	36.92	0.014	0.04	8.89	0.458
American Indian/Alaska Native, non-Hispanic	18,131	0.32	34.41	0.577	0.24	25.81	0.656	0.08	6.40	0.328
Two or more races, non-Hispanic	18,131	0.53	11.62	0.031	0.45	9.87	0.046	0.08	1.99	0.540

See notes at end of table.

Table 5-21. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, parent interview, spring fifth grade: Spring 2016—Continued

		Between unweighted and unadjusted[1]			Between unweighted and adjusted[2]			Between unadjusted[1] and adjusted[2]		
Characteristic	Sample size	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value
Proportion of students with the following characteristics from the parent interview										
Parent is currently married/in civil union/in domestic partnership	10,196	1.64	2.22	0.060	2.85	3.86	0.003	1.21	1.68	0.019
At least one parent has a high school diploma or equivalent	10,220	1.02	1.13	0.094	1.23	1.36	0.012	0.21	0.23	0.472
Child cares for self	9,549	0.29	2.97	0.625	#	#	0.997	0.29	2.88	0.235
Child participated in organized athletic activities	9,665	0.68	1.10	0.434	0.54	0.87	0.527	1.22	1.94	0.012
Child participated in performing arts programs	9,648	0.06	0.26	0.912	0.02	0.09	0.976	0.08	0.35	0.794
Child has art classes or lessons	9,651	0.14	1.10	0.760	1.12	8.84	0.009	1.26	9.84	0.000
Parent volunteered at school	10,154	0.41	0.87	0.773	2.87	6.12	0.034	2.46	5.29	0.000
Parent used computer to get information from school	10,158	1.23	1.48	0.182	0.31	0.37	0.737	0.92	1.09	0.015
Often or sometimes true that parent could not afford balanced meals in last 12 months	9,306	0.49	6.45	0.217	0.43	5.66	0.331	0.06	0.74	0.781
Household poverty index										
Below poverty threshold	10,220	0.08	0.37	0.936	0.91	4.26	0.319	0.83	3.87	0.066
At or above poverty threshold but below 200 percent poverty threshold	10,220	0.34	1.56	0.555	1.73	7.94	0.012	2.07	9.65	0.000
At or above 200 percent poverty threshold	10,220	0.26	0.46	0.833	2.64	4.64	0.014	2.90	5.08	0.000

See notes at end of table.

Table 5-21. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, parent interview, spring fifth grade: Spring 2016—Continued

Characteristic	Sample size	Between unweighted and unadjusted[1] Absolute difference	Between unweighted and unadjusted[1] Relative difference	Between unweighted and unadjusted[1] *p* value	Between unweighted and adjusted[2] Absolute difference	Between unweighted and adjusted[2] Relative difference	Between unweighted and adjusted[2] *p* value	Between unadjusted[1] and adjusted[2] Absolute difference	Between unadjusted[1] and adjusted[2] Relative difference	Between unadjusted[1] and adjusted[2] *p* value
Mean estimate of the following student characteristics										
Total number of persons in household	10,220	0.03	0.64	0.403	0.04	0.85	0.182	0.01	0.21	0.310
Total number of siblings in household	10,190	0.02	0.79	0.321	#	#	0.776	0.02	0.78	0.021
Total number of persons in household less than 18 years of age	10,220	0.01	0.61	0.537	#	#	0.913	0.01	0.61	0.348

Rounds to zero.
[1] Unadjusted estimates are produced using the fifth-grade student base weight. The sample size is the count of cases with nonzero fifth-grade student base weight.
[2] Adjusted estimates are produced using weight W9C29P_9A0. This weight applies to base-year respondents who also had student data from spring kindergarten, first, second, third, fourth, and fifth grades, and parent interview data from fall or spring kindergarten and fifth grade.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The sample sizes are the number of cases with a nonzero fifth-grade base weight and a nonmissing value for the characteristic or group of characteristics.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

5.3.3 Effect of Nonresponse on Teacher Questionnaire Data

The adjusted weight used in the analysis of the effect of nonresponse on teacher questionnaire data is W9C29P_9T90 for data from the reading teacher and W9C29P_9T9Z0 for data from the mathematics/science teachers. For a discussion of how the weights were constructed, see chapter 4. The group of children with this weight can be referred to as fifth-grade longitudinal respondents as it includes base-year respondents who also had student data from spring kindergarten and fifth grade, parent data from fall or spring kindergarten and fifth grade, and teacher data (reading, mathematics, or science) from fifth grade. Table 5-22 shows estimates of selected items from the teacher questionnaires. Table 5-23 shows the differences between unweighted and weighted estimates, and between estimates produced using base weights (unadjusted estimates) and estimates produced using nonresponse adjusted weights. The range of absolute differences is 0.00 to 2.20, and the average is 0.58, compared with the average of 0.60 for fourth grade. The range of values and the average are similar to those from the analysis of the parent interview data. Similarly, the differences found in the analyses show that there is some potential for nonresponse bias in the unweighted teacher data, but the weights used to produce estimates were adjusted for nonresponse and, thus, reduce that potential for bias.

Table 5-22. Estimates using unadjusted and nonresponse-adjusted weights, teacher questionnaire data, spring fifth grade: Spring 2016

	Sample	Unweighted	Unadjusted[1]		Adjusted[2]	
Characteristic	size	estimate	Estimate	*SE*	Estimate	*SE*
Proportion of students by school type						
Public	11,526	91.22	92.28	0.435	91.74	0.386
Private	11,526	8.78	7.72	0.435	8.26	0.386
Proportion of students by census region[3,4]						
Northeast	11,530	16.45	15.74	0.778	15.91	0.215
Midwest	11,530	21.17	22.03	1.053	22.20	0.264
South	11,530	34.93	36.45	0.970	37.87	0.351
West	11,530	27.45	25.78	0.453	24.02	0.262
Proportion of students by locale						
City	11,191	31.70	30.91	1.265	30.84	1.196
Suburb	11,191	43.03	41.10	1.295	39.78	1.172
Town	11,191	7.30	10.17	1.075	10.94	1.104
Rural	11,191	17.97	17.83	1.120	18.45	1.050

See notes at end of table.

Table 5-22. Estimates using unadjusted and nonresponse-adjusted weights, teacher questionnaire data, spring fifth grade: Spring 2016—Continued

Characteristic	Sample size	Unweighted estimate	Unadjusted[1]		Adjusted[2]	
			Estimate	*SE*	Estimate	*SE*
Proportion of students by race/ethnicity						
White, non-Hispanic	18,131	46.81	51.23	1.710	51.60	1.699
Black, non-Hispanic	18,131	13.21	13.04	1.132	13.34	1.240
Hispanic	18,131	25.33	25.52	1.337	24.91	1.268
Asian, non-Hispanic	18,131	8.51	4.47	0.587	4.47	0.670
Native Hawaiian/Pacific Islander, non-Hispanic	18,131	0.65	0.45	0.076	0.34	0.089
American Indian/Alaska Native, non-Hispanic	18,131	0.93	1.25	0.585	1.25	0.550
Two or more races, non-Hispanic	18,131	4.56	4.03	0.243	4.08	0.216
Proportion of students with the following characteristics from the teacher data						
Teacher took course to address using assessment data for teaching reading	10,414	67.22	68.56	1.378	68.36	1.266
Teacher has regular or standard state certificate or advanced professional certificate	10,429	89.48	89.93	0.678	89.86	0.786
Teacher has bachelor's degree or higher	10,462	99.89	99.88	0.050	99.91	0.051
Teacher agreed/strongly agreed that school administrator was encouraging of staff	10,455	82.29	82.53	0.878	82.60	0.998
Teacher agreed/strongly agreed that child misbehavior interfered with teaching	10,440	26.31	26.47	1.038	26.44	1.052
More than 50 percent of parents volunteered regularly	10,372	8.77	8.32	0.560	8.01	0.550
Student reading skills were below grade level as rated by reading teacher	10,381	25.66	26.54	0.726	24.34	0.807
Student received individual tutoring in reading/language arts	10,346	24.37	25.08	0.904	23.57	0.898
Parent was very involved at the school	10,357	25.48	25.33	0.786	26.39	0.875
Student was in program to learn English skills	2,111	37.19	38.78	2.816	37.06	2.847
Student usually worked to best ability in math	5,180	48.92	49.41	0.965	50.05	1.198
Student math skills were below grade level as rated by math teacher	5,181	24.63	25.17	0.790	23.25	0.950
Student solved math problems in small groups almost every day	5,164	60.59	60.87	1.362	60.82	1.397
Student used computer for math almost every day	5,157	22.26	23.34	1.258	23.31	1.385
Student usually worked to best ability in science	5,184	51.18	51.68	0.891	51.48	0.930
Student science skills were below grade level as rated by science teacher	5,183	20.05	20.20	0.683	19.43	0.803

See notes at end of table.

Table 5-22. Estimates using unadjusted and nonresponse-adjusted weights, teacher questionnaire data, spring fifth grade: Spring 2016—Continued

Characteristic	Sample size	Unweighted estimate	Unadjusted[1] Estimate	Unadjusted[1] *SE*	Adjusted[2] Estimate	Adjusted[2] *SE*
Proportion of students with the following characteristics from the teacher data—Continued						
Student worked with others on science project almost every day	5,168	15.42	15.41	1.280	15.20	1.390
Student used equipment for science almost every day	5,178	7.36	7.27	0.841	6.96	0.820

[1] Unadjusted estimates are produced using the fifth-grade student base weight. The sample size is the count of cases with nonzero fifth-grade student base weight.

[2] Adjusted estimates are produced using weight W9C29P_9T90. This weight applies to base-year respondents who also had student data from spring kindergarten and fifth grade, parent data from fall or spring kindergarten and fifth grade, and reading teacher data from fifth grade. Weight W9C29P_9T9Z0 is the equivalent weight for the students with mathematics/science teachers.

[3] States in each region:

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.

West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

NOTE: *SE* = standard error. The sample sizes are the number of cases with a nonzero fifth-grade base weight and a nonmissing value for the characteristic or group of characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-23. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, teacher questionnaire data, spring fifth grade: Spring 2016

		Between unweighted and unadjusted[1]			Between unweighted and adjusted[2]			Between unadjusted[1] and adjusted[2]		
Characteristic	Sample size	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value
Proportion of students by school type										
Public	11,526	1.06	1.16	0.017	0.52	0.57	0.184	0.54	0.59	0.104
Private	11,526	1.06	12.07	0.017	0.52	5.92	0.184	0.54	6.99	0.104
Proportion of students by census region[3,4]										
Northeast	11,530	0.71	4.32	0.367	0.54	3.28	0.013	0.17	1.08	0.841
Midwest	11,530	0.86	4.06	0.419	1.03	4.87	0.000	0.17	0.77	0.860
South	11,530	1.52	4.35	0.121	2.94	8.42	0.000	1.42	3.90	0.146
West	11,530	1.67	6.08	0.000	3.43	12.50	0.000	1.76	6.83	0.000
Proportion of students by locale										
City	11,191	0.79	2.49	0.534	0.86	2.71	0.478	0.07	0.23	0.931
Suburb	11,191	1.93	4.49	0.139	3.25	7.55	0.007	1.32	3.21	0.057
Town	11,191	2.87	39.32	0.009	3.64	49.86	0.001	0.77	7.57	0.026
Rural	11,191	0.14	0.78	0.899	0.48	2.67	0.652	0.62	3.48	0.221
Proportion of students by race/ethnicity										
White, non-Hispanic	18,131	4.42	9.44	0.012	4.79	10.23	0.006	0.37	0.72	0.366
Black, non-Hispanic	18,131	0.17	1.29	0.878	0.13	0.98	0.918	0.30	2.30	0.560
Hispanic	18,131	0.19	0.75	0.884	0.42	1.66	0.743	0.61	2.39	0.088
Asian, non-Hispanic	18,131	4.04	47.47	0.000	4.04	47.47	0.000	#	#	0.990
Native Hawaiian/Pacific Islander, non-Hispanic	18,131	0.20	30.77	0.013	0.31	47.69	0.001	0.11	24.44	0.047
American Indian/Alaska Native, non-Hispanic	18,131	0.32	34.41	0.577	0.32	34.41	0.561	#	#	0.935
Two or more races, non-Hispanic	18,131	0.53	11.62	0.031	0.48	10.53	0.030	0.05	1.24	0.703

See notes at end of table.

Table 5-23. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, teacher questionnaire data, spring fifth grade: Spring 2016—Continued

Characteristic	Sample size	Between unweighted and unadjusted[1]			Between unweighted and adjusted[2]			Between unadjusted[1] and adjusted[2]		
		Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value
Proportion of students with the following characteristics from the teacher data										
Teacher took course to address using assessment data for teaching reading	10,414	1.34	1.99	0.334	1.14	1.70	0.370	0.20	0.29	0.620
Teacher has regular or standard state certificate or advanced professional certificate	10,429	0.45	0.50	0.512	0.38	0.42	0.630	0.07	0.08	0.826
Teacher has bachelor's degree or higher	10,462	0.01	0.01	0.994	0.02	0.02	0.641	0.03	0.03	0.317
Teacher agreed/strongly agreed that school administrator was encouraging of staff	10,455	0.24	0.29	0.782	0.31	0.38	0.753	0.07	0.08	0.869
Teacher agreed/strongly agreed that child misbehavior interfered with teaching	10,440	0.16	0.61	0.881	0.13	0.49	0.905	0.03	0.11	0.939
More than 50 percent of parents volunteered regularly	10,372	0.45	5.13	0.417	0.76	8.67	0.170	0.31	3.73	0.212
Student reading skills were below grade level as rated by reading teacher	10,381	0.88	3.43	0.229	1.32	5.14	0.104	2.20	8.29	0.000
Student received individual tutoring in reading/language arts	10,346	0.71	2.91	0.430	0.80	3.28	0.380	1.51	6.02	0.000
Parent was very involved at the school	10,357	0.15	0.59	0.846	0.91	3.57	0.301	1.06	4.18	0.001
Student was in program to learn English skills	2,111	1.59	4.28	0.574	0.13	0.35	0.964	1.72	4.44	0.144

See notes at end of table.

Table 5-23. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, teacher questionnaire data, spring fifth grade: Spring 2016—Continued

Characteristic	Sample size	Between unweighted and unadjusted[1] Absolute difference	Between unweighted and unadjusted[1] Relative difference	Between unweighted and unadjusted[1] *p* value	Between unweighted and adjusted[2] Absolute difference	Between unweighted and adjusted[2] Relative difference	Between unweighted and adjusted[2] *p* value	Between unadjusted[1] and adjusted[2] Absolute difference	Between unadjusted[1] and adjusted[2] Relative difference	Between unadjusted[1] and adjusted[2] *p* value
Proportion of students with the following characteristics from the teacher data—Continued										
Student usually worked to best ability in math	5,180	0.49	1.00	0.611	1.13	2.31	0.346	0.64	1.30	0.369
Student math skills were below grade level as rated by math teacher	5,181	0.54	2.19	0.495	1.38	5.60	0.151	1.92	7.63	0.001
Student solved math problems in small groups	5,164	0.28	0.46	0.836	0.23	0.38	0.871	0.05	0.08	0.926
Student used computer for math almost every day	5,157	1.08	4.85	0.392	1.05	4.72	0.450	0.03	0.13	0.955
Student usually worked to best ability in science	5,184	0.50	0.98	0.573	0.30	0.59	0.748	0.20	0.39	0.687
Student science skills were below grade level as rated by science teacher	5,183	0.15	0.75	0.821	0.62	3.09	0.444	0.77	3.81	0.131
Student worked with others on science project	5,168	0.01	0.06	0.993	0.22	1.43	0.874	0.21	1.36	0.661
Student used equipment for science almost every day	5,178	0.09	1.22	0.921	0.40	5.43	0.626	0.31	4.26	0.330

Rounds to zero.

[1] Unadjusted estimates are produced using the fifth-grade student base weight. The sample size is the count of cases with nonzero fifth-grade student base weight.

[2] Adjusted estimates are produced using weight W9C29P_9T90 for the students with reading teachers, and weight W9C29P_9T9Z0 for the students with mathematics/science teachers. This weight applies to base-year respondents who also had student data from spring kindergarten and fifth grade, parent data from fall or spring kindergarten and fifth grade, and reading teacher data from fifth grade.

[3] States in each region:

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.

West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

NOTE: The sample sizes are the number of cases with a nonzero fifth-grade base weight and a nonmissing value for the characteristic or group of characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

5.3.4 Effect of Nonresponse on School Administrator Questionnaire Data

The adjusted weight used in the analysis of the effect of nonresponse on SAQ data is W9C29P_9T90. For a discussion of how the weights were constructed, see chapter 4. The group of children with this weight can be referred to as fifth-grade longitudinal respondents as it includes base-year respondents who also had student data from spring kindergarten and fifth grade, parent data from fall or spring kindergarten and fifth grade, and reading teacher data from fifth grade. Table 5-24 shows estimates of selected items from the SAQ. Table 5-25 shows the differences between unweighted and weighted estimates, and between estimates produced using base weights (unadjusted estimates) and estimates produced using nonresponse adjusted weights. The range of absolute differences is 0.00 to 2.09, and the average is 0.56 (compared with an average of 0.45 for fourth grade), very similar to the data from the teacher instruments. The differences found in the analyses show that there is some potential for nonresponse bias in the unweighted SAQ data, but the weights used to produce estimates were adjusted for nonresponse and, thus, reduce that potential for bias.

Table 5-24. Estimates using unadjusted and nonresponse-adjusted weights, school administrator questionnaire data, spring fifth grade: Spring 2016

Characteristic	Sample size	Unweighted estimate	Unadjusted[1] Estimate	Unadjusted[1] *SE*	Adjusted[2] Estimate	Adjusted[2] *SE*
Proportion of students by school type						
Public	11,526	91.22	92.28	0.435	91.74	0.386
Private	11,526	8.78	7.72	0.435	8.263	0.386
Proportion of students by census region[3,4]						
Northeast	11,530	16.45	15.74	0.778	15.91	0.215
Midwest	11,530	21.17	22.03	1.053	22.20	0.264
South	11,530	34.93	36.45	0.970	37.87	0.351
West	11,530	27.45	25.78	0.453	24.02	0.262
Proportion of students by locale						
City	11,191	31.70	30.91	1.265	30.84	1.196
Suburb	11,191	43.03	41.10	1.295	39.78	1.172
Town	11,191	7.30	10.17	1.075	10.94	1.104
Rural	11,191	17.97	17.83	1.120	18.45	1.050

See notes at end of table.

Table 5-24. Estimates using unadjusted and nonresponse-adjusted weights, school administrator questionnaire data, spring fifth grade: Spring 2016—Continued

Characteristic	Sample size	Unweighted estimate	Unadjusted[1] Estimate	Unadjusted[1] *SE*	Adjusted[2] Estimate	Adjusted[2] *SE*
Proportion of students by race/ethnicity						
White, non-Hispanic	18,131	46.81	51.23	1.710	51.60	1.699
Black, non-Hispanic	18,131	13.21	13.04	1.132	13.34	1.240
Hispanic	18,131	25.33	25.52	1.337	24.91	1.268
Asian, non-Hispanic	18,131	8.51	4.47	0.587	4.47	0.670
Native Hawaiian/Pacific Islander, non-Hispanic	18,131	0.65	0.45	0.076	0.34	0.089
American Indian/Alaska Native, non-Hispanic	18,131	0.93	1.25	0.585	1.25	0.550
Two or more races, non-Hispanic	18,131	4.56	4.03	0.243	4.08	0.216
Proportion of students with the following characteristics from the school administrator questionnaire						
Taught classroom programs provided by school at least once a year	10,586	98.22	97.84	0.567	97.66	0.579
School had staff in computer technology	10,507	75.86	75.42	2.145	76.01	2.001
School used electronic communication with parents several times a month	10,612	39.60	39.48	2.039	39.11	2.036
School used Response to Intervention	10,459	82.72	83.71	1.838	83.99	1.759
Received Title I funding	9,536	69.36	69.71	2.396	71.80	2.099
Bullying happened on occasion	10,540	72.74	71.64	1.467	72.32	1.467
Crime in the area of the school was somewhat of a problem or a big problem	10,517	34.64	34.82	1.680	35.26	1.710

[1] Unadjusted estimates are produced using the fifth-grade student base weight. The sample size is the count of cases with nonzero fifth-grade student base weight.
[2] Adjusted estimates are produced using weight W9C29P_9T90. This weight applies to base-year respondents who also had student data from spring kindergarten and fifth grade, parent data from fall or spring kindergarten and fifth grade, and reading teacher data from fifth grade.
[3] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: *SE* = standard error. The sample sizes are the number of cases with a nonzero fifth-grade base weight and a nonmissing value for the characteristic or group of characteristics.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Table 5-25. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, school administrator questionnaire data, spring fifth grade: Spring 2016

Characteristic	Sample size	Between unweighted and unadjusted[1]			Between unweighted and adjusted[2]			Between unadjusted[1] and adjusted[2]		
		Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value	Absolute difference	Relative difference	*p* value
Proportion of students by school type										
Public	11,526	1.06	1.16	0.017	0.52	0.57	0.184	0.54	0.59	0.104
Private	11,526	1.06	12.07	0.017	0.52	5.89	0.184	0.54	7.03	0.104
Proportion of students by census region[3,4]										
Northeast	11,530	0.71	4.32	0.367	0.54	3.28	0.013	0.17	1.08	0.841
Midwest	11,530	0.86	4.06	0.419	1.03	4.87	0.000	0.17	0.77	0.860
South	11,530	1.52	4.35	0.121	2.94	8.42	0.000	1.42	3.90	0.146
West	11,530	1.67	6.08	0.000	3.43	12.50	0.000	1.76	6.83	0.000
Proportion of students by locale										
City	11,191	0.79	2.49	0.534	0.86	2.71	0.478	0.07	0.23	0.931
Suburb	11,191	1.93	4.49	0.139	3.25	7.55	0.007	1.32	3.21	0.057
Town	11,191	2.87	39.32	0.009	3.64	49.86	0.001	0.77	7.57	0.026
Rural	11,191	0.14	0.78	0.899	0.48	2.67	0.652	0.62	3.48	0.221
Proportion of students by race/ethnicity										
White, non-Hispanic	18,131	4.42	9.44	0.012	4.79	10.23	0.006	0.37	0.72	0.366
Black, non-Hispanic	18,131	0.17	1.29	0.878	0.13	0.98	0.918	0.30	2.30	0.560
Hispanic	18,131	0.19	0.75	0.884	0.42	1.66	0.743	0.61	2.39	0.088
Asian, non-Hispanic	18,131	4.04	47.47	0.000	4.04	47.47	0.000	#	#	0.990
Native Hawaiian/Pacific Islander, non-Hispanic	18,131	0.20	30.77	0.013	0.31	47.69	0.001	0.11	24.44	0.047
American Indian/Alaska Native, non-Hispanic	18,131	0.32	34.41	0.577	0.32	34.41	0.561	#	#	0.935
Two or more races, non-Hispanic	18,131	0.53	11.62	0.031	0.48	10.53	0.030	0.05	1.24	0.703

See notes at end of table.

Table 5-25. Differences between unweighted and weighted estimates, and between unadjusted and adjusted estimates, school administrator questionnaire data, spring fifth grade: Spring 2016—Continued

Characteristic	Sample size	Between unweighted and unadjusted[1] Absolute difference	Between unweighted and unadjusted[1] Relative difference	Between unweighted and unadjusted[1] p value	Between unweighted and adjusted[2] Absolute difference	Between unweighted and adjusted[2] Relative difference	Between unweighted and adjusted[2] p value	Between unadjusted[1] and adjusted[2] Absolute difference	Between unadjusted[1] and adjusted[2] Relative difference	Between unadjusted[1] and adjusted[2] p value
Proportion of students with the following characteristics from the school administrator questionnaire										
Taught classroom programs provided by school at least once a year	10,586	0.38	0.39	0.505	0.56	0.57	0.335	0.18	0.18	0.255
School had staff in computer technology	10,507	0.44	0.58	0.836	0.15	0.20	0.943	0.59	0.78	0.286
School used electronic communication with parents several times a month	10,612	0.12	0.30	0.955	0.49	1.24	0.811	0.37	0.94	0.516
School used Response to Intervention	10,459	0.99	1.20	0.594	1.27	1.54	0.472	0.28	0.33	0.558
Received Title I funding	9,536	0.35	0.50	0.883	2.44	3.52	0.247	2.09	3.00	0.001
Bullying happened on occasion	10,540	1.10	1.51	0.456	0.42	0.58	0.773	0.68	0.95	0.235
Crime in the area of the school was somewhat of a problem or a big problem	10,517	0.18	0.52	0.914	0.62	1.79	0.718	0.44	1.26	0.492

Rounds to zero.

[1] Unadjusted estimates are produced using the fifth-grade student base weight. The sample size is the count of cases with nonzero fifth-grade student base weight.

[2] Adjusted estimates are produced using weight W9C29P_9T90. This weight applies to base-year respondents who also had student data from spring kindergarten and fifth grade, parent data from fall or spring kindergarten and fifth grade, and reading teacher data from fifth grade.

[3] States in each region:

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.

West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[4] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

NOTE: The sample sizes are the number of cases with a nonzero fifth-grade base weight and a nonmissing value for the characteristic or group of characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

5.3.5 Effect of Nonresponse on Characteristics from the Base Year

In this section, the effect of nonresponse is explored by comparing estimates of selected base-year characteristics between kindergarten respondents and fifth-grade respondents.[3] The estimates are unadjusted estimates (i.e., they are weighted by the base weights). Base-year characteristics of the kindergarten respondents are weighted by the base-year base weight that takes into account only the selection probabilities of the sampling units. Base-year characteristics of the fifth-grade respondents are weighted by the fifth-grade base weight that takes into account the selection probabilities and the subsampling of movers to be followed.

Table 5-26 shows the differences in the unadjusted base-year estimates between the kindergarten respondents and the fifth-grade respondents. As noted above, the characteristics presented in this table are from the base year, since the purpose of this analysis is to detect large changes in the same estimates due to sample attrition between the two data collections. Because of missing values, the kindergarten sample size is smaller than 18,174, the number of base-year respondents. Similarly, the fifth-grade sample size is smaller than 12,346, the number of fifth-grade respondents. Each difference is shown as an absolute value and as a relative difference (i.e., the difference divided by the kindergarten estimate). The relative differences range from 0.01 percent to 17.70 percent, for an average of 4.13 percent. The largest relative difference is for the percentage of Black students. As in previous years, response rates for Black students are the lowest among the different race/ethnicity groups (not counting the Hawaiian Native/Pacific Islander and the American Indian/Alaska Native groups with very small sample sizes). The other relative differences that are larger than 5 percent are for students in the West (5.28 percent), students in towns (8.93 percent), students of two or more races (8.05 percent), students in the Native Hawaiian/Pacific Islander group (8.11 percent), students in the American Indian/Alaska Native group (10.48 percent), and students in households with income below the poverty threshold (5.89 percent). Since locale and race/ethnicity are characteristics used to construct nonresponse cells for nonresponse adjustments, any potential bias would be reduced in estimates produced using weights adjusted for nonresponse.

[3] A base-year respondent has child data (scoreable assessment data or height or weight measurements or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from at least one round of data collection in the base year. A fifth-grade respondent has child data (scoreable assessment data, or executive function data, or child questionnaire data, or height or weight measurements or was excluded from assessment due to lack of accommodation for a disability) or parent interview data from the fifth-grade round of data collection.

Table 5-26. Differences between unadjusted base-year estimates from kindergarten respondents and unadjusted base-year estimates from fifth-grade respondents: Spring 2011 and spring 2016

	Sample size		Unadjusted estimates and difference between kindergarten and fifth grade[1]			
Characteristic from the base year	Kindergarten	Fifth grade	Kindergarten	Fifth grade	Absolute difference	Relative difference
Proportion of students by school type						
Public	17,791	12,252	89.07	89.06	0.01	0.01
Private	17,791	12,252	10.93	10.94	0.01	0.09
Proportion of students by census region[2,3]						
Northeast	17,790	12,252	15.74	15.48	0.26	1.65
Midwest	17,790	12,252	21.98	22.13	0.15	0.68
South	17,790	12,252	38.23	37.08	1.15	3.01
West	17,790	12,252	24.04	25.31	1.27	5.28
Proportion of students by locale						
City	17,525	12,091	32.79	32.68	0.11	0.34
Suburb	17,525	12,091	33.35	34.55	1.20	3.60
Town	17,525	12,091	11.20	10.20	1.00	8.93
Rural	17,525	12,091	22.65	22.57	0.08	0.35
Proportion of students by race/ethnicity						
White, non-Hispanic	18,129	12,334	50.67	52.53	1.86	3.67
Black, non-Hispanic	18,129	12,334	13.73	11.30	2.43	17.70
Hispanic	18,129	12,334	25.64	26.34	0.70	2.73
Asian, non-Hispanic	18,129	12,334	4.43	4.50	0.07	1.58
Native Hawaiian/Pacific Islander, non-Hispanic	18,129	12,334	0.37	0.40	0.03	8.11
American Indian/Alaska Native, non-Hispanic	18,129	12,334	1.05	1.16	0.11	10.48
Two or more races, non-Hispanic	18,129	12,334	4.10	3.77	0.33	8.05

See notes at end of table.

Table 5-26. Differences between unadjusted base-year estimates from kindergarten respondents and unadjusted base-year estimates from fifth-grade respondents: Spring 2011 and spring 2016—Continued

Characteristic from the base year	Sample size: Kindergarten	Sample size: Fifth grade	Unadjusted estimates and difference between kindergarten and fifth grade[1]: Kindergarten	Fifth grade	Absolute difference	Relative difference
Proportion of students with the following characteristics from the spring kindergarten parent interview						
Parent is currently married, in civil union, or domestic partnership	13,481	9,825	72.89	75.18	2.29	3.14
Non-English language used at home	13,611	9,898	7.90	7.58	0.32	4.05
At least one parent has a high school diploma or equivalent	16,005	11,218	90.56	90.99	0.43	0.47
Household poverty index						
Below poverty threshold	13,527	9,850	25.96	24.43	1.53	5.89
At or above poverty threshold but below 200 percent poverty threshold	13,527	9,850	22.41	22.08	0.33	1.47
At or above 200 percent poverty threshold	13,481	9,850	51.63	53.49	1.86	3.60

[1] Unadjusted estimates are produced using the kindergarten base weight for kindergarten and the fifth-grade base weight for fifth grade.
[2] States in each region:
Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.
West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.
NOTE: The sample sizes for kindergarten are the number of base-year respondents with a nonmissing value for the kindergarten characteristic or group of characteristics. The sample sizes for fifth grade are the number of fifth-grade respondents with a nonmissing value for the kindergarten characteristic or group of characteristics.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2011 and spring 2016.

For each group in table 5-27, the sample size is the number of records with nonzero final weights. Generally, a relative difference of more than 5 percent indicates that there may be potential bias in the fifth-grade adjusted estimate. Relative differences between the adjusted estimates for kindergarten and fifth grade range from 0.06 percent to 8.13 percent, with an average of 2.37 percent. Relative differences larger than 5 percent are seen for children who regularly spoke a non-English language at home during kindergarten (8.13 percent) and students in households with income below the poverty threshold (6.34 percent) and students in households below 200 percent of the poverty threshold (6.23 percent) during kindergarten. That is, even after adjusting estimates, there are proportionately fewer children in the fifth-grade round than in the kindergarten round who regularly spoke a non-English language at home during kindergarten, proportionately fewer children in the fifth-grade round than in the kindergarten round in households below the poverty threshold during kindergarten, and proportionately more children in the fifth-grade round than in the kindergarten round in households at or above the poverty threshold but below 200 percent poverty during kindergarten. However, as mentioned before, the relative difference is a function not only of the sample size but also of the prevalence of a particular characteristic. For example, only 8.24 percent of kindergartners and 7.57 percent of students in fifth grade regularly used a non-English language at home in kindergarten, representing a high relative difference. Kindergarten estimates of percent below poverty (26.33 percent) and at or above poverty threshold but below 200 percent poverty (22.47 percent) differed compared to their estimates of 24.66 and 23.87 for fifth grade, which also resulted in high relative differences. In contrast, 90.37 percent of kindergartners and 91.84 percent of students in fifth grade had at least one parent who had a high school degree or higher when the student was in kindergarten, which represents a low relative difference.

Table 5-27. Differences between adjusted base-year estimates from kindergarten respondents and adjusted base-year estimates from fifth-grade longitudinal respondents: Spring 2011 and spring 2016

	Sample size		Adjusted estimates and difference between kindergarten and fifth grade[1]			
Characteristic from the base year	Kindergarten	Fifth grade	Kindergarten	Fifth grade	Absolute difference	Relative difference
Proportion of students by school type, kindergarten year						
Public	15,798	8,538	89.00	89.20	0.20	0.22
Private	15,798	8,538	11.00	10.80	0.20	1.82
Proportion of students by census region, kindergarten year[2,3]						
Northeast	15,800	8,538	16.24	15.88	0.36	2.22
Midwest	15,800	8,538	21.77	22.09	0.32	1.47
South	15,800	8,538	37.47	37.88	0.41	1.09
West	15,800	8,538	24.52	24.16	0.36	1.47
Proportion of students by locale, kindergarten year						
City	15,559	8,422	32.82	32.06	0.76	2.32
Suburb	15,559	8,422	33.81	33.79	0.02	0.06
Town	15,559	8,422	10.85	11.05	0.20	1.84
Rural	15,559	8,422	22.52	23.10	0.58	2.58

See notes at end of table.

Table 5-27. Differences between adjusted base-year estimates from kindergarten respondents and adjusted base-year estimates from fifth-grade longitudinal respondents: Spring 2011 and spring 2016—Continued

	Sample size		Adjusted estimates and difference between kindergarten and fifth grade[1]			
Characteristic from the base year	Kindergarten	Fifth grade	Kindergarten	Fifth grade	Absolute difference	Relative difference
Proportion of students by race/ethnicity, kindergarten year						
White, non-Hispanic	16,083	8,541	51.34	51.80	0.46	0.90
Black, non-Hispanic	16,083	8,541	13.50	13.27	0.23	1.70
Hispanic	16,083	8,541	24.75	24.80	0.05	0.20
Asian, non-Hispanic	16,083	8,541	4.60	4.44	0.16	3.48
Native Hawaiian/Pacific Islander, non-Hispanic	16,083	8,541	0.42	0.41	0.01	2.38
American Indian/Alaska Native, non-Hispanic	16,083	8,541	1.21	1.17	0.04	3.31
Two or more races, non-Hispanic	16,083	8,541	4.18	4.11	0.07	1.67
Proportion of students with the following characteristics from the spring kindergarten parent interview						
Parent is currently married, in civil union, or domestic partnership	13,481	7,728	72.65	74.78	2.13	2.93
Non-English language used at home	13,611	7,772	8.24	7.57	0.67	8.13
At least one parent has a high school diploma or equivalent	16,005	8,512	90.37	91.84	1.47	1.63
Household poverty index						
Below poverty threshold	13,527	7,741	26.33	24.66	1.67	6.34
At or above poverty threshold but below 200 percent poverty threshold	13,527	7,741	22.47	23.87	1.40	6.23
At or above 200 percent poverty threshold	13,527	7,741	51.20	51.46	0.26	0.51

[1] Adjusted estimates are produced using weight W1_2P0 for kindergarten and weight W9C29P_9A0 for fifth grade. W1_2P0 applies to base-year respondents. W9C29P_9A0 applies to base-year respondents who also had student data for spring kindergarten, first, second, third, fourth grade and fifth grade, and parent interview data from fall or spring kindergarten and fifth grade.

[2] States in each region:

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia.

West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[3] Sample sizes rounded to the nearest 10 and, therefore, may not sum to total.

NOTE: The sample sizes for kindergarten are the number of cases with a nonzero kindergarten final weight (weight W1_2P0) and a nonmissing value for the kindergarten characteristic or group of characteristics. The sample sizes for fifth grade are the number of cases with a nonzero fifth-grade final weight (weight W9C29P_9A0) and a nonmissing value for the kindergarten characteristic or group of characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2011 and spring 2016.

This page intentionally left blank.

6. DATA PREPARATION

In the fifth-grade round (spring 2016), two types of data collection instruments were again used for the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011): computer-assisted interviews and assessments (CAI) and self-administered paper forms (hard-copy questionnaires). As in all earlier rounds of data collection, data collected in the fifth-grade round were reviewed and prepared for release to analysts. The approaches used to prepare the data differed with the mode of data collection. The direct child assessments and parent interviews were conducted using CAI. Editing specifications were built into the CAI programs used by assessors or interviewers collecting these data. The teacher and school administrator hard-copy questionnaires were self-administered. When these hard-copy questionnaires were returned to the data collector's home office, staff recorded the receipt of these forms into a project-specific forms tracking system. Data from the hard-copy questionnaires were then captured by scanning the completed forms. Before scanning, coders reviewed the questionnaires to ensure that responses were legible and had been written in appropriate response fields for transfer into an electronic format. After the data were scanned and reviewed for range and logical consistency, coding of open-ended[1] "other, specify" text responses into existing or new categories was implemented.

The following sections briefly describe the data preparation activities for both modes of data collection, focusing on the fifth-grade activities. More detailed information on these data preparation activities can be found in user's manuals from earlier rounds, in particular the User's Manual for the base-year.[2]

[1] Open-ended items are those that do not provide a predetermined set of response options from which to choose. Closed-ended items are those with predetermined response categories.

[2] Users should refer to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook, Public Version* (NCES 2015-074) (Tourangeau et al. 2015a), hereinafter referred to as the base-year User's Manual, for information about the general study methodology and the kindergarten rounds of data collection; to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data File and Electronic Codebook, Public Version* (NCES 2015-078) (Tourangeau et al. 2015b); for information about the first-grade rounds of data collection; to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Second Grade Data File and Electronic Codebook, Public Version* (NCES 2017-285) (Tourangeau et al. 2017) for information about the second-grade rounds of data collection; to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Third Grade Data File and Electronic Codebook, Public Version* (NCES 2018-034) (Tourangeau et al. 2018a) for information about the third-grade round of data collection; and to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Fourth Grade Data File and Electronic Codebook, Public Version* (NCES 2018-032) (Tourangeau et al. 2018b) for information about the fourth-grade round of data collection.

6.1 Coding Text Responses

Additional coding was required for some of the items asked in the CAI parent interview once the data had been collected. These items included "other, specify" text responses and responses to questions asking about parent or guardian occupation, which interviewers had entered into the CAI system verbatim.

Review of "other, specify" items. As in previous rounds, for fifth grade, trained data preparation staff reviewed respondents' verbatim "other, specify" text responses and coded responses into existing response categories as appropriate. These staff also reviewed the "other, specify" text to identify any responses that occurred with sufficient frequency to warrant the addition of a new response category. For the fifth-grade round, only one question in the parent interview, *HEQ290 What is {CHILD} tutored in?*, required an additional response category. The variable P9TUTSST was added to capture responses that indicated "social studies" or "history." Text responses that did not fit into any preexisting category and were not common enough to be coded into a new category were left coded as "other" in the data. There were no "other, specify" items in the child assessments.

Parent occupation coding. Similar to procedures used in earlier rounds, data preparation staff also reviewed respondents' verbatim responses to questions about their occupation. These staff were trained to code responses into categories using the coding scheme detailed in the *Manual for Coding Industries and Occupations* (NCES 2000-077) (U.S. Department of Education, National Center for Education Statistics 1999), which was created for the Adult Education Survey of the 1999 National Household Education Surveys Program (NHES). This coding scheme includes a set of 22 two-digit occupation codes, which is a condensed version of the set of more detailed codes described in the *Standard Occupational Classification Manual—1980* (U.S. Department of Commerce, Office of Federal Statistical Policy and Planning 1980). All reported parent occupations were coded according to the NHES coding scheme; the more detailed scheme from the 1980 manual was used to determine final codes for occupations requiring more detailed consideration to identify the most appropriate code. (See chapter 7 for further description of the occupation codes.)

Occupation coding began by using a computer string match program developed for the NHES and updated periodically for use in the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) and the ECLS-K:2011 data collections to autocode the reported occupation into one of 22 categories. The autocoding procedure automatically assigned occupation codes by identifying key words and information in each text string response with information on occupation, matching those key words and information to wording for a particular occupation included in the string match program, and assigning the code associated with that occupation. For fifth grade, almost half of the reported occupations were autocoded in this manner (6,839 occupations or 48.5 percent). As a quality control measure, a human coder, blind to the computer-assigned codes, reviewed all the string text responses and independently assigned occupation codes using the manuals discussed above. When the autocode and the manual code differed from one another, a coding supervisor adjudicated the record and determined the appropriate code.

Text responses that could not be coded using the autocoding system were coded manually using a customized computer program designed for coding occupations. The customized coding computer program provided a text string with occupation information to coders, who then determined and assigned the most appropriate occupation code by reviewing occupation text descriptions in the coding manuals. In addition to the occupation text strings, the coders used other information collected from respondents, such as main duties at work, industry, and name of the employer, to ensure that the occupation code assigned to each case was appropriate. Over half the occupations (51.5 percent) were manually coded for fifth grade.

Every manually coded occupation text response was coded at least twice. Two coders assigned codes independently, without knowledge of each other's codes (i.e., using a double-blind coding process). A coding supervisor adjudicated all reported occupations for which the codes assigned independently by each coder differed.

Of all the occupations that were assigned a code, 24.3 percent (3,426) required adjudication, either because the autocode and manually assigned code differed (for the autocoded occupations) or because the two manually assigned codes differed (for the manually coded occupations). Of the 6,839 reported occupations that were autocoded, 1,010 occupations (14.8 percent) required adjudication because the coder disagreed with the autocoding. Of the 7,254 reported occupations that were manually coded, 2,416 (33.3 percent) required adjudication because the two human coders disagreed. Following the adjudication process, the coding supervisor conducted a review of all occupation codes that were assigned manually.

For fifth grade, the assigned coding staff were experienced, having coded occupations for the ECLS-K:2011 in one or more of the previous rounds. The occupation coding supervisor was also experienced with the NCES coding scheme and had been involved in the project's occupation coding activity since the base year. In instances in which the two coders manually assigned the same code, but the supervisor disagreed with the code, the case would have been subject to additional examination, and together the supervisor and coders would have considered the merits of the proposed code before a final code was assigned. However, there were no instances in the fifth-grade round in which the supervisor disagreed with the code assigned when the two coders agreed, having assigned the same occupation code.

6.1.1 Household Roster Review

The fifth-grade parent interview included a household roster in which information on household composition was collected. Following protocols established during the previous rounds, three general types of checks were run on the household roster information to identify missing or inaccurate information that would require editing.

- First, the relationship of an individual living in the household to the study child was compared to the individual's listed age and sex. Inconsistencies, such as a male mother, and unusual combinations of characteristics, such as a biological mother over age 65, were examined further. Information was corrected when the interview contained sufficient information to support a change.

- Second, while it is possible to have more than one mother or more than one father in a household, households with more than one mother or more than one father were reviewed to ensure they were not cases of data entry error. Corrections were made whenever clear errors were identified and a clear resolution existed.

- Third, the relationships of an individual in the household to both the study child and the respondent were examined, as there were cases in which the relationship of an individual to the study child conflicted with his or her status as the spouse/partner of the respondent. For example, in a household containing a child's grandparents but not the child's parents, the grandmother might be designated the "mother" figure, and the grandfather thus became the "father" figure for the purposes of some questions in the interview by virtue of his marriage to the grandmother. In this example, these cases would have been examined but left unchanged. Both the original—and correct (grandfather)—relationship data and the new "parent-figure" designation (father) that had been constructed were retained. In other situations, discrepancies in the reported relationships indicated an error, and the data were edited. For example, in a household containing two mothers, if a review of the audio recording from the interview indicated the relationship of the second mother was documented incorrectly by the interviewer—that the second female identified as a mother was *not* actually a mother to the focal child—the relationship of the second female would have been edited (corrected) to something other than mother.

A flag on the data file (X9EDIT) identifies cases that were reviewed or edited for any of the reasons described above; the flag was set to 1 if the case was identified for review for any of these household roster checks. Note that a code of 1 does not necessarily indicate that the data were changed; if the data were reviewed and found to be as reported by the respondent or there was no clear error to be fixed, the reviewed data were left as is. There were 553 cases (5.4 percent) identified for review of the household roster from the spring of fifth grade.

6.1.2 Partially Complete Parent Interviews

Parents did not have to complete an entire interview for the data collected from them to be included in the data file. However, parent interviews did have to be completed through a specified section of the interview for those data to be included. For the fifth-grade round, the respondent had to answer all applicable questions through the majority of the section on family structure (FSQ). There were 931 partially completed spring parent interviews for which the respondent answered applicable questions in the FSQ section but did not complete the entire interview.[3] All data derived from questions asked after the interview termination point for these partially completed interviews are set to -9 for "not ascertained."

6.2 Receipt, Coding, and Editing of Hard-Copy Questionnaires

6.2.1 Receipt Control

Receipt control was managed in the same manner for fifth grade as it had been in the earlier rounds of the ECLS-K:2011. Please refer to the base-year User's Manual for details.

6.2.2 Scanning of Hard-Copy Questionnaires

Scanning of hard-copy questionnaires was managed in the same manner for fifth grade as it had been in the earlier rounds of the ECLS-K:2011. Please refer to the base-year User's Manual for details.

6.2.3 Coding for Hard-Copy Questionnaires

Similar to the process described for the parent interview and identical to procedures used in earlier rounds, "other, specify" text responses at the instrument level were reviewed by the data preparation staff and coded into existing response categories as appropriate. No "other, specify" text responses collected in the fifth-grade hard-copy questionnaires occurred with sufficient frequency to warrant the addition of a new response category. Text responses that did not fit into any preexisting category and were not common enough to be coded into new categories were left coded as "other" in the data.

[3] Note that due to skip patterns applicable to individual cases, parents did not have to answer *every* question up to the end of the specified section for the parent interview data to be included in the file. The last question in the FSQ section that applied to all cases was FSQ200 (marital status).

6.2.4 Data Editing

The data editing process for hard-copy questionnaires was managed in the same manner for fifth grade as it had been in the earlier rounds of the ECLS-K:2011. The base-year User's Manual has more detail related to editing.

As part of the editing process in fifth grade as well as in earlier rounds of the ECLS-K:2011, skip patterns were enforced. In cases in which respondents did not follow the skip instructions and proceeded to answer the questions that were supposed to be skipped, responses for the inapplicable dependent questions generally were deleted and the data were set to -1, the inapplicable code. There was one check box on the school administrator questionnaire (SAQ) that was part of a skip pattern that, in certain circumstances, was not enforced:

- School administrator questionnaire (SAQ): S9SCHPMC

If your school is a private, magnet, or charter school, please check here and SKIP TO Q A13.

When respondents marked this check box, they were directed to skip ahead in the questionnaire because a subset of subsequent, dependent questions were not applicable to them. In some cases, it was clear to the data editors that the check box was marked in error by the respondent and the responses to the dependent questions were valid, usable data. In such cases, the check box was edited (corrected) in order to retain responses to dependent questions in the data. Consequently, data for this check box may not reflect the actual responses provided by the person completing the questionnaire.

7. DATA FILE CONTENT AND COMPOSITE VARIABLES

This chapter describes the contents of the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) kindergarten through fifth-grade (K-5) restricted-use data file. The data are accessible through software called the electronic codebook (ECB). The ECB allows data users to view variable frequencies, tag variables for extraction, and create the SAS, SPSS for Windows, or Stata code needed to create an extract file for analysis. The child data file on the ECB is referred to as a "child catalog." Instructions for installing the ECB are provided in chapter 8. A help file with further information about using the ECB is included in the ECB (see menu bar option "Help" and drop-down option "Contents").

The K-5 file provides data at the child level and contains one record for each of the 18,174 children who participated, or whose parent participated, in at least one of the two kindergarten data collections (fall 2010 or spring 2011). References to "parents" in this chapter include both parents and guardians. Each child record contains data from the various respondents associated with the child (i.e., the child herself or himself, a parent, one or more teachers, a school administrator and, if applicable, a nonparental care provider), weights and imputation flags, and administrative variables from the Field Management System (FMS),[1] for example, "F9SCHZIP" for the ZIP code of the school the child attended in the spring of 2016 (round 9). Among the 18,174 participants from kindergarten, the file includes fall 2011 data for those with a child assessment or parent interview in fall 2011, spring 2012 data for those with a child assessment or parent interview in spring 2012, fall 2012 data for those with a child assessment or parent interview in fall 2012, spring 2013 data for those with a child assessment or parent interview in spring 2013, spring 2014 data for those with a child assessment or parent interview in spring 2014, spring 2015 data for those with a child assessment or parent interview in spring 2015, and spring 2016 data for those with a child assessment or parent interview in spring 2016.

The raw data are provided in an ASCII data file named childK5.dat. To develop data files for statistical analyses, analysts should use the ECB software or the file record layout located in appendix B of the DVD. The ECB writes syntax files that must be run within a statistical software package to generate customized data files. Users should not access the ASCII data file directly, as any changes made to that file will alter the raw data obtained during data collection.

---

[1] The Field Management System (FMS) includes information collected about the study schools, school staff, and children from available administrative records or existing data sources (such as the Common Core of Data) or from conversations between data collection staff and school staff.

This chapter focuses primarily on the composite variables that were created from information obtained during the fifth-grade data collection. Most of the variables have been computed in the same way as those that were created using information collected in the base year (i.e., kindergarten), first grade, second grade, third grade, and fourth grade. To the extent feasible, the composite variables have also been computed in the same way as those created for the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K). This results in consistency between the two studies and facilitates comparisons between the two cohorts. However, some composites were created differently in the ECLS-K:2011 than in the ECLS-K. Documentation for both studies should be consulted before conducting cross-cohort analyses using composites. For reference, this ECLS-K:2011 kindergarten–fifth grade User's Manual (NCES 2019-101), the User's Manual for the ECLS-K:2011 kindergarten–fourth grade data file (NCES 2018-032), the User's Manual for the ECLS-K:2011 kindergarten–third grade data file (NCES 2018-034), the User's Manual for the ECLS-K:2011 kindergarten–second grade data file (NCES 2017-285), the User's Manual for the ECLS-K:2011 kindergarten–first grade data file (NCES 2015-078), and the User's Manual for the ECLS-K:2011 kindergarten data file (NCES 2015-074) are included in the appendix C folder of the DVD. The user's manuals for earlier rounds of data collection should be consulted for detailed descriptions of the composite variables computed for rounds 1 through 8. For information on the ECLS-K, the *Combined User's Manual for the ECLS-K Eighth-Grade and K-8 Full Sample Data Files and Electronic Codebooks* (NCES 2009-004) (Tourangeau et al 2009) is available on the National Center for Education Statistics website (https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2009004), as are the round-specific manuals for each round of ECLS-K data collection (https://nces.ed.gov/pubsearch/getpubcats.asp?sid=024).

As discussed in Appendix B, the public-use file is derived from the restricted-use file and is identical in format. However, masking techniques such as re-categorization and top- and bottom-coding have been applied to some data to make them suitable for public release. As a result of masking, some variables in the public-use file may not contain the exact same categories and values described in this chapter. Please see Appendix B for information on which variables are modified in the public-use file and see the public-use codebook for the exact categories and values provided in the public data.

This chapter is divided into several sections. Sections 7.1 through 7.4 describe variable naming conventions, identification variables, missing values, and data flags. Section 7.5 provides details about the creation of composite variables, and section 7.6 focuses on the methodological variables.

7.1 Variable Naming Conventions

Variables are named according to the data source (e.g., parent interview, teacher questionnaires about the teacher and child) and the data collection round to which they pertain. With the exception of the identification variables described in section 7.2, the first two or three characters of each variable (referred to as the variable prefix) include (1) a letter designating the source and (2) a number indicating the data collection round. For example, the number 9 is used for the data collection that took place in the spring of 2016. For the spring 2016 teacher child-level questionnaires, as in the spring 2015 teacher questionnaires, there are prefixes for reading (G9), mathematics (M9), and science (N9). These variable naming conventions are used consistently in the data file. The prefixes used for fifth-grade variables in the kindergarten–fifth grade data file are listed in exhibit 7-1.

Exhibit 7-1. Prefixes for fifth-grade variables

Variable prefix	Source of data
A9	Data collected from the spring 2016 teacher-level reading questionnaire
A9…Z[1]	Data collected from the spring 2016 teacher-level mathematics or science questionnaire
C9	Data/scores from the spring 2016 direct child assessment
D9	Data collected from the spring 2016 special education teacher-level questionnaire
E9	Data collected from the spring 2016 special education child-level questionnaire
F9	Data from the spring 2016 Field Management System (FMS)
IF	Imputation flags
G9	Data collected from the spring 2016 reading teacher child-level questionnaire
M9	Data collected from the spring 2016 mathematics teacher child-level questionnaire
N9	Data collected from the spring 2016 science teacher child-level questionnaire
P9	Data collected from the spring 2016 parent interview
S9	Data collected from the spring 2016 school administrator questionnaire
X_	Composite/derived variables not specific to a particular round
X9	Spring 2016 composite/derived variables
W	Analytic weights and stratum/cluster identifiers

[1] The variable names for teacher-level data from the child's mathematics or science teacher are the same as the variable names for teacher-level data from the child's reading teacher, but have the letter Z at the end of the variable name.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), kindergarten-fifth grade (K-5) restricted-use data file.

Some variable names end with a suffix denoting a particular feature of the variable of which users should be aware. The suffix "_R" indicates that the variable has been updated or revised since its release in a prior data file. The suffix "2" is used for composites that are based on data from different items or have new categories added relative to a prior round. The suffix "_I" indicates that missing data for the variable have been imputed or, in the case of a composite variable, that it is computed from imputed source variables. Imputation is discussed in sections 7.5.2.6 and 7.5.4.8.

7.2 Identification Variables

The kindergarten through fifth-grade data file contains a child identification (ID) variable (CHILDID) that uniquely identifies each record. For children who have a twin who also participated in the study, TWIN_ID is the child ID number of the focal child's twin. The file also contains an ID for the parent (PARENTID). The parent ID number (PARENTID) is the same number as the child ID.

Unlike in the ECLS-K, CHILDID is randomly generated, so it cannot be used to group children into classrooms or schools (that is, there is no commonality among IDs for children within the same school or classroom). The K-5 restricted-use data file does contain IDs for the child's general classroom teacher in each round, special education teacher (if applicable) in each round, school in each round, and before- and after-school care provider in the kindergarten year (if the child was in before- or after-school care with one provider at least 5 hours per week). Users who wish to conduct hierarchical-level analyses with the school or classroom as additional levels can use these ID variables to group children within schools and classrooms. However, it should be noted that children change schools and classrooms over time, and this should be taken into account in any analysis of school or classroom effects. Additionally, as children change schools and classrooms over time, cluster sizes may become too small to support hierarchical analyses. The IDs available on the restricted-use file are listed in exhibit 7-2.

For each study child in the spring 2016 data collection, teacher- and child-level questionnaires were given to the child's reading teacher and either his/her mathematics or science teacher. The variable X9MSFLAG indicates whether the child was sampled for the mathematics or science domain. Children's classroom teachers in spring 2016 are identified in the restricted-use file with the ID variables T9R_ID for reading teachers, T9M_ID for mathematics teachers, and T9S_ID for science teachers.

There are also class link ID variables (T9RCLASS for reading, T9MCLASS for math, and T9SCLASS for science) to identify for which class(es) a teacher answered questions. These class link variables indicate subject and time of day information for a specific class taught by a teacher. They have a three-character code that begins with a letter followed by a two-digit number (e.g., R01). The letter indicates the subject taught: R for reading, M for math, S for science, and P for special education. To identify which teacher completed information for which class for a specific study child, researchers need to consider both the teacher ID variable(s) and the class link ID variable(s). The teacher ID will be the same for children taught by the same teacher. However, one teacher could teach multiple classes of the same subject. The information in the class link variables distinguishes which class the child was in for children taught by the same teacher. For example, if T9_RID is the same across child-level cases, T9RCLASS could equal R01 for one child, R02 for another child, and even R03 for another child. The T9RCLASS variable indicates that these three children are in three different classes with the same teacher. Children who have the same value for a teacher ID in one of the subjects (e.g., the same value for the reading teacher ID, T9R_ID) and the same class link ID for that subject (e.g., R01 for reading) were in the same class.

Exhibit 7-2. Identification variables included in the ECLS-K:2011 kindergarten–fifth grade restricted-use data file

Order on file	Variable	Label
1	CHILDID	CHILD IDENTIFICATION NUMBER
2	PARENTID	PARENT IDENTIFICATION NUMBER
3	S1_ID	FALL 2010 SCHOOL IDENTIFICATION NUMBER
4	S2_ID	SPRING 2011 SCHOOL IDENTIFICATION NUMBER
5	S3_ID	FALL 2011 SCHOOL IDENTIFICATION NUMBER
6	S4_ID	SPRING 2012 SCHOOL IDENTIFICATION NUMBER
7	S5_ID	FALL 2012 SCHOOL IDENTIFICATION NUMBER
8	S6_ID	SPRING 2013 SCHOOL IDENTIFICATION NUMBER
9	S7_ID	SPRING 2014 SCHOOL IDENTIFICATION NUMBER
10	S8_ID	SPRING 2015 SCHOOL IDENTIFICATION NUMBER
11	S9_ID	SPRING 2016 SCHOOL IDENTIFICATION NUMBER
12	T1_ID	FALL 2010 TEACHER IDENTIFICATION NUMBER
13	T2_ID	SPRING 2011 TEACHER IDENTIFICATION NUMBER
14	T3_ID	FALL 2011 TEACHER IDENTIFICATION NUMBER
15	T4_ID	SPRING 2012 TEACHER IDENTIFICATION NUMBER
16	T5_ID	FALL 2012 TEACHER IDENTIFICATION NUMBER
17	T6_ID	SPRING 2013 TEACHER IDENTIFICATION NUMBER
18	T7_ID	SPRING 2014 TEACHER IDENTIFICATION NUMBER
19	T8R_ID	SPRING 2015 READING TEACHER IDENTIFICATION NUMBER
20	T8M_ID	SPRING 2015 MATH TEACHER IDENTIFICATION NUMBER
21	T8S_ID	SPRING 2015 SCIENCE TEACHER IDENTIFICATION NUMBER
22	T9R_ID	SPRING 2016 READING TEACHER IDENTIFICATION NUMBER
23	T9M_ID	SPRING 2016 MATH TEACHER IDENTIFICATION NUMBER
24	T9S_ID	SPRING 2016 SCIENCE TEACHER IDENTIFICATION NUMBER
25	D2T_ID	SPRING 2011 SPECIAL ED TEACHER ID NUMBER
26	D4T_ID	SPRING 2012 SPECIAL ED TEACHER ID NUMBER
27	D6T_ID	SPRING 2013 SPECIAL ED TEACHER ID NUMBER
28	D7T_ID	SPRING 2014 SPECIAL ED TEACHER ID NUMBER
29	D8T_ID	SPRING 2015 SPECIAL ED TEACHER ID NUMBER
30	D9T_ID	SPRING 2016 SPECIAL ED TEACHER ID NUMBER
31	CC_ID[1]	CHILD CARE PROVIDER IDENTIFICATION NUMBER
32	TWIN_ID	CHILDID FOR FOCAL CHILD'S TWIN

[1] Kindergarten only.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), kindergarten-fifth grade (K-5) restricted-use data file.

A single teacher may also have taught two subjects, such as reading and math. If this is the case, for example, then T9R_ID would equal T9M_ID. Similar to when a teacher teaches multiple classes in the same subject, to identify which teacher completed information for which class for a specific study child, researchers need to consider both the teacher ID variable(s) and the class link ID variable(s).

For children who had an Individualized Education Program (IEP) on record with the school that was identified as part of the process for determining accommodations for the child assessment, D9T_ID provides the ID number for their special education teacher or related service provider. For some students, a general classroom teacher was also the student's special education teacher. However, D9T_ID does not match T9R_ID, T9M_ID, or T9S_ID for these students. The ID variable S9_ID indicates the school the child attended at the time of the spring 2016 data collection.

Each child has a school ID number for the two kindergarten data collections, the spring first-grade data collection, the spring second-grade data collection, the spring third-grade data collection, the spring fourth-grade data collection, and the spring fifth-grade data collection. Children selected for the fall subsamples also have school ID numbers for the fall 2011 and fall 2012 data collections. Not all ID numbers represent specific schools. Instead, certain ID numbers have been designated to identify children who were homeschoolers (9100), moved to a nonsampled county (9997), were unlocatable (9995), moved outside the United States (9993), were movers who were not subsampled to be followed into their new schools (9998), were deceased (9994), or whose parents asked for them to be removed from the study (9999).

If a child did not have an IEP on record with the school that was identified as part of the process for determining accommodations for the child assessment, there is no special education teacher or related services provider associated with that child, and D9T_ID is missing. The D9T_ID would also be missing if the school records indicated that a child had an Individualized Family Service Plan (IFSP) when he or she was younger, but did not have an IEP at the time of data collection. If a child had an IEP identified as part of the process for determining accommodations for the child assessment and, therefore, a special education teacher associated with him or her, there is an ID provided in D9T_ID whether or not the special education teacher responded to the spring 2016 special education teacher questionnaires.

For reading, mathematics, or science and special education teachers, there could be missing data for the child's teacher-level or child-level questionnaire even though there is an assigned teacher ID (for example, if the reading, math, science, or special education teacher replied to only one of the two teacher questionnaires (i.e., child-level or teacher-level) or did not fully complete the questionnaires, an ID would be present, but there would be missing data). It is left to users to determine how they would like to set "not applicable" versus "not ascertained" codes when data for T9R_ID, T9M_ID, T9S_ID, or D9T_ID are missing. Note that if a teacher did not complete a teacher-level questionnaire, completed a child-level questionnaire for one child, and did not complete another child-level questionnaire for a different child to whom the teacher was also linked, both children would have the same teacher ID number (e.g., T9R_ID, T9M_ID, T9S_ID, for the reading, math, or science teacher, respectively, or D9T_ID for the special education teacher), but only the child for whom the teacher completed the child-level questionnaire would have data for those variables. It should also be noted that as either a mathematics questionnaire or science questionnaire, but not both, was fielded for each study child, the teacher ID will be missing for each child for the subject that was not selected for a questionnaire. For example, a study child for whom a mathematics questionnaire was fielded and not a science questionnaire will have system missing for T9S_ID and T9SCLASS.

7.3 Missing Values

Variables on the ECLS-K:2011 data file use a standard scheme for identifying missing data. Missing value codes are used to indicate item nonresponse (when a question is not answered within an otherwise completed interview or questionnaire), legitimate skips (when a question was not asked or skipped because it did not pertain to the respondent), and unit nonresponse (when a respondent did not complete any portion of an interview or questionnaire) (see exhibit 7-3).

Exhibit 7-3. Missing value codes used in the ECLS-K:2011 data file

Value	Description
-1	Not applicable, including legitimate skips
-2	Data suppressed (public-use data file only)
-4	Data suppressed due to administration error
-5	Item not asked in School Administrator Questionnaire form B
-7	Refused (a type of item nonresponse)
-8	Don't know (a type of item nonresponse)
-9	Not ascertained (a type of item nonresponse)
(blank)	System missing (unit nonresponse)

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K: 2011), kindergarten-fifth grade (K-5) restricted-use data file.

The -1 (not applicable) code is used to indicate that a respondent did not answer a question due to skip instructions within the instrument. In the parent interview, "not applicable" is coded for questions that were not asked of the respondent because a previous answer made the question inapplicable to the particular respondent. For example, a question about a child's sibling's age is not asked when the respondent has indicated that the study child has no siblings. For the teacher and school administrator self-administered instruments, "not applicable" is coded for questions that the respondent left blank because the written directions instructed him or her to skip the question due to a certain response on a previous question that made the question inapplicable to the particular respondent. One example of the use of "not applicable" is found in the spring 2016 school administrator questionnaire question E2. Question E1 asks whether the school received Title I funds for this school year. If the answer to question E1 is "yes," the respondent is directed to continue to question E2 asking if the school was operating a Title I targeted assistance or schoolwide program. If the answer to question E1 is "no," the respondent is supposed to skip to question E3 and question E2 would be coded as -1 (not applicable). If questions E1, E2, and E3 are left blank by the respondent, and the respondent did not indicate that it is a private school (S9PRVSCH = 0), data for these questions are coded as -9 (not ascertained), meaning the questions should have been answered but were not. If the respondent indicated that the school is private (S9PRVSCH = 1) and questions E1, E2, and E3 are left blank, data for these questions are coded as -1 (not applicable) because they were supposed to be left blank given the school's designation as private.

There are some exceptions to the standard use of -1 to indicate data are inapplicable for specific cases. For questions about the hours and minutes that the child spends playing video games, the response about the number of minutes (P9VIDMIN) could be either "0" or -1 (not applicable) if parents did not provide a response that included minutes, depending on how interviewers coded this during the interview. Some interviewers entered a 0 for the minutes field and some skipped the question altogether. If the question about the number of minutes was skipped, this variable is coded -1. Another exception to the standard use of -1 is that for several round 9 variables (theta scores from children's cognitive tests in reading, X9RTHETK5, math, X9MTHETK5, and science, X9STHETK5), -1 is a valid value and should not be identified as missing data.

In order to protect the confidentiality of study participants, some data are suppressed in the public-use data file. The code -2 indicates the suppression of data for confidentiality. The suppression code -4 is used in rare instances in which there was a problem in the administration of an item that led to a high proportion of cases having missing or flawed data on the affected item, such that the data that were collected for the item were not useful and, therefore, are suppressed on the file. Although the administration error typically did not affect all cases, the -4 missing data code is assigned to all cases, including those not specifically affected by the error.

The -7 (refused) code indicates that the respondent specifically told the interviewer that he or she would not answer the question. This, along with the -8 (don't know) code and the -9 (not ascertained) code, indicate item nonresponse. The -7 (refused) code is not used in the school or teacher data.

The -8 (don't know) code indicates that the respondent specifically told the interviewer that he or she did not know the answer to the question. The -8 (don't know) code is not used in the school or teacher data. For questions where "don't know" is one of the options explicitly provided, a -8 is not coded for those who choose this option; instead the "don't know" response is coded as indicated in the value label information for the variable associated with that question.

The -9 (not ascertained) code indicates that the respondent left a question blank that he or she should have answered (or for which it is uncertain whether the item should have been answered or legitimately skipped because the respondent also left a preceding item blank). However, if a gate question[2] was left blank, but valid responses are provided to follow-up questions, the valid responses are included in the data file. For example, in the spring 2016 school administrator questionnaire, question D1 asks, "Do any of the children in this school come from a home where a language other than English is spoken?" If the school administrator left D1 blank (i.e., unanswered), but then provided a valid response for question D2 which asks, "What percentage of children in this school are English language learners (ELL)?," D1 is coded as -9 and the information from D2 is included in the data file as reported. If a gate question and its follow-up questions were left blank, all of the questions (gate and follow-up) are coded as -9 (not ascertained).

For data that are not collected using the teacher and school administrator self-administered questionnaires (e.g., direct assessment scores, the child questionnaire), a -9 means that a value was not ascertained or could not be calculated due to nonresponse. The -9 (not ascertained) code is also used in the parent interview data when the interview ended before all applicable questions were asked. In these cases, the code of -9 is used for all variables associated with interview questions that came after the point at which the parent ended the interview. One exception to this coding scheme is the pointer variables.[3] Pointer variables are not set to -9 when the interview ended before all applicable questions were asked; instead they are set to the value corresponding to the household's parent figure(s). Another exception to this coding scheme should be noted for imputed variables (i.e., parent education, employment, and income). If a respondent completed a parent interview through the family structure section (a partially completed interview), but ended the interview before answering questions about education, employment, or income, these questions (e.g., parent education questions, P9HIG_1_I and P9HIS_1_I) have imputed values and imputation flags (e.g., IFP9HIG_1 and IFP9HIS_1) greater than zero. The -9 code is also used in the parent interview for questions that were edited[4] or inadvertently skipped in computer-assisted

[2] A gate question is the first question in a series with skips to one or more follow-up questions.
[3] Pointer variables indicate the household roster number of a person in the household who was the subject of questions about a parent figure.
[4] Edits to household composition data that result in the addition or deletion of a parent or parent figure in the child's household sometimes result in -9 (not ascertained) codes being used for variables in multiple sections of the parent interview that have questions that are asked depending on the presence of specific parents or parent figures. The affected sections in the spring 2016 parent interview are FSQ (Family Structure), DWQ

interviewing (CAI) programming. After editing, for complete interviews, the data for all questions that should have been asked but were not are coded as -9 (not ascertained), while the data for other skipped questions are coded as -1 (not applicable); codes -7 and -8 are used only when respondents stated a response of “refused” or “don’t know,” and not as a result of editing or inadvertently skipping a question as a result of CAI programming.

Missing values (-1, -7, -8, or -9) in questions that allow for more than one response are coded the same for all coding categories used for the question. For example, in the spring 2016 parent interview, if the question about subjects in which the child was tutored (HEQ290) has the answer of -8 (don’t know), then all the subject variables associated with that question (e.g., reading, math, science, foreign language, and any categories that were added based on “other, specify” upcoding) are also coded as -8 (don’t know).

The “system missing” code appears as a blank when viewing codebook frequencies and in the ASCII data file. System missing codes (blanks) indicate that data for an entire instrument or assessment are missing due to unit nonresponse. For example, when a child’s parent does not participate in the parent interview, all of the data associated with questions from the parent interview are coded as “system missing” (blank) for that child. These blanks may be converted to another value when the data are extracted into specific processing packages. For instance, SAS converts these blanks into periods (“.”) for numeric variables.

Codes used to identify missing values (-1, -7, -8, -9, or system missing) are not all identified as missing values by default in data analysis software. Users will need to define these as missing values in the software they are using to analyze the data. Depending on the research question being addressed, in some instances users may want to assign a valid value to cases with missing values. For example, a teacher who reported that he or she did not have any English language learners in his or her classroom in the spring of 2016 (question F10 in the reading teacher questionnaire; question C10 in the mathematics and science teacher questionnaires) skipped the next question (question F11 in the reading teacher questionnaire; question C11 in the mathematics and science teacher questionnaires) asking how many English language learners were in his or her classroom. An analyst interested in knowing the average number of English language learners in the classrooms of children in the ECLS-K:2011 may want to recode a value of -1 (not applicable) on the variable associated with question F11 or question C11 to a value of 0 (thereby indicating no English language learners in the classroom) in those instances where a

(Discipline, Warmth, and Emotional Supportiveness), NRQ (Nonresident Parents), COQ (Country of Origin for Nonresident Biological Parents), PPQ (Parent’s Psychological Well-Being and Health), PEQ (Parent Education and Human Capital), and EMQ (Parent Employment). The -9 (not ascertained) code is used for both questions that are asked about specific parent/parent figures as well as those that are based on skips from those questions.

teacher indicated in question F10/question C10 that there were no English language learners in the classroom. It is advised that users crosstabulate all gate questions and follow-up questions before proceeding with any recodes or use of the data. Additionally, data users are encouraged to closely examine the distribution of their data and value labels to determine if values that appear to be missing value codes are valid data prior to any recoding.

Composite variables may be derived using data from one or more instrument(s) in one round of data collection, from instrument data across multiple rounds, or from both instrument data and data from administrative records in one or more rounds. If a particular composite is inapplicable for a certain case, for example, as school composite variables are for children who are homeschooled, the variable is given a value of -1 (not applicable) for that case. In instances where a variable is applicable but complete information required to construct the composite is not available, the composite is given a value of -9 (not ascertained). The -7 (refused) code is not used for any of the composites except for the height and weight composites. The -8 (don't know) code is not used for any of the composites.

There is variation in the use of system missing for composite variables. Some child demographic variables (date of birth, sex, and race/ethnicity) are considered applicable to all 18,174 children who participated in the base year and are not assigned a value of system missing for any case. For composite variables using data from both a survey instrument and other administrative or school data sources, only nonparticipants in a given round of data collection are assigned values of system missing. For composite variables using data from only one instrument, (e.g., X9PAR1AGE, parent 1's age, is derived from the spring 2016 parent interview), a value of system missing is assigned if the instrument on which they are based was not completed; if the instrument was completed and an item used in the composite derivation was missing, the composite is assigned a value of -9 as described above.

7.4 Data Flags

7.4.1 Child Assessment Flags (X9RDGFLG, X9MTHFLG, X9SCIFLG, X9NRFLG, X9NRGEST, X9DCCSFLG, X9FLNKFLG, X9HGTFLG, X9WGTFLG, X9ASMTST, X9EXDIS, X9CQFLG)

There are many flags on the data file that indicate the presence or absence of child assessment data. X9RDGFLG denotes whether a child had scoreable reading assessment data in spring 2016, X9MTHFLG denotes whether a child had scoreable mathematics assessment data in spring 2016, and X9SCIFLG denotes whether a child had scoreable science assessment data in spring 2016.[5] If a child answered fewer than 10 questions in any direct cognitive assessment domain (reading, mathematics, or science), the assessment was not considered scoreable. Only items actually attempted by the child counted toward the scoreability threshold.[6] A flag value of 1 indicates that the child responded to 10 or more questions in the assessment for that domain, and thus has the associated scores. A flag value of 0 indicates the child had fewer than 10 responses and does not have a score.

X9NRFLG indicates the presence of Numbers Reversed scores and X9DCCSFLG indicates the presence of Dimensional Change Card Sort (DCCS) scores. X9FLNKFLG indicates the presence of Flanker scores. X9HGTFLG and X9WGTFLG indicate the presence of data for height and weight in spring 2016, respectively.

For the Numbers Reversed and DCCS assessments, as long as the child started the assessment task and answered at least one test question beyond the practice items, a W-ability score (for Numbers Reversed) or a computed overall score (for DCCS) was computed. Flags for each of the scores are coded as 1 if the child has a W-ability score (for Numbers Reversed) or a computed overall score (for DCCS), coded as 0 if the child participated in the child assessment but does not have a score, and set to system missing if the child did not participate in the child assessment. The Numbers Reversed grade-normed scores are calculated using information about how far into the school year the assessment occurred. For some children the school year start and end dates are unavailable, so an estimate based on the mean of available data is used instead. (Information about the calculation of these grade-normed scores can be found in section 3.2.2.) The data file includes a flag that indicates whether the assessment point was estimated for the Numbers Reversed grade-normed scores (X9NRGEST). This flag is set to 0 when actual school start and end dates are known, and set to 1 when the assessment point was estimated.

The child's assessment status for the spring of 2016 is indicated by the composite X9ASMTST. The valid values include 1 for children who have any assessment data in the data file,[7] 2 for those children who were excluded due to disability (and, therefore, do not have assessment data in the data file), and 3 for children who do not have assessment data in the data file and were not excluded due to disability. Note that those excluded due to disability (code 2) are considered to be participants in the data collection round even if they do not have any parent interview data either.

[5] For earlier rounds of data collection, these reading and mathematics flags took into account both the English and Spanish administrations of the assessments. (The science assessment was administered only in English.) In the fall 2012 and then in every round thereafter, all children received the reading, mathematics, and science assessments in English so no language of administration is specified here. For more information on the language of administration, see section 2.1.1.

[6] See chapter 3 for a complete discussion of assessment scoreability.

[7] Having child assessment data includes (1) having reading and/or mathematics and/or science scores, (2) having at least one executive function score, or (3) having a height or weight measurement.

In addition, there is a composite variable that uses FMS data to indicate whether the child was excluded from the assessment due to a disability: X9EXDIS. Study team leaders obtained information from school staff in the fall of 2015 and spring of 2016 about whether a child had an IEP on file and if any information in a child's IEP indicated that he or she would need Braille, large print, or sign language, accommodations that were not available for the ECLS-K:2011. It was also determined whether the IEP specifically prohibited the child from participating in standardized assessments such as those conducted in the ECLS-K:2011. If so, the child was not assessed, and X9EXDIS was coded as 1 (child was excluded from the assessment due to a disability). Otherwise, X9EXDIS was coded as 0 (child was not excluded from the assessment due to a disability). Students could have been excluded from taking the assessment for other reasons (e.g., lack of parental consent); these children are also coded as 0 on X9EXDIS. The number of cases with system missing values varies across the nine X*n*EXDIS variables (that is, one per round), due to the sample for each round. The cases that are system missing on X1EXDIS are cases that were added to the sample in the spring of the base year and thus were not members of the sample in round 1. The cases that are system missing on X3EXDIS and X5EXDIS are those that were not selected for the fall subsample. There are no cases coded as system missing on these variables in rounds 2, 4, 6, 7, 8, and 9.

There is also a flag on the data file, X9CQFLG, that indicates whether there are child questionnaire data. A flag value of 1 indicates that there are child questionnaire data and a flag value of 0 indicates that there are no child questionnaire data.

7.4.1.1 Child Theta Score Outlier (X_RTOFLG, X_MTOFLG, X_STOFLG)

Child theta score outliers are defined for each round in each subject. Using unweighted data, an outlier score is defined as one that falls either four standard deviations below the score mean (for that particular round and subject), or four standard deviations above the score mean (for that particular round and subject). Four standard deviations of the mean theta was selected as the outlier threshold to identify extreme outliers, which were expected to comprise less than $1/100^{th}$ of a percent of the population. Each of the flags X_RTOFLG, X_MTOFLG, and X_STOFLG is defined as 1 if the theta score is an outlier as defined above; or as 0 if the theta score is between the values of four standard deviations below and four standard deviations above the mean.

7.4.2 Parent Data Flags (X9PARDAT, X9EDIT, X9BRKFNL)

There is one flag that indicates the presence of parent interview data in spring 2016. X9PARDAT is coded as 1 if there was a fully completed or partially completed interview in spring 2016. A partially completed interview in spring 2016 was one that ended before all applicable questions were answered, but that had answers to questions through FSQ200 (variable P9CURMAR) in the Family Structure Questions (FSQ) section.

The flag X9EDIT indicates whether, for a given case, household matrix data were reviewed or edited. It is coded as 1 if a parent interview household matrix was edited (e.g., if the age of a household member was reported incorrectly and had to be updated, or a person who was added to the household in error needed to be deleted from the household) or reviewed for editing even if no data were changed (e.g., if there were data that suggested a possible problem, but after examining the case the data were left as they were reported). This flag is included to make users aware that data cleaning or review of household matrix data was necessary for a particular case. If something about the household composition or characteristics of the household members seems unusual (e.g., the child is identified as having a 34-year-old brother in the household) and this flag is set to 1, this is an indication that the unusual data were reviewed and either edited to appear as they do in the data file or left as is because it was confirmed the data were accurate or there was no additional information indicating how the data could be edited accurately. When the flag is set to 1 and data (e.g., for the ages or relationships of household members) are corrected, the data are only changed in the variables for the round of the study to which the data flag pertains; no corrections are made to the data for the prior rounds to reflect the later corrections. Researchers who are using data about household composition from the parent interview household roster in their analyses should examine all rounds of household roster data closely, recognizing that for a limited number of cases corrected information from later rounds may need to be applied to earlier rounds. Before applying changes to earlier-round data, researchers should ensure that they are making changes for the correct household member(s). It should also be ensured that any changes noted in the relationship variables are related to the correction of errors and not to real changes in the relationship of household members to the study child.

The composite variable X9BRKFNL indicates a final breakoff from the round 9 parent interview. A final breakoff occurs when a respondent stops in the middle of the interview before answering all applicable questions. These composites identify the variable associated with the last question answered by the parent. The breakoff point is provided only for those parent interviews with a status of partially complete. Cases for which a parent completed the interview have a value of -1, indicating that the case was not a breakoff.

7.4.3 Teacher Flags (X9TQTDAT, X9TQTZDAT, X9TQRDGDAT, X9TQMTHDAT, X9TQSCIDAT, X9MSFLAG, X9SETQA, X9SETQC)

In the spring fifth-grade collection, as in the spring fourth-grade collection, a reading teacher for each child was identified. In addition, half of the sampled children were randomly assigned to have their mathematics teacher complete questionnaires, while the other half of the sampled children were randomly assigned to have their science teacher complete questionnaires. Thus, every child has a reading teacher and either a mathematics or a science teacher identified for him or her.

These reading, mathematics, and science teachers were asked to complete two types of self-administered questionnaires, as follows:

1. The teacher-level questionnaire included questions about the teachers, such as their views on the school climate, their evaluation methods used for reporting to parents, and their background and education.

2. The child- and classroom-level questionnaire had two parts. Part 1 contained child-level questions that asked the teacher to rate the study child identified on the cover of the questionnaire on academic and social skills, school engagement, and classroom behaviors. Part 2 contained subject matter-specific, class-level questions pertaining to the reading, mathematics, or science class of the study child. For example, teachers were asked how much time the study child's class spends on specific skills and activities—skills aligned with the Common Core State Standards. This second section also contained questions on instruction and grading practices, classroom behavioral issues, and homework assignments.

Since one teacher could instruct multiple study children in the same class, data collection procedures were implemented to minimize teacher burden by not asking teachers to answer questions about the same class for multiple children (see Chapter 2). One "key child" was identified for each class, and the teacher only completed Part 2 (the classroom information) of the child- and classroom-level questionnaire for this key child. Information collected for the key child was then applied to all study children in the same reading, math, or science class as the key child. If a teacher taught different classes of a single subject (e.g., multiple reading classes), a key child was identified for each class, and the teacher was asked to complete the class-level questions for each section of that subject that he or she taught. Teachers linked to at least one ECLS-K:2011 child were also asked to complete the teacher-level questionnaire. Data from the teacher-level questionnaire were linked to every study child in the teacher's class(es). The data file contains flag variables that can be used to determine whether data were obtained from a teacher.[8] There are separate subject-matter flag variables corresponding to each type of teacher questionnaire (teacher-level and child-level). Two flags indicate the type of teacher that completed the teacher-level questionnaire. X9TQTDAT indicates it was a reading teacher who completed the teacher-level questionnaire. X9TQTZDAT indicates it was a mathematics or science teacher who completed the teacher-level questionnaire. X9TQRDGDAT, X9TQMTHDAT, and X9TQSCIDAT are flags to indicate the subject matter for the child-level questionnaires for reading, mathematics, and science, respectively. The variable X9MSFLAG indicates whether the child was sampled for the mathematics or science teacher questionnaire.

Two flags indicate the presence of data from each of the two special education teacher questionnaires for spring 2016 (X9SETQA for the teacher-level questionnaire and X9SETQC for the child-level questionnaire). Cases linked to a special education teacher who did not complete a questionnaire and cases that were not linked to a special education teacher have a value of 0 on these flags.

Users interested in information about whether special education teacher questionnaires were requested for a case, regardless of whether special education questionnaires were completed in the spring of 2016, can use the composite variable X9SPECS (discussed in section 7.5.1.11), which is based on information from the FMS rather than the special education questionnaires. X9SPECS can be used with the flags for the presence of data for special education teacher questionnaires, X9SETQA and X9SETQC, to indicate whether special education questionnaires were requested and received. For example, if X9SETQA = 0 and X9SPECS = 1, this indicates that the case was linked to a special education teacher who did not complete a teacher-level special education questionnaire, but special education questionnaires were requested. If X9SETQA = 0 and X9SPECS = 2, this indicates that the case was not linked to a special education teacher and special education questionnaires were not requested. X9SPECS is described further below in section 7.5.1.11.

7.4.4 School Administrator Data Flag (X9INSAQ)

There is a flag for the school administrator questionnaire (X9INSAQ) that is coded as 1 if there are data from the spring 2016 school administrator questionnaire (SAQ) and 0 if there are no data from the SAQ.

[8] An identification number is provided in the teacher ID variable T9R_ID, T9M_ID, and T9S_ID as long as a child was linked to a reading, math, or science teacher, even if the teacher did not complete any questionnaires.

7.4.5 Child Destination School Flag (X9DEST)

The X*DEST composites identify schools that became a destination school in the given round. Destination schools are schools for which it was determined that at least four ECLS-K:2011 children moved into them during the same round of the study and from the same original school at which they were sampled for the study. This typically happened when children attended a school that ended with a particular grade (e.g., a school that only provided education through first grade) or a school that closed. Destination schools may be new to the ECLS-K:2011 or may have participated in a past round. A school already participating in the study could be designated a destination school if four children from the same original school move into that school. Once a school has been identified as a destination school, it is not identified as a destination school again in a later round if it subsequently satisfies the conditions for being labeled a destination school again from the same original school. However, a school may be identified as a destination school in more than one round of the study if it satisfies the conditions for being labeled a destination school based on students moving there from another school. Users can identify schools that were ever designated as destination schools by looking at whether any of the X*DEST composites = 1. The composite, X9DEST, identifies schools that became destination schools in the current round, round 9. The variable X9DEST is nonmissing for respondents in the spring 2016 round and is coded as 1 if the child attended a school that became a destination school in the spring of 2016, and 0 otherwise.

7.5 Composite Variables

To facilitate analysis of the survey data, composite variables were derived and included in the data file. This section identifies the source variables and provides other details for the composite variables. Most composite variables were created using two or more variables that are also available in the data file, each of which is named in the text that explains the composite variable. Other composites, for example, X_CHSEX_R, were created using data from the FMS and the sampling frame, which are not available in the data file. Note that some of these variables have been updated or revised since their release on previous data files. Such variables have an "_R" suffix in their name.

7.5.1 Child Composite Variables

There are many child-level composite variables in the child catalog. The nonassessment variables are described in further detail here. The child-level composites for the direct and indirect child assessment are described in chapter 3.

7.5.1.1 Child's Date of Birth (X_DOBYY_R and X_DOBMM_R)

The composite variables for the child's date of birth are based on data from previous rounds of the study and are the same as the date of birth variables released in the K–4 longitudinal data file (X_DOBMM_R, X_DOBDD_R,[9] and X_DOBYY_R). The child's date of birth was not collected in the spring 2016 interview. Information about child's date of birth was collected from schools at the time of sampling and stored in the FMS, collected from parents in the fall kindergarten parent interview, and then collected or confirmed by parents in the spring kindergarten parent interview. (Parents confirmed the parent report from the fall or FMS data if the fall parent report was not obtained.) Questions to collect date of birth information were only asked in the fall 2011, spring 2012, fall 2012, or spring 2013 interviews if data from the parent interview about the child's date of birth were missing due to unit or item nonresponse. In these rounds of the study, the parent was only asked child's date of birth if the parent had not confirmed FMS-reported data (or had not reported date of birth if there were no FMS data) in a prior interview. In creating the composite, data from the most recent parent interview were given priority over data from other rounds because they were collected most recently and any data that were missing from the parent interview due to unit or item nonresponse had the potential to be updated in a subsequent data collection.

7.5.1.2 Child's Age at Assessment and the Date of Assessment (X9AGE, X9ASMTDD, X9ASMTMM, X9ASMTYY)

The child's age at assessment in months (X9AGE) was calculated by comparing the exact date the child completed the ECLS-K:2011 direct child assessment according to administrative data that are not included in the data file to the child's date of birth (X_DOBDD_R [day of birth],[10] X_DOBMM_R [month of birth], X_DOBYY_R [year of birth]). The calculation of age in months uses

[9] X_DOBDD_R indicates the child's exact day of birth. This is an administrative variable that is not included in the K-5 longitudinal data file for issues related to confidentiality.
[10] X_DOBDD_R indicates the child's exact day of birth. This is an administrative variable that is not included in the K-5 longitudinal data file for issues related to confidentiality.

the number of days in each month and is adjusted for leap years. The child assessment date was examined to ensure it was within the field period. If the assessment date fell outside the field period, the modal assessment date for the child's school was used to set the composite and was retained for the data file.[11]

Variables indicating the date of assessment (day, month, and year) in round 9 are also included in the kindergarten through fifth grade data file. The variable for the day of assessment (X9ASMTDD) provides a range of days in a month that the child was assessed and is coded as 1 (days 1 through 7); 2 (days 8 through 15); 3 (days 16 through 22); 4 (day 23 or later); or -9 (not ascertained). The exact day of the month is not provided for reasons related to confidentiality. The variable for the month of assessment (X9ASMTMM) indicates the month that the child was assessed, and the variable for the year of assessment (X9ASMTYY) indicates the year that the child was assessed.

7.5.1.3 Child's Sex (X_CHSEX_R)

The composite variable for the child's sex is based on data from previous rounds of the study and is the same as the variable released in the K–4 longitudinal data file (X_CHSEX_R). The child's sex was not collected in the spring 2016 interview. Information about child's sex was collected from schools at the time of sampling and stored in the FMS, collected from parents in the fall kindergarten parent interview, and then collected or confirmed by parents in the spring kindergarten parent interview (parents confirmed the parent report from the fall or FMS data if the fall parent report was not obtained). Questions to collect information on the child's sex were only asked in the fall 2011, spring 2012, fall 2012, or spring 2013 interviews if data from the parent interview about the child's sex were missing due to unit or item nonresponse. In these rounds of the study, the parent was only asked the child's sex if the parent had not confirmed FMS reported data (or had not reported the child's sex if there were no FMS data) in a prior interview. In creating the composite, data from the most recent parent interview were given priority over data from other rounds because they were collected in the most recent interview and any data that were missing from the parent interview due to unit or item nonresponse had the potential to be updated in a subsequent data collection.

[11] Some assessments that were partially but not entirely completed during the field period were assigned a final status after the end of the data collection round. Thus, assessment dates after the end of the field period reflect the timing of the assignment of the final disposition, not the actual date of assessment. These cases were adjusted so that the assessment date reflects the modal date for the school.

7.5.1.4 Race/Ethnicity (X_AMINAN_R, X_ASIAN_R, X_HAWPI_R, X_BLACK_R, X_WHITE_R, X_HISP_R, X_MULTR_R, X_RACETHP_R, X_RACETH_R)

There are three types of composite variables indicating child's race/ethnicity in the ECLS-K:2011 file: (1) dichotomous variables for each race/ethnicity category (X_AMINAN_R, X_ASIAN_R, X_HAWPI_R, X_BLACK_R, X_WHITE_R, X_HISP_R, X_MULTR_R) derived from data collected in the parent interview; (2) a single race/ethnicity composite derived from data collected in the parent interview (X_RACETHP_R); and (3) a race/ethnicity composite that draws from either the parent-reported data about the child's race or the FMS (X_RACETH_R), with FMS data used only if parent responses about the child's race were missing. Parent interview responses about the races of the child's biological parents were not used in the creation of child race composite variables. Race/ethnicity information was updated in these composite variables for about 25 to about 30 cases, depending on the specific composite, based on information collected from parents in the spring 2016 parent interviews.

Parents were asked about the child's ethnicity in the spring of 2016 if ethnicity information for the child from the parent interview items was missing due to unit or item nonresponse. Specifically, parents were asked whether or not their child was Hispanic or Latino. Parents were also asked about the child's race in spring 2016 only if parent interview race data for the child were missing. Parents were asked to indicate to which of five race categories (White, Black or African American, Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native) their child belonged, and they were allowed to indicate more than one. From these responses, a series of five dichotomous race variables were created that indicate separately whether the child belonged to each of the five specified race groups. In addition, one additional dichotomous variable was created to identify those who had indicated that their child belonged to more than one race category.[12]

The seven dichotomous ethnicity and race variables (X_HISP_R, X_AMINAN_R, X_ASIAN_R, X_HAWPI_R, X_BLACK_R, X_WHITE_R, X_MULTR_R) were created using parent data from spring 2016, or if those data were not asked in spring 2016 because they were asked in a previous round of the study, the dichotomous composites were set to the values of the spring 2015 dichotomous race composites that used parent data from the fourth grade, third grade, second grade, first grade, and base year collections (X_HISP_R, X_AMINAN_R, X_ASIAN_R, X_HAWPI_R, X_BLACK_R, X_WHITE_R, X_MULTR_R). Otherwise, the dichotomous ethnicity and race composites were set to -9 (not ascertained).

[12] Unlike the ECLS-K, in the ECLS-K:2011 "other" was not a permitted response for the race question.

Using the six dichotomous race variables and the Hispanic ethnicity variable, the race/ethnicity composite variables for the child (X_RACETHP_R, X_RACETH_R) were created. The categories for these variables are: White, non-Hispanic; Black or African American, non-Hispanic; Hispanic, race specified; Hispanic, no race specified; Asian, non-Hispanic; Native Hawaiian or other Pacific Islander, non-Hispanic; American Indian or Alaska Native, non-Hispanic; and more than one race specified, non-Hispanic. A child is classified as Hispanic if a parent indicated the child's ethnicity was Hispanic or Latino regardless of whether a race was identified and what that race was. If a child is not reported to be Hispanic or Latino, the race/ethnicity categories (White, non-Hispanic; Black or African-American, non-Hispanic; Asian, non-Hispanic; Native Hawaiian or Other Pacific Islander, non-Hispanic; and American Indian or Alaska Native, non-Hispanic; More than one Race, non-Hispanic) are coded according to the child's reported race. If the report about whether the child was Hispanic or Latino was -7 (refused) or -8 (don't know), or if the child is not Hispanic or Latino and parent reported race is missing, X_RACETHP_R is coded as -9 (not ascertained); if the report about whether the child was Hispanic or Latino is also missing from the FMS, or if the child is not Hispanic or Latino and race is also missing from the FMS, X_RACETH_R is coded as -9 (not ascertained). The difference between X_RACETHP_R and X_RACETH_R is that if race or ethnicity data are missing from the spring 2016 parent interview, X_RACETH_R is set to the value used for the spring 2015 composite, also called X_RACETH_R, which uses both parent data and FMS data, while only parent-report data were used for the variable X_RACETHP_R. Thus, there are more missing data for X_RACETHP_R than for X_RACETH_R.

About 29 cases have a value for X_RACETHP_R that is different in the K-5 longitudinal file than in the K-4 longitudinal file due to the collection of child race/ethnicity data in the spring 2016 parent interview. About 9 of these cases changed value from -9 (not ascertained) to a valid value and about 20 cases changed from code 4, Hispanic-no race reported, to code 3, Hispanic-race reported. About 25 cases have a changed value for X_RACETH_R due to the collection of child race/ethnicity data in the spring 2016 parent interview. Nearly all of these cases, about 22, changed from code 4, Hispanic-no race reported, to code 3, Hispanic-race reported.

The categories for X_RACETHP_R and X_RACETH_R are mutually exclusive, meaning that a child is coded as just one race/ethnicity. Users interested in the specific races of children who are identified as multiracial, or who are interested in identifying the race(s) of children who are identified as Hispanic, should use the dichotomous race variables discussed above.

7.5.1.5 Child's Height (X9HEIGHT)

To obtain accurate measurements, each child's height was measured twice in each data collection round. The height measurements were entered into the computer program used for the assessment, with a lower limit set at 35 inches and an upper limit set at 80 inches.

For the height composites, if the two height measurements (C9HGT1 and C9HGT2 for spring 2016) were less than 2 inches apart, the average of the two height values was computed and used as the composite value. If the two spring measurements were 2 inches or more apart, for X9HEIGHT (the child's height in spring 2016), the measurement that was closest to 56.75 inches for boys and 56.80 inches for girls was used as the composite value. This is the 50th percentile height for children who were 11 years old (133.29 months for boys and 132.68 months for girls: the average age at assessment in spring 2016 using the composite X9AGE). The height averages come from the 2000 Centers for Disease Control and Prevention (CDC) Growth Charts (www.cdc.gov/growthcharts/html_charts/statage.htm).[13] The two height measurements were 2 or more inches apart for 11 cases for X9HEIGHT.

If one value for height was missing, the other value was used for the composite. If both the first and second measurements of height were coded as -8 (don't know), then the height composite was coded as -9 (not ascertained). Children who did not have their height measured due to a physical disability were coded as -8 (don't know) for both height measurements and, therefore, have a code of -9 on the composite. If both the first and second measurements of height were coded as -7 (refused), then the height composite was coded as -7 (refused). If both the first and second measurements of height were coded as -9 (not ascertained) because height data were missing as the result of a breakoff in the child assessment or the measurements had different missing values (e.g., one was -8 and the other was -9), then the height composite was coded as -9 (not ascertained).

For about 130 cases, the child's height in the spring of 2016 (X9HEIGHT) was shorter than in the spring of 2015 (X8HEIGHT). A difference of 1 inch or less (about 30 children) could be a function of factors such as slouching versus standing upright; differences in shoes, hairstyle, thickness of socks; or a combination of these factors. However, about 100 children were recorded as being more than 1 inch shorter in the spring of 2016 than in the spring of 2015, and about 80 of those were recorded as being more than 2 inches shorter. These discrepancies may result from measurement error or recording error. Analysts should use their own judgment in how to use these cases in their analysis.

[13] For calculating the median height, the composite X9AGE was used to determine children's average age at assessment. The average age at assessment in spring 2016 was 133.29 months for boys and 132.68 months for girls using the composite X9AGE. The closest value on the CDC Growth Chart was 133.5 for boys and 132.5 for girls.

7.5.1.6 Child's Weight (X9WEIGHT)

To obtain accurate measurements, each child's weight was measured twice in each data collection round. The weight measurements were entered into the computer program used for the assessment, with a lower limit set at 30 pounds and an upper limit set at 300 pounds. Values outside the range that were documented in assessor comments as being valid measurements were included in the data file.

For the weight composites, if the two weight measurements obtained within a round (i.e., C9WGT1 and C9WGT2 for spring 2016) were less than 5 pounds apart, the average of the two weight values was computed and used as the composite value. If the two measurements were 5 or more pounds apart, for X9WEIGHT the measurement that was closest to 80.32 pounds for boys or 82.43 pounds for girls was used as the composite value. These are the median weights for children who were 11 years old (133.29 months for boys and 132.68 months for girls: the average age at assessment in spring 2016 using the composite X9AGE). The weight averages come from the 2000 CDC Growth Charts (see www.cdc.gov/growthcharts/html_charts/wtage.htm).[14] The two weight measurements were 5 or more pounds apart in 5 cases for X9WEIGHT.

If one value for weight was missing, the other value was used for the composite. If both the first and second measurements of weight were coded as -8 (don't know), the weight composite was coded as -9 (not ascertained). Children who did not have their weight measured due to a physical disability were coded as -8 (don't know) for both weight measurements and, therefore, have a code of -9 on the composite. If both the first and second measurements of weight in the child assessment were coded as -7 (refused), then the weight composite was coded as -7 (refused). If both the first and second measurements of weight in the child assessment were coded as -9 because weight data were missing as the result of a breakoff in the child assessment or the measurements had different missing values (e.g., one was -8 and the other was -9), then the weight composite was coded as -9 (not ascertained).

There are approximately 40 children whose round 9 weights are more than 10 pounds lower than their round 8 weights; of these, about 25 changes are in the range of 20.75 pounds to 114.5 pounds. It is possible that some of these changes result from measurement error. Analysts may wish to review such cases and determine how to account for these weight changes in their analysis.

[14] For calculating the median weight, the composite X9AGE was used to determine children's average age at assessment. The average age at assessment in spring 2016 was 133.29 months for boys and 132.68 months for girls using the composite X9AGE. The closest value on the CDC Growth Chart was 133.5 for boys and 132.5 for girls.

7.5.1.7 Child's Body Mass Index (X9BMI)

Composite body mass index (BMI) was calculated by multiplying the composite weight in pounds by 703.0696261393 and dividing by the square of the child's composite height in inches (Keys et al. 1972; Mei et al. 2002). Unrounded values of height and weight were used in the calculation of BMI. If either the height or weight composite was coded as -9 (not ascertained) or -7 (refused), the BMI composite was coded as not ascertained (-9). Values of "don't know" for height and weight were coded as -9 (not ascertained) in the height and weight composites and also coded as -9 (not ascertained) in the BMI composite.

7.5.1.8 Child's Disability Status (X9DISABL2, X9DISABL)

Two composite variables based on information obtained in the parent interview were created to indicate whether a child had a disability diagnosed by a professional. Note that these variables indicate either diagnosed disabilities that were identified for the first time in the round 9 parent interview or diagnoses reported in a previous interview for which the child also had a diagnosis reported in round 9. The variables must be used in conjunction with the disability composites from earlier rounds to identify the entire group of children who have ever had a disability diagnosed by a professional. Also, these two variables differ in how missing data were treated during their creation, as described below.

Questions in the spring 2016 parent interview asked about the child's ability to be independent and take care of himself or herself, ability to pay attention and learn, coordination in moving arms and legs, overall activity level, overall behavior and ability to relate to adults and children, emotional or psychological difficulties, ability to communicate, difficulty in hearing and understanding speech, and eyesight. If parents indicated that their child had any issues or difficulties in response to these questions, follow-up questions asked whether the child had been evaluated by a professional for that particular issue and whether a diagnosis of a problem was obtained by a professional (CHQ120, CHQ125, CHQ215, CHQ245, CHQ246, CHQ300, CHQ301). A question was also asked about current receipt of therapy services or participation in a program for children with disabilities (CHQ340).

The composite variable X9DISABL is coded as 1 (yes) if the parent answered "yes" to at least one of the questions about diagnosis (indicating a diagnosis of a problem was obtained) or therapy services (indicating the child received services) (CHQ120, CHQ215, CHQ245, CHQ300, CHQ340) and the questions about the specific diagnoses (CHQ125, CHQ246, CHQ301) were not coded as -7 (refused),

-8 (don't know), or -9 (not ascertained); or in the case of the vision diagnosis (CHQ301), the question was not coded as only nearsightedness (myopia), farsightedness (hyperopia), color blindness or deficiency, astigmatism, or awaiting evaluation; or in the case of a hearing diagnosis (CHQ246), the question was not coded as only external ear canal ear wax or awaiting evaluation.

Using these criteria to calculate X9DISABL, a child could be coded as having a disability even if data for some of the questions about diagnoses or therapy services (CHQ120, CHQ215, CHQ245, CHQ300, CHQ340) were missing. This is because a child is coded as not having a disability if there are data for at least one of the questions about diagnoses or therapy services (CHQ120, CHQ215, CHQ245, CHQ300, CHQ340), and the response was either 2 (no) or the item was -1 (inapplicable) (because the child did not have issues that indicated a question should be asked), even if data for some of these questions were missing. In addition to having "no" answers or "inapplicable" codes for the diagnoses or therapy services questions, if the child had a diagnosis, but the specific diagnosis was not reported (was refused, don't know, not ascertained) or the diagnosis has not been received (CHQ246 or CHQ301 = 1 for awaiting evaluation), X9DISABL was also coded as 2 (no) because there was no reported disability. The composite was coded as -9 (not ascertained) only if all of the data for the questions about diagnoses or therapy services (CHQ120, CHQ215, CHQ245, CHQ300, CHQ340) were -7 (refused), -8 (don't know), or -9 (not ascertained), or if the items that skipped to these items were -7 (refused), -8 (don't know), or -9 (not ascertained).

A more conservative approach when coding cases that had incomplete data for the diagnoses and services variables was used to derive the variable X9DISABL2. Whereas X9DISABL codes cases with missing data as "no" as long as all the information that was collected indicates the child does not have a diagnosed disability or receive services for a diagnosed disability, X9DISABL2 is coded as -9 (not ascertained) when any of the questions about diagnoses or therapy services (CHQ120, CHQ215, CHQ245, CHQ300, CHQ340) are -7 (refused), -8 (don't know), or -9 (not ascertained), or the items that skipped to these items are -7 (refused), -8 (don't know), or -9 (not ascertained). For X9DISABL2, if there are no "yes" answers for a disability, but any of the evaluation (CHQ115, CHQ210, CHQ235, CHQ290), diagnoses (CHQ120, CHQ215, CHQ245, CHQ300), or therapy questions (CHQ340) are -7 (refused), -8 (don't know), or -9 (not ascertained),[15] or if any of the evaluation, diagnosis, or therapy questions were not asked (were -1 for inapplicable) because of missing data for questions that skipped to those questions (and thus it is not known if they should have been asked), X9DISABL2 is coded as -9 (not ascertained). In addition, if the parents indicated that a diagnosis had been obtained, but the specific diagnosis was

[15] If CHQ340 was -9 (not ascertained) because the interview broke off after CHQ330, but all answers in CHQ330 and questions prior to CHQ330 indicated that CHQ340 would not have been applicable, X9DISABL and X9DISABL2 were coded 2 (no disability) because that question would not have been asked for those children.

coded as refused, don't know, or not ascertained, X9DISABL2 is coded as -9 (not ascertained). This approach is more conservative because it does not assume that the response for unanswered questions was "no." Due to these differences in coding, the number of cases identified as not having a diagnosed disability is higher for X9DISABL than it is for X9DISABL2.

7.5.1.9 Primary Language in the Child's Home (X9LANGST)

A composite variable was created to indicate whether English was a primary language spoken in the home or whether a non-English language was the primary language spoken in the spring of 2016. Parents were asked if any language other than English was regularly spoken in their home (P9ANYLNG). If a language other than English was not spoken in the home (P9ANYLNG = 2, or if a language other than English was spoken in the home but the primary language of the household (P9PRMLNG) was English (P6PRMLNG = 0), the composite is coded as 2 (English language).

If both English and another language were spoken in the home, and the respondent reported that two or more languages were spoken equally or they could not choose a primary language, the composite is coded as 3 (cannot choose primary language or two languages equally). Otherwise, if a language other than English was spoken (P9ANYLNG = 1), either solely (P9ENGTOO) or primarily in the home (P9PRMLNG has a nonmissing value other than 0 for English), the composite is coded as 1 (non-English language). Otherwise, if there were missing data, X9LANGST is set to the value for the most recent language composite from a previous round of the study (X6LANGST, X4LANGST, or X12LANGST).

7.5.1.10 Student Grade Level (X9GRDLVL)

The X9GRDLVL composite indicates the child's grade level in the spring of 2016 as reported by the teacher or recorded in the FMS. This composite has valid values for the 12,346 cases that are respondents for round 9, that is the cases that have either child assessment or parent interview data. It is constructed using F9CLASS2 (child's grade in spring 2016 from the FMS). The values include 2 for second grade, 3 for third grade, 4 for fifth grade, 5 for fifth grade, and 6 for sixth grade.

Note that grade level (F9CLASS2) is included for homeschooled children. For all children, their grade was known at their initial sampling in school. Based on the assumption that most children progress a grade level each year, for homeschooled children and other assess-in-home children, the grade was incremented by 1 year each year. In spring 2011, fall 2011, spring 2012, and fall 2012, the child's grade was confirmed with the parent for these cases. In the spring of 2013, 2014, 2015, and 2016, parents were not asked for this information. The grade level from the spring of 2015 was increased by one grade for the spring of 2016. This change was also made for cases that started homeschooling in the 2015–16 school year. If a parent volunteered new information about grade level, field team leaders updated the information in the FMS and that information is reflected in the composite variable.

7.5.1.11 Child Linked to a Special Education Teacher (X9SPECS)

The composite variable X9SPECS indicates whether or not children were linked to a special education teacher and special education questionnaires were requested from teachers in the spring of 2016, based on the presence or absence of a link to a special education teacher or related service provider in the FMS. The value is 1 if special education questionnaires were requested and 2 if special education questionnaires were not requested. Study team leaders asked school staff if any accommodations were required for the study children to be assessed. During that discussion about assessment accommodations, team leaders were also supposed to record whether the child had an IEP on file with the school but did not require any accommodations for the study assessments. The link to a special education teacher was established automatically when information indicating a child needed an accommodation or had an IEP but did not require an accommodation was entered in the FMS by study team leaders.

There are cases with a mismatch between X9SPECS and special education teacher reports about an IEP. In about 130 cases in spring 2016, there were FMS data indicating the child had an IEP on record at the school (and thus a special education teacher questionnaire was requested from the teacher and X9SPECS = 1), but the special education teacher indicated in the child-level questionnaire that the child did not have an IEP (E9RECSPE = 2).

7.5.2 Family and Household Composite Variables

Many composite variables are created to provide information about the sampled children's family and household characteristics. It must be noted that household composition composite variables consider only those people who were household members at the time of the parent interview. If information on household composition was collected in the spring 2015, spring 2014, spring 2013, spring 2012, spring 2011, or fall 2010 parent interview, the parent respondent was asked to indicate whether the people living in the household in the most recent interview in which information about household composition was collected were still in the household at the time of the spring 2016 parent interview, as well as whether there were any new members of the household. Household members were accounted for in the derivation of the spring 2016 composite variables if they were still living in the household or had joined the household since the time of the last interview, as indicated in the variables P9CUR_1–P9CUR_25.

During the spring 2016 parent interview, information on age, sex, and relationship to the study child was collected for all new household members. For certain existing household members, information was collected about whether their relationship to the study child had changed since the previous interview in which relationship data was collected. Change in relationship was asked for respondents and their spouses or partners who were identified in a prior round interview as being a step- or foster mother or father, other male or female parent or guardian, boyfriend or girlfriend of the child's parent, relative, or nonrelative. Information about race and ethnicity was collected for specific household members (parents/guardians and their spouses/partners, or boyfriends/girlfriends if the boyfriend/girlfriend was a respondent) who were new to the household or had missing race or ethnicity data from a previous round of the study.

The composite variables for parents (e.g., parent age, parent education) are for the parents who were members of the household at the time of the spring 2016 interview. The identities of household parent figures can change over time, meaning that data in a composite may not pertain to the parent figure in the household in an earlier round. For example, parent education information collected in the spring 2016 parent interview would pertain to a father figure who was in the home during that round but not necessarily to a father figure who was in the household during the kindergarten, first-, second-, third-, or fourth-grade years. Users should look at the X9IDP1 and X9IDP2 variables described in section 7.5.2.3 to determine if the household roster numbers associated with parent 1 and parent 2 in the spring of 2016 match the household roster numbers for parent 1 and parent 2 from an earlier round (e.g., X8IDP1 or X8IDP2) in order to determine if the parent figures changed.

7.5.2.1 Household Counts (X9HTOTAL, X9NUMSIB, X9LESS18, X9OVER18)

The composite variable X9HTOTAL provides a count of the total number of household members in the spring of 2016. For households for which household roster information had been collected in a prior round, this count is the number of household members who were previously rostered and reported to still be in the household plus any new persons added after the last interview in which roster information was collected.

Two composite variables take the ages of the household members into account to indicate the total numbers of (1) adults and (2) children in the household in the spring of 2016. Information about household members' ages was collected in the household matrix, or roster, section of the parent interview (see below for details in section 7.5.2.2). X9LESS18 indicates the total number of people in the household under age 18, including the study child, siblings, and other children, and X9OVER18 indicates the total number of people in the household age 18 or older. All household members who were 18 years old or older, as well as anyone identified as a parent or grandparent of the focal child whose age is missing, are counted in the total for X9OVER18. Households with members with missing age information who are not identified as a parent or grandparent are coded as -9 (not ascertained) on X9OVER18 and X9LESS18. X9LESS18 is created by subtracting X9OVER18 from X9HTOTAL.

The composite X9NUMSIB indicates the total number of siblings (biological, step-, adoptive, or foster) living in the household with the study child. Siblings were identified by questions in the FSQ section of the parent interview that asked about the relationship of each household member to the study child. X9NUMSIB does not count children of the parent's boyfriend or girlfriend (identified by the code 5 in the variables associated with question FSQ180) as siblings.

7.5.2.2 Household Rosters

The ECLS-K:2011 data file includes rosters of the household members as collected in the parent interviews. The roster information appears as part of the block of Family Structure Questions (FSQ) for each round in which the FSQ section was included in the parent interview. Variable names begin with P1 for round 1 (fall kindergarten); P2 for round 2 (spring kindergarten); P4 for round 4 (spring 2012, when most children were in first grade); P6 for round 6 (spring 2013, when most children were in second grade); P7 for round 7 (spring 2014, when most children were in third grade); P8 for round 8 (spring 2015, when most children were in fourth grade); and P9 for round 9 (spring 2016, when most children were in the fifth grade). No FSQ section was included in the brief round 3 or round 5 parent interviews.

For each household member in each round, roster variables include the following, where * is the round number (1, 2, 4, 6, 7, 8, or 9) and # is the household roster number (1 through 25):

- P*PER_#, person type, whether the person is the focal child, respondent, or spouse/partner of the respondent;

- P*AGE_#, the person's age;
- P*SEX_#, the person's sex;
- P*REL_#, how the person is related to the focal child;
- P*MOM_#, if the person is the child's mother, the type of mother;
- P*DAD_#, if the person is the child's father, the type of father;
- P*SIS_#, if the person is the child's sister, the type of sister;
- P*BRO_#, if the person is the child's brother, the type of brother;
- P*UNR_#, if the person is not a relative, the type of relationship to the study child;
- P*HSP_#, whether the child or parent/guardian is of Hispanic or Latino origin;
- P*AIA_#, whether the child or parent/guardian is American Indian or Alaska Native;
- P*ASN_#, whether the child or parent/guardian is Asian;
- P*BLK_#, whether the child or parent/guardian is Black or African American;
- P*HPI_#, whether the child or parent/guardian is Native Hawaiian or other Pacific Islander; and
- P*WHT_#, whether the child or parent/guardian is White.

For rounds 2, 4, 6, 7, 8, and 9 there are two additional variables:

- P*CUR_#, whether the person was currently a household member at the time of the interview; and
- P*REASL#, if the person left the household, the reason for doing so.

For round 2, there are two additional variables.[16]

- P2JOI_#, the round in which the person was first enumerated as a household member; and
- P2RDP_#, the round in which the person left the household.

[16] In round 2, variables identifying in which round a person was first enumerated as a household member and in which round a person was identified as having left the household were set in the CAPI parent interview and included in the base-year data file. For later rounds, analysts can compare the P*CUR_# variables (person is currently a household member) from different rounds, where * is the round number and # is the person number, to determine in which round a person was first enumerated as a household member and in which round a person was identified as having left the household.

Once a person is assigned a household roster number, he or she retains that number permanently. For example, if there are four persons in the household and person 3 leaves the household, person 4 remains in position 4 in the roster for all rounds. Similarly, if the last person on the roster leaves the household and a new person subsequently joins the household, that new household member is assigned to the position below that of the person who was last in the roster and left (for example, if person 6 is the last person on the roster and leaves the household, a new person joining the household would be assigned to position 7).

If there is no parent interview completed in a given round, then the roster items for that round are assigned a value of system missing. Beginning in round 4, if a person has left the household (e.g., P4CUR_# = 2, not a current household member), the roster variables for that position are assigned a value of -1 for that round and subsequent rounds in which a parent interview is completed.

In rare cases, only in rounds 4 and 6, there are roster positions for which all values are system missing or -1 across all rounds but P4CUR_# = 2 or P6CUR_# = 2 (not a current household member). This may occur because a new household member was the respondent for round 3 or 5, when there was no roster completion or confirmation in the parent interview, and that person had left the household before the next parent interview in which complete household composition information was collected.[17]

Determining household membership in a given round. In round 1, respondents were not asked if persons were currently household members, because that was the first household enumeration for the study and all enumerated persons were household members at that time. For rounds 2, 4, 6, 7, 8, and 9 analysts can determine the current household membership at the time of the parent interview for the round by examining the variables P2CUR_#, P4CUR_#, P6CUR_#, P7CUR_#, P8CUR_#, and P9CUR_#, respectively. Analysts should not look for the first "empty" position in the roster series to determine the last person with roster data in the household, since, as noted above, all persons retain their household positions permanently; if person 3 leaves the household, then person 4 still remains in position 4.

---

[17] Because there was not a household roster in the fall 2011 or fall 2012 parent interviews, there are potentially other household members who were present in the fall of 2011 or the fall of 2012 and had left the household by the time of the subsequent parent interviews. There would be no record of these household members in the study.

7.5.2.3 Parent Identifiers and Type in the Household (X9IDP1, X9IDP2, X9HPAR1, X9HPAR2, X9HPARNT)

X9IDP1 and X9IDP2 indicate the positions in the household roster of the sampled child's residential parent/parent figure(s) in the spring of 2016.[18] The construction of parent identifiers and the household composition variables from the parent interview data was a multistep process. First, it was determined from household roster variables whether there was a mother (biological, adoptive, step-, or foster) and/or a father (biological, adoptive, step-, or foster) in the household. Using this information, the method described below was used to create X9IDP1 and X9IDP2 for the spring.

1. If there was only one mother (of any type, including unknown type) and only one father (of any type, including unknown type) in the household, the mother was identified as parent 1 (X9IDP1) and the father was identified as parent 2 (X9IDP2).

2. If there was only one mother (of any type, including unknown type) in the household and no other parent figure (of any type), the mother was identified as parent 1 and parent 2 is coded as -1 (not applicable). If there was a mother and she had a male spouse/partner in the household who was not identified as a father (of any type, including unknown type), the spouse/partner was identified as parent 2.

3. If there was only one father (of any type, including unknown type) in the household and no other parent figure (of any type), the father was identified as parent 1 and parent 2 is coded as -1 (not applicable). If there was a father and he had a female spouse/partner in the household who was not identified as a mother (of any type), the spouse/partner was identified as parent 1 and the father was identified as parent 2.

4. If there were two mothers (or a mother and female spouse/partner) in the household, an order of preference was used to identify one mother to be parent 1, with the order specified as biological, adoptive, step-, foster mother or female guardian, then other female parent or guardian.[19] The other mother was identified as parent 2. If there were two mothers of the same type (e.g., two adoptive mothers) or there were two mothers and the type for both was -7 (refused) or -8 (don't know), the mother with the lowest household roster number was identified as parent 1 and the other mother was identified as parent 2.

5. If there were two fathers in the household (or a father and male spouse/partner), an order of preference was used to identify one father to be parent 1, with the order specified as biological, adoptive, step-, foster father or male guardian, then other male parent or guardian. The other father was identified as parent 2. If there were two fathers of the same type (e.g., two adoptive fathers) or there were two fathers and the type for both was -7 (refused) or -8 (don't know), the father with the lowest household roster number was identified as parent 1 and the other father was identified as parent 2.

6. If there was no one in the household identified as a mother or father, then a female respondent or the female spouse or partner of a male respondent was identified as

[18] In the ECLS-K, the parent identifiers were P*MOMID and P*DADID and specifically identified the mother/female guardian and father/male guardians, respectively, in the household. The format of the parent identifiers was changed in the ECLS-K:2011 to allow for more accurate identification of households with two mothers/female guardians or two fathers/male guardians.

[19] There were new categories in the ECLS-K:2011 parent interview for "Other female parent or guardian" in FSQ140 and "Other male parent or guardian" in FSQ150 that were not included in the ECLS-K.

parent 1. If the female parent figure had a male spouse or partner, the spouse/partner was identified as parent 2. If the respondent was male and had a female spouse or partner, she was designated as parent 1 and he was designated as parent 2. For example, if a child lived with his grandmother (the respondent) and grandfather, and neither his mother nor father lived in the household, then the grandmother was identified as parent 1 and the grandfather was identified as parent 2. If the grandfather lived in the household, but no grandmother or parents lived there, the grandfather respondent would be parent 1 and parent 2 would be coded as -1. Demographic information such as age, race, and education was collected for these "parent figures."

Once parents/parent figures were identified, X9HPAR1 and X9HPAR2 were created to identify the specific relationship of parent 1 and parent 2 to the study child.[20] It should be noted, however, that for households in which the child lived with parent figures other than his or her mother and/or father, the parent figures identified in X9IDP1 and X9IDP2 were not defined as parents (meaning biological, step-, adoptive, or foster) for the construction of X9HPAR1 and X9HPAR2. For example, if there are a grandmother and grandfather and there are no parents listed in the household, X9HPAR1 and X9HPAR2 would be coded as category 15 (no resident parent).

X9HPARNT indicates the type(s) of parents living in the household with the study child. The values for the X9HPARNT composite are as follows:

- 1 = two biological/adoptive parents;
- 2 = one biological/adoptive parent and one other parent/partner;
- 3 = one biological/adoptive parent only; and
- 4 = other guardian(s).

When study children are living with parent figures (e.g., grandmother and grandfather), rather than biological, adoptive, step-, or foster parents, X9HPARNT is coded as 4.

The composite parent identifier variables X9IDP1 and X9IDP2 are used to determine which composite variables correspond to parent 1 and parent 2, respectively. These "pointer" variables indicate the household roster number of the person who was the subject of the questions being asked. All parent composite variables that include "PAR" and the number 1 in the variable name are associated with the person designated in X9IDP1, who is parent 1. All parent composite variables that include "PAR" and the number 2 in the variable name are associated with the person designated in X9IDP2, who is parent 2. In the spring 2016 parent interview, there are two sets of questions that were first asked about parent 1 and then asked about parent 2 if the household contained two parents.

[20] These variables are a combination of P*HMOM and P*HDAD from the ECLS-K.

- The first set of questions about parent 1 and parent 2 were about parent education. For parent education, there is also a second set of "pointer" variables that hold the household roster number of the person who was the subject of the education questions (P9PEQHH1 and P9PEQHH2). For the education questions, the pointer variables are applicable to up to two parents in the household. If there are two parents in the household, P9PEQHH1 and P9PEQHH2 are the roster numbers of the first and second parent, respectively. If there is only one parent in the household, P9PEQHH1 is the roster number of the first parent and P9PEQHH2 = -1 (not applicable). Since the parent education questions were asked only of parent(s) or parent figure(s) in the household, the value of parent education pointer variables is the same as the value for the composite parent identifier variables.

- The second set of questions about parent 1 and parent 2 asks about parent employment. There is also a set of "pointer" variables that hold the household roster number of the person who was the subject of the employment questions (P9EMPP1 and P9EMPP2). For the employment questions, the pointer variables are applicable to up to two parents in the household. If there are two parents in the household, P9EMPP1 and P9EMPP2 are the roster numbers of the first and second parent, respectively. If there is one parent in the household, P9EMPP1 is the roster number of the first parent and P9EMPP2 = -1 (not applicable). The value of employment pointer variables is the same as the value for the composite parent identifier variables.

To illustrate how the pointer variables work, suppose there is a household with both a mother and a father who were listed as the third and fifth individuals in the household roster. According to the rules outlined above, household member #3, the mother, becomes parent 1 and X9IDP1 equals 3. All applicable pointer variables for parent 1 will subsequently take on the value 3. Similarly, household member #4, the father, becomes parent 2 and X9IDP2 equals 4. All applicable pointer variables for parent 2 will subsequently take on the value 4.

Table 7-1 identifies the PEQ and EMQ section pointer variables included in the data file along with the interview items and variables associated with those pointer variables. The pointer variables are necessary to determine which parent should be assigned the answers to items about employment. Returning to the example above, the answers to the employment questions for the mother are stored in variables that end with the suffix "1" since the mother was identified as parent 1, and her household roster number is the value in X9IDP1. For example, P9EMPSIT1_I and P9EVRACTV1 indicate the mother's current employment situation and whether the mother has been on active duty in the military since the child was born, respectively. The answers to the employment questions for the father are stored in variables that end with the suffix "2" since the father was identified as parent 2, and his household roster number is the value in X9IDP2. For example, P9EMPSIT2_I and P9EVRACTV2 indicate the father's current employment situation and whether the father has been on active duty in the military since the child was born, respectively.

Table 7-1. Pointers to parent figure questions: School year 2015–16

Person pointer		Variable names and labels	
P9PLQHH1	P9 PLQ083-090 HH PERSON POINTER 1	P9RES_1	P9 PLQ083 PERSON 1 LANGUAGE TO CHILD
		P9CHL_1	P9 PLQ090 CHILD'S LANGUAGE TO PERSON 1
P9PLQHH2	P9 PLQ083-090 HH PERSON POINTER 2	P9RES_2	P9 PLQ083 PERSON 2 LANGUAGE TO CHILD
		P9CHL_2	P9 PLQ090 CHILD'S LANGUAGE TO PERSON 2
P9PEQHH1	P9 PEQ020–021 PERSON 1 ROSTER NUMBER	P9HIG_1	P9 PEQ020 PERS 1 HIGHEST EDUCATION LEVEL
		IFP9HIG_1	P9 IMPUTATION FLAG FOR P9HIG_1_I
		P9HIS_1	P9 PEQ021 IF PERS 1 HIGH SCHOOL DIPLOMA/GED
		IFP9HIS_1	P9 IMPUTATION FLAG FOR P9HIS_1_I
P9PEQHH2	P9 PEQ020–021 PERSON 2 ROSTER NUMBER	P9HIG_2	P9 PEQ020 PERS 2 HIGHEST EDUCATION LEVEL
		IFP9HIG_2	P9 IMPUTATION FLAG FOR P9HIG_2_I
		P9HIS_2	P9 PEQ021 IF PERS 2 HIGH SCHOOL DIPLOMA/GED
		IFP9HIS_2	P9 IMPUTATION FLAG FOR P9HIS_2_I
P9EMPP1	P9 EMQ020-215 PERSON 2 ROSTER NUMBER	P9EMPCHG_1_I	P9 EMQ010 EMPLOYMENT CHANGED
		IFP9EMPCHG_1	P9 IMPUTATION FLAG FOR P9EMPCHG_1
		P9PAY_1_I	P9 EMQ020 PERS 1 HAD PAID JOB LAST WEEK
		IFP9PAY_1	P9 IMPUTATION FLAG FOR P9PAY_1
		P9VAC_1_1	P9 EMQ030 IF PERS 1 ON LEAVE PAST WEEK
		IFP9VAC_1	P9 IMPUTATION FLAG FOR P9VAC_1
		P9JOB_1	P9 EMQ040 PERSON 1 NUMBER OF CUR JOBS
		P9HRS_1_I	P9 EMQ050 PERSON 1 HOURS/WK AT ALL JOBS
		IFP9HRS_1	P9 IMPUTATION FLAG FOR P9HRS_1
		P9LOK_1_I	P9 EMQ060 PERS 1 SOUGHT JOB LAST 4 WEEKS
		IFP9LOK_1	P9 IMPUTATION FLAG FOR P9LOK_1
		P9DO1_1_I	P9 EMQ070 PERS 1 CHKD W/PUB EMPL AGNCY
		IFP9DO1_1	P9 IMPUTATION FLAG FOR P9DO1_1
		P9DO2_1_I	P9 EMQ070 PERS 1 CHKD W/PRIV EMP AGNCY
		IFP9DO2_1	P9 IMPUTATION FLAG FOR P9DO2_1
		P9DO3_1_I	P9 EMQ070 PERS 1 CHKD W/EMPLOYR DIRECTLY
		IFP9DO3_1	P9 IMPUTATION FLAG FOR P9DO3_1
		P9DO4_1_I	P9 EMQ070 PERS 1 CHKD W/FRIENDS AND REL
		IFP9DO4_1	P9 IMPUTATION FLAG FOR P9DO4_1
		P9DO5_1_I	P9 EMQ070 PERS 1 PLACED OR ANSWERED ADS
		IFP9DO5_1	P9 IMPUTATION FLAG FOR P9DO5_1
		P9DO6_1	P9 EMQ070 PERS 1 CHKD SCHL/UNIV EMPL CTR
		IFP9DO6	P9 IMPUTATION FLAG FOR P9DO6_1
		P9D07_1	P9 EMQ070 PERS1 CHKD UNION/PROFSSL REG
		IFP9DO7	P9 IMPUTATION FLAG FOR P9DO7_1
		P9DO8_1	P9 ATTENDED JOB TRAINING
		P9DO9_1	P9 EMQ070 PERS 1 RD WANT ADS/INTRNT SRCH
		P9DO10_1	P9 EMQ070OS PERS 1 DID SOMETHING ELSE
		P9DOW_1	P9 EMQ080 WHAT PERSON 1 DOING LAST WEEK
		P9TAK_1	P9 EMQ100 PERS 1 COULD TAKE JOB LAST WK
		P9EVRACTV1	P9 EMQ210 PERS 1 SERVED ACTIVE DUTY
		P9CURACTV1	P9 EMQ215 PERS 1 CURR ON ACTIVE DUTY

See note at end of table.

Table 7-1. Pointers to parent figure questions: School year 2015–16—Continued

Person pointer		Variable names and labels	
P9EMPP2	P9 EMQ020-215 PERSON 2 ROSTER NUMBER	P9EMPCHG_2_I	P9 EMQ010 EMPLOYMENT CHANGED
		IFP9EMPCHG_2	P9 IMPUTATION FLAG FOR P9EMPCHG_2
		P9PAY_2_I	P9 EMQ020 PERS 1 HAD PAID JOB LAST WEEK
		IFP9PAY_2	P9 IMPUTATION FLAG FOR P9PAY_2
		P9VAC_2_2	P9 EMQ030 IF PERS 1 ON LEAVE PAST WEEK
		IFP9VAC_2	P9 IMPUTATION FLAG FOR P9VAC_2
		P9JOB_2	P9 EMQ040 PERSON 1 NUMBER OF CUR JOBS
		P9HRS_2_I	P9 EMQ050 PERSON 1 HOURS/WK AT ALL JOBS
		IFP9HRS_2	P9 IMPUTATION FLAG FOR P9HRS_2
		P9LOK_2_I	P9 EMQ060 PERS 1 SOUGHT JOB LAST 4 WEEKS
		IFP9LOK_2	P9 IMPUTATION FLAG FOR P9LOK_2
		P9DO1_2_I	P9 EMQ070 PERS 1 CHKD W/PUB EMPL AGNCY
		IFP9DO1_2	P9 IMPUTATION FLAG FOR P9DO1_2
		P9DO2_2_I	P9 EMQ070 PERS 1 CHKD W/PRIV EMP AGNCY
		IFP9DO2_2	P9 IMPUTATION FLAG FOR P9DO2_2
		P9DO3_2_I	P9 EMQ070 PERS 1 CHKD W/EMPLOYR DIRECTLY
		IFP9DO3_2	P9 IMPUTATION FLAG FOR P9DO3_2
		P9DO4_2_I	P9 EMQ070 PERS 1 CHKD W/FRIENDS AND REL
		IFP9DO4_2	P9 IMPUTATION FLAG FOR P9DO4_2
		P9DO5_2_I	P9 EMQ070 PERS 1 PLACED OR ANSWERED ADS
		IFP9DO5_2	P9 IMPUTATION FLAG FOR P9DO5_2
		P9DO6_2	P9 EMQ070 PERS 1 CHKD SCHL/UNIV EMPL CTR
		IFP9DO6	P9 IMPUTATION FLAG FOR P9DO6_2
		P9D07_2	P9 EMQ070 PERS1 CHKD UNION/PROFSSL REG
		IFP9DO7	P9 IMPUTATION FLAG FOR P9DO7_2
		P9DO8_2	P9 ATTENDED JOB TRAINING
		P9DO9_2	P9 EMQ070 PERS 1 RD WANT ADS/INTRNT SRCH
		P9DO10_2	P9 EMQ070OS PERS 1 DID SOMETHING ELSE
		P9DOW_2	P9 EMQ080 WHAT PERSON 1 DOING LAST WEEK
		P9TAK_2	P9 EMQ100 PERS 1 COULD TAKE JOB LAST WK
		P9EVRACTV2	P9 EMQ210 PERS 2 SERVED ACTIVE DUTY
		P9CURACTV2	P9 EMQ215 PERS 2 CURR ON ACTIVE DUTY

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), kindergarten–fifth grade restricted-use data file.

7.5.2.4 Parent Demographic Variables (X9PAR1AGE, X9PAR2AGE, X9PAR1RAC, X9PAR2RAC)

X9PAR1AGE is a composite variable for the age of parent 1 from the household roster (the person whose roster number is indicated in X9IDP1) and X9PAR2AGE is the composite variable for the age of parent 2 from the household roster (the person whose roster number is indicated in X9IDP2).[21] The ages of all household members (other than the child) who had their ages collected in the fall of 2010 or spring of 2011 were automatically incremented by five years for the spring 2016 parent interview. Age was incremented by four years for household members who were living in the household in the spring of 2012 and had age information collected in that interview but who were not in the household in the fall of 2010 or the spring of 2011. Age was incremented by three years for household members who were living in the household in the spring of 2013 and had age information collected in that interview but who were not in the household in the fall of 2010, the spring of 2011, or the spring of 2012. Age was incremented by two years for household members who were living in the household in the spring of 2014 and had age information collected in that interview but who were not in the household in the fall of 2010, the spring of 2011, the spring of 2012, or the spring of 2013. Age was incremented by one year for household members who were living in the household in the spring of 2015 and had age information collected in that interview but who were not in the household in the fall of 2010, the spring of 2011, the spring of 2012, the spring of 2013, or spring of 2014. For information about how the first and second parents were selected for these and other parent variables, see section 7.5.2.3 above.

The composite variables for race/ethnicity for the parent/guardians were derived in the same way as those for the child, except that there are no variables that supplement parent-reported race/ethnicity with FMS data as was done for children. All data on parent race/ethnicity come from the parent interview. Race/ethnicity information collected for parents in the spring 2016 parent interview is provided in the data file in categorical race/ethnicity composites (X9PAR1RAC for parent 1 in the household, the person whose roster number is indicated in X9IDP1, and X9PAR2RAC for parent 2, the person whose roster number is indicated in X9IDP2). Race and ethnicity information was collected only once for each parent/guardian. If race and ethnicity information was collected in the fall of 2010, spring of 2011, spring of 2012, spring of 2013, spring of 2014, or spring of 2015, it was not collected again in the spring of 2016. The questions about race and ethnicity were only asked in the spring 2016 parent interview to collect this information for parents/guardians who were new to the household in that round or when this information was missing for parents/guardians who lived in the household at the time of the spring 2016 interview.

---

[21] These variables are a combination of P*HDAGE and P*HMAGE in the ECLS-K.

Respondents were allowed to indicate that they, and the other parent figure when applicable, were Hispanic or Latino, and whether they belonged to one or more of the five race categories (White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander).[22] From these responses, a person's race/ethnicity was classified into eight mutually exclusive categories. A person's race/ethnicity was classified as "more than one race, non-Hispanic" if more than one race was specified and the answer to the question about being Hispanic or Latino was 2 (no). A person's race/ethnicity was classified as "Hispanic, race specified" if the answer to the question about being Hispanic or Latino was 1 (yes) and at least one race was indicated in the question about race. If a person was Hispanic or Latino, but a race was not indicated, that person's race/ethnicity was classified as "Hispanic, no race specified." The remaining race/ethnicity categories (White, non-Hispanic; Black or African-American, non-Hispanic; Asian, non-Hispanic; Native Hawaiian or Other Pacific Islander; non-Hispanic; and American Indian or Alaska Native, non-Hispanic) were coded according to the person's reported race when the person was not Hispanic or Latino. If the answer to the question about being Hispanic or Latino was -7, -8, or -9 (refused, don't know, or not ascertained, respectively), or if the person was not Hispanic/Latino and the answer to the question about race was -7, -8, or -9 (refused, don't know, or not ascertained, respectively), race/ethnicity was coded as -9 (not ascertained).

Parent race/ethnicity was obtained for all parents/guardians and spouses of respondent parents/guardians but may or may not have been collected for a parent's boyfriend or girlfriend. For example, in a household with a birth mother and stepfather, the race/ethnicity of both parents was obtained. However, in a household with a birth mother and her boyfriend, the race/ethnicity of the mother was obtained but the race/ethnicity of the boyfriend was not unless he was the respondent.[23]

7.5.2.5 Parent Education Variables (X9PAR1ED_I, X9PAR2ED_I)

There are two parent education composite variables on the file: X9PAR1ED_I (parent 1's highest level of education) and X9PAR2ED_I (parent 2's highest level of education). This composite variable describes the education level of parents who were in the household at the time of the spring 2016 interview. In spring 2016, questions were asked about the education level of all parents. In previous

[22] Unlike the ECLS-K, in the ECLS-K:2011 "other" was not a permitted response for the race question.

[23] In the spring of 2016, race/ethnicity information was collected for some persons who did not meet the criteria for having race and ethnicity questions asked in the spring of 2016 but did meet the criteria for having race and ethnicity collected in an earlier round of the study. Persons who have race and ethnicity on the file for spring 2016 include the study child, those with a relationship of mother/female guardian or father/male guardian in any round (P*REL_* = 1 or 2 or P*UNR = 3 or 4), those who were a respondent in any round (P*PER_* = 1), and persons who were spouse/partners of respondent parents in any round.

rounds of the study, parent education composites were generally based on the first round in which education questions were asked. The composite variables are based on reports of the parent's highest education level (P9HIG_1_I, P9HIG_2_I) and whether the parent had a high school degree or its equivalent, such as a GED (P9HIS_1_I, P9HIS_2_I). If the highest education level reported for a parent was in grades 0 through 12 (e.g., P9HIG_1_I = 11) and the parent had a high school degree or its equivalent (e.g., P9HIS_1_I = 1 or 2), or if the highest education level was 13 (high school equivalent/GED) or 14 (high school diploma), then the composite variable is coded as 3 (high school diploma or equivalent). Otherwise, the education composite is coded according to the value of the highest education level. Some codes on the highest education question were grouped together in the composite variable categories. The categories "vocational/technical after high school, but no vocational/technical diploma" and "vocational technical program after high school diploma" (e.g., P9HIG_1_I = 15 or 16) were coded as 4 (vocational/technical program). The categories "some college, but no degree" and "associate's degree" (P9HIG_1_I = 17 or 18) were coded as 5 (some college). The categories "doctorate degree" and "professional degrees after a bachelor's degree" (e.g., P9HIG_1_I = 22 or 23) were coded as 9 (doctorate or professional degree). The variables reflect the education level of the household member(s) corresponding to X9IDP1 and X9IDP2. For example, if X9IDP1 and X9IDP2 pointed to a child's grandmother and grandfather, then the highest level of education would be collected about these nonparent guardians. See section 7.5.2.3 for more detailed discussion of how X9IDP1 and X9IDP2 were determined. As described in section 7.5.2.8, education data are imputed if they are missing.

7.5.2.6 Parent Occupation Variables (X9PAR1EMP_I, X9PAR2EMP_I, X9PAR1OCC_I, X9PAR2OCC_I, X9PAR1SCR_I, X9PAR2SCR_I)

Several composites describe parents' employment status, their occupations, and the prestige of their occupations. The pointer variables for employment data, P9EMPP1 and P9EMPP2, are set to the same value as X9IDP1 and X9IDP2, and can be used to identify the household roster number of the individual(s) to which the data pertain.

X9PAR1EMP_I and X9PAR2EMP_I describe the work status of parent 1 and parent 2, respectively, and are based on the number of hours parents worked in the past week (e.g., P9HRS_1_I), or if a parent did not work, are based on activities the parent did to look for work (e.g., P9DO1_1_I). More specifically, X9PAR1EMP_I (parent 1 employment status) is coded as 1 (35 hours or more per week) if parent 1 worked 35 or more hours per week, and coded as 2 (less than 35 hours per week) if parent 1 worked 0 to 34 hours per week. X9PAR1EMP_I is coded as 2 (less than 35 hours per week) when P9HRS_1_I = 0 because the respondent indicated that the parent was employed even if he or she on average worked less than one hour per week. If parent 1 was actively looking for work (P9LOK_1_I = 1) and did one of seven activities to look for work (P9DO1_1_I = 1 (checked with a public employment agency); P9DO2_1_I = 1 (checked with a private employment agency); P9DO3_1_I = 1 (checked with an employer directly or sent a resume to an employer); P9DO4_1_I = 1 (checked with friends or relatives); P9DO5_1_I = 1 (placed or answered ads/sent a resume related to an ad); P9DO6_1_I (contacted school/university employment center); or P9DO7_1_I (checked a union register or professional register)),[24] then X9PAR1EMP_I is coded as 3 (looking for work). If parent 1 was not working for pay, not on vacation, and not looking for work (P9PAY_1 = 2 and P9VAC_1_I = 2 and P9LOK_1_I = 2), or if parent 1 was looking for work (P9LOK_1_I = 1) and the variables for the seven activities indicating the parent was actively looking for work were all coded as 2 (no), X9PAR1EMP_I is coded as 4 (not in the labor force).[25] X9PAR2EMP_I (parent 2 employment status) is created the same way as X9PAR1EMP_I, but uses the data linked to parent 2.

Imputation was performed on the variables (e.g., P9HRS_1_I, P9DO1_I) that were used to create the X9PAR1EMP_I and X9PAR2EMP_I composite variables. Variables that were imputed were those associated with questions about whether the parent had worked for pay in the last week or was on leave or vacation, hours worked in a typical week, whether the parent was looking for work and, if so, what the parent was doing to find work. Each variable has a separate imputation flag (e.g., IFP9PAY_1 is the imputation flag for P9PAY_1_I, the variable for whether parent 1 had paid job last week) indicating whether data were imputed for each case in the data file.

The composite variables for parent occupation, X9PAR1OCC_I and X9PAR2OCC_I, are coded based on information collected through questions in the parent interview about the name of the parent's employer, the type of business or industry in which the parent worked, the parent's job title, and the most important activities or duties the parent did for the job (EMQ120, EMQ130, EMQ140, and EMQ150). This identifying information is not included in the file due to confidentiality issues. It was used to code occupations into standard categories using the *Manual for Coding Industries and Occupations* (U.S. Department of Education, National Center for Education Statistics 1999). This coding manual was created for the National Household Education Surveys (NHES) Program and uses an aggregated version of occupation codes. There are 22 occupation codes in this coding scheme. If it was

[24] P9DO6_1_I (contacted school/university employment center) and P9DO7_1_I (checked a union register or professional register) were new variables that were added as activities indicating the respondent was looking for work and used for coding the employment composite in the spring of 2013.

[25] Because some persons were not looking for work according to the seven categories described above, even though it was reported that a parent was looking for work (P9LOK_1_I = 1), the parent is coded as not in the labor force (X9PAR1EMP_I = 4) rather than as looking for work (X9PAR1EMP_I = 3). If a parent was reported as looking for work (P9LOK_1_I =1), the questions about the parent's last occupation were asked. There are 95 cases with occupation data that are categorized as X9PAR1EMP = 4 (not in the labor force) because they indicated that all they were doing to look for work was looking at or reading want ads or some "other" activity that did not qualify them to be classified as looking for work according to the U.S. Bureau of Labor Statistics (2014); there are 40 cases with occupation data where X9PAR2EMP = 4.

unclear which of the 22 codes should be used for an occupation using this manual, the more detailed coding system in the *Standard Occupational Classification Manual—1980* (U.S. Department of Commerce, Office of Federal Statistical Policy and Planning, 1980) was used to identify the appropriate occupation code. The *Standard Occupational Classification Manual* is the full, detailed coding scheme of which the NHES coding scheme is a condensed version, and thus provides more detail for making coding decisions. The occupation codes are shown in exhibit 7-4.

Exhibit 7-4. Industry and occupation codes used in the ECLS-K:2011

1. Executive, Administrative, and Managerial Occupations

This category includes senior-level and middle management occupations and occupations that directly support management. Senior-level managers are persons concerned with policymaking, planning, staffing, directing, and/or controlling activities. Middle managers include persons who plan, organize, or direct and/or control activities at the operational level. Workers in this category are not directly concerned with the fabrication of products or with the provision of services. Other officials and administrators include consultants, library directors, custom house builders, and location managers. Legislators are also included in this category.

2. Engineers, Surveyors, and Architects

This category includes occupations concerned with applying principles of architecture and engineering in the design and construction of buildings, equipment and processing systems, highways and roads, and land utilization.

3. Natural Scientists and Mathematicians

This category includes those engaged primarily in the application of scientific principles to research and development. Natural scientists are those in the physical sciences (e.g., chemistry, physics) and the life sciences (e.g., biology, agriculture, medicine). In addition, this category includes those in computer science, mathematics (including statistics), and operations research.

4. Social Scientists, Social Workers, Religious Workers, and Lawyers

This category includes occupations concerned with the social needs of people and with basic and applied research in the social sciences.

5. Teachers: College, University, and Other Postsecondary Institution; Counselors, Librarians, and Archivists

This category includes those who teach at higher education institutions and at other postsecondary (after high school) institutions, such as vocational institutes. In addition, vocational and educational counselors, librarians, and archivists are included here.

Exhibit 7-4. Industry and occupation codes used in the ECLS-K:2011—Continued

6. Teachers, Except Postsecondary Institution

This category includes prekindergarten and kindergarten teachers, elementary and secondary teachers, special education teachers, instructional coordinators, and adult education teachers (outside postsecondary education).

7. Physicians, Dentists, and Veterinarians

This category includes health care professionals who diagnose and treat patients. In addition to physicians, dentists, and veterinarians, this category includes optometrists, podiatrists, and other diagnosing and treating professionals, such as chiropractors, hypnotherapists, and acupuncturists.

8. Registered Nurses, Pharmacists, Dieticians, Therapists, and Physician's Assistants

This category includes occupations concerned with the maintenance of health, the prevention of illness and the care of the ill through the provision and supervision of nursing care; compounding drugs, planning food service or nutritional programs; providing assistance to physicians; and the provision of therapy and treatment as directed by physicians.

9. Writers, Artists, Entertainers, and Athletes

This category includes occupations concerned with creating and executing artistic works in a personally interpreted manner by painting, sculpturing, drawing, engraving, etching, and other methods; creating designs for products and interior decorations; designing and illustrating books, magazines, and other publications; writing; still, motion picture, and television photography/filming; producing, directing, staging, acting, dancing, singing in entertainment; and participating in sports and athletics as a competitor or player and administering and directing athletic programs.

10. Health Technologists and Technicians

This category includes occupations concerned with providing technical assistance in the provision of health care. For example, clinical laboratory technologists and technicians, dental hygienists, radiologic technicians, licensed practical nurses (LPNs), and other health technologists are included here.

11. Technologists and Technicians, Except Health

This category includes those providing technical assistance in engineering and scientific research, development, testing, and related activities, as well as operating and programming technical equipment and systems.

12. Marketing and Sales Occupations

This category includes occupations involving selling goods or services, purchasing commodities and property for resale, and conducting wholesale or retail business.

Exhibit 7-4. Industry and occupation codes used in the ECLS-K:2011—Continued

13. Administrative Support Occupations, Including Clerks

This category includes occupations involving preparing, transcribing, transferring, systematizing, and preserving written communications and records; collecting accounts; gathering and distributing information; operating office machines and data processing equipment; operating switchboards; distributing mail and messages; and other support and clerical duties such as bank teller, data entry keyer, etc.

14. Service Occupations

This category includes occupations providing personal and protective services to individuals, and current maintenance and cleaning for building and residences. Some examples include food service, health service (e.g., aides or assistants), cleaning services other than household, and personal services.

15. Agricultural, Forestry, and Fishing Occupations

This category is concerned with the production, propagation (breeding/growing), gathering, and catching of animals, animal products, and plant products (timber, crop, and ornamental); the provision of services associated with agricultural production; and game farms, fisheries, and wildlife conservation.

16. Mechanics and Repairers

This category includes persons who do adjustment, maintenance, part replacement, and repair of tools, equipment, and machines. Installation may be included if it is usually done in conjunction with other duties of the repairers.

17. Construction and Extractive Occupations

This category includes occupations that normally are performed at a specific site, which will change over time, in contrast to production workers, where the work is usually at a fixed location. Construction workers include those in overall construction, brick masons, stonemasons, carpenters, electricians, drywall installers, paperhangers and painters, etc. Extractive occupations include oil well drillers, mining machine operators, and so on.

18. Precision Production Occupations

This category includes occupations concerned with performing production tasks that require a high degree of precision or attainment of rigid specification and operating plants or large systems. Included in this category are tool and die makers, pattern and model makers, machinists, jewelers, engravers, and so on. Also included are some food-related workers including butchers and bakers. Plant and system operators include water and sewage, gas, power, chemical, petroleum, and other plant or system operators.

19. Production Working Occupations

This category includes occupations concerned with setting up, operating, and tending of machines and hand production work, usually in a factory or other fixed place of business.

Exhibit 7-4. Industry and occupation codes used in the ECLS-K:2011—Continued

20. Transportation and Material Moving Occupations

This category includes occupations concerned with operating and controlling equipment used to facilitate the movement of people or materials and the supervising of those workers.

21. Handlers, Equipment Cleaners, Helpers, and Laborers

This category includes occupations that involve helping other workers and performing routine nonmachine tasks. A wide variety of helpers, handlers, etc., are included in this category. Examples include construction laborers, freight, stock, and material movers, garage and service station-related occupations, parking lot attendants, and vehicle washers and equipment cleaners.

22. Unemployed, Retired, Disabled, or Unclassified Workers

This category includes persons who are unemployed, have retired from the work force, or are disabled. It also includes unclassified occupations that do not fit into the categories above (e.g., occupations that are strictly military, such as "tank crew member" and "infantryman").

Once occupations were classified in X9PAR1OCC_I and X9PAR2OCC_I, they were assigned the average of the 1989 General Social Survey (GSS) prestige scores for occupations included within the 21 broad occupation codes, which is reported in variables X9PAR1SCR_I and X9PAR2SCR_I. If the parent's occupation was 22 (Unemployed, Retired, Unclassifiable), the prestige score was set to -9 (not ascertained). If the parent's occupation was -1 (No Occupation) on X9PAR1OCC_I or X9PAR2OCC_I, the prestige score was also coded as -1. Although the GSS prestige scores are from 1989, they are still being used by the current GSS survey and matched to 1980 census codes.[26] Because these prestige scores were also used for the ECLS-K 1998–99 cohort, they allow for comparisons to the ECLS-K. Table 7-2 provides the prestige score values for each occupation category.

Occupations were imputed if such information was not collected in the parent interview. Missing data for individual items related to parent employment were imputed first, and then those imputed data were used to compute the occupation composite variables if necessary (i.e., cases missing employment status that were imputed to be working or on leave from a job also had their occupation imputed and a prestige score assigned to the imputed occupation; cases missing data for the variables about looking for work and that were imputed to be actively looking for work (defined by EMQ070 answers 1-7) also had occupation imputed).

[26] New technology jobs that came into existence since 1989 were appropriately coded. For example, "website developer" was included in the "Technologists and Technicians, Except Health" category; "website sales" was included in the "Marketing and Sales Occupations" category; and "run web printer" was included in the "Production Working Occupations" category.

Table 7-2. Occupation categories and assigned prestige scores

Occupation category		Prestige score
1	Executive, Administrative, and Managerial Occupations	53.50
2	Engineers, Surveyors, and Architects	64.89
3	Natural Scientists and Mathematicians	62.87
4	Social Scientists, Social Workers, Religious Workers, and Lawyers	59.00
5	Teachers: College/University/Postsecondary; Counselors/ Librarians/Archivists	72.10
6	Teachers, Except Postsecondary Institution	63.43
7	Physicians, Dentists, and Veterinarians	77.50
8	Registered Nurses, Pharmacists, Dieticians, Therapists, and Physician's Assistants	61.56
9	Writers, Artists, Entertainers, and Athletes	52.54
10	Health Technologists and Technicians	57.83
11	Technologists and Technicians, Except Health	48.69
12	Marketing and Sales Occupations	35.78
13	Administrative Support Occupations, Including Clerks	38.18
14	Service Occupations	34.95
15	Agriculture, Forestry, and Fishing Occupations	35.63
16	Mechanics and Repairers	39.18
17	Construction and Extractive Occupations	39.20
18	Precision Production Occupations	37.67
19	Production Working Occupations	33.42
20	Transportation and Material Moving Occupations	35.92
21	Handlers, Equipment Cleaners, Helpers, and Laborers	29.60
22	Unemployed, Retired, Disabled, or Unclassified Workers (if a person was on leave from a job or unemployed and actively looking for work, he or she was asked the occupation questions. Category 22 was used only if a respondent reported an occupation that could not be classified in the coding scheme, "unemployed "or "retired.")	Because these occupations could not be classified, the prestige score is coded -9 (not ascertained)
-1	(No occupation)	When occupation is -1, the prestige score is also -1.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016 (K-5) data file.

The first stage of imputation was to use longitudinal imputation, where possible. In longitudinal imputation, values from a prior interview are carried forward when data from the round of interest are missing, provided the parent figure for whom data are being imputed was the same in both years. In the spring 2016 round, the complete employment module was administered, as it was in the base year through second grade. However in third and fourth grades, only a single employment item was asked, and it had four possible responses: working part-time, working full-time, a stay-at-home parent or guardian, and not working. Therefore the employment data from third and fourth grades are of limited value for imputing missing fifth grade employment data. Longitudinal imputation for missing employment items used the most recent available information for that parent from base year through second grade values. However information from the single employment question in fourth grade (and third grade, if necessary) were used in the following way for a parent with missing employment information in fifth grade. If the parent provided a response to the employment question in fourth grade, and if this indicated that the parent changed employment status between the second-grade and fourth-grade rounds (for example, from employed to not working, or from part-time to full-time employment), then instead of carrying forward the second-grade employment values to fifth grade, the fourth-grade employment response was used where possible, and any remaining missing information was imputed by hot deck imputation. For example, if the fourth-grade response indicated that parent 1 was "not working," then P9PAY_1_I and P9VAC_1_I are set to 2 (fifth-grade round variables for not working and not on vacation, respectively), and P9HRS_1_I to zero (fifth-grade round variable for number of hours worked), and their imputation flags indicate that longitudinal imputation was used. However the variables related to "looking for work" (P9LOK_1_I, P9DO*_1_I) were imputed by hot deck. If the employment and occupation data for a parent figure are missing for the spring of 2016, but the information is available from the spring 2013, and the parent figure is still employed or actively looking for work in fifth grade, then the spring 2013 values were used to impute the spring 2016 variables.[27]

Where longitudinal imputation was not possible, missing values were imputed using a hot deck method in which similar respondents and nonrespondents are grouped or assigned to "imputation cells," and a respondent's value is randomly "donated" to a nonrespondent within the same cell. Cells are defined by characteristics such as geographic region, school locale, school type, household type, age, race, education, and income. After imputation was completed, the average of the GSS prestige scores was assigned to each occupation code.

The imputation flag variables IFX9PAR1OCC and IFX9PAR1SCR indicate whether the occupation (X9PAR1OCC_I) and occupational prestige score (X9PAR1SCR_I) for parent 1 were imputed. These flags match in value because the prestige score (e.g., X9PAR1SCR_I) is coded directly from occupation (e.g., X9PAR1OCC_I). Similarly, the flags IFX9PAR2OCC and IFX9PAR2SCR indicate whether the occupation (X9PAR2OCC_I) and occupational prestige score (X9PAR2SCR_I) for parent 2 were imputed.

[27] Analyses were conducted to compare occupations in the spring of 2013 to those in the spring of 2016. Most parents (64 percent) had the same occupations between these two rounds, thus there was insufficient evidence to suggest that hot deck imputation should be used rather than longitudinal imputation. In addition, there were very few cases (less than 25) that were longitudinally imputed in spring 2016 from values obtained through previous round hot deck imputation.

7.5.2.7 Household Income and Poverty (X9INCCAT_I, X9POVTY_I)

Household income data were collected in the spring 2016 parent interview. Parents were asked to report income by broad range ($25,000 or less or more than $25,000) and by detailed range as shown in table 7-3.[28] The composite X9INCCAT_I was created using the detailed income range information. X9INCCAT_I was set to the value of P9INCLOW_I (detailed income range for those who reported the broad income range in P9HILOW_I as $25,000 or less) or P9INCHIG (detailed income range for those who reported the broad income range in P9HILOW_I as more than $25,000). When data for the broad range variable (P9HILOW_I) or one of the detailed range variables (P9INCLOW_I, P9INCHIG_I) were missing (i.e., coded as -7 (refused), -8 (don't know), or -9 (not ascertained)), income information was imputed.

Table 7-3. Detailed income range categories used in the parent interview: Spring 2016

Detailed income range	Total household income
1	$5,000 or less
2	$5,001 to $10,000
3	$10,001 to $15,000
4	$15,001 to $20,000
5	$20,001 to $25,000
6	$25,001 to $30,000
7	$30,001 to $35,000
8	$35,001 to $40,000
9	$40,001 to $45,000
10	$45,001 to $50,000
11	$50,001 to $55,000
12	$55,001 to $60,000
13	$60,001 to $65,000
14	$65,001 to $70,000
15	$70,001 to $75,000
16	$75,001 to $100,000
17	$100,001 to $200,000
18	$200,001 or more

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

If the parent figures in the household were the same at the time of the spring 2016 parent interview as at the time of the spring 2015 parent interview, income reported in the spring of 2015 was used for longitudinal imputation. If spring 2015 income was not available, but spring 2014 income was available and the parent figures were the same in 2016 as in 2014, then income reported in the spring of

[28] Starting at category 9 of the detailed income range, the categories for the income variable in the ECLS-K:2011 are different from those used in the ECLS-K. More narrow ranges of income were used at higher income levels in the ECLS-K:2011 in order to determine whether household income was near 200 percent of the federal poverty threshold given household size. If so, follow-up questions about exact income were asked.

2014 was carried forward to 2016.[29] Where longitudinal imputation was not possible, missing values were imputed using the hot deck method described in section 7.5.2.8. Cells were defined by characteristics such as geographic region, school locale, school type, household type, age, and race. When information used to define the imputation cells was missing for any of these variables in fifth grade, information was used from fourth, third, second, or first grades or the base year, where available. Imputation flag values for IFP9HILOW, IFP9INCLOW, and IFP9INCHIG identify cases for which longitudinal or hot deck imputation was conducted.

Reported income was used to determine household poverty status in the spring of 2016, which is provided in variable X9POVTY_I. For some households, more detailed information about household income than the ranges described above was collected. Specifically, when parent respondents reported a detailed household income range suggesting the household income was close to or lower than 200 percent of the U.S. Census Bureau poverty threshold for a household of its size, the respondents were asked to report household income to the nearest $1,000 (referred to as exact income) in order to determine household poverty status more accurately. Table 7-4 shows the reported detailed income categories for households of a given size for which respondents were asked the exact income question. For example, a respondent in a household with two people would have been asked to provide an exact income if the respondent had indicated that the household income was less than or equal to $30,000. Table 7-4 also shows how the income categories compare to the value that is 200 percent of the weighted average 2015 poverty threshold.[30] The 2015 weighted poverty thresholds were used for the poverty composite because respondents in the spring of 2016 were asked about household income in the past year. As noted in Table 7-4, the 2015 poverty thresholds were compared to the 2014 thresholds that were available at the time of programming.

When information about exact household income was available (P9TINCTH_I), it was used in conjunction with household size (X9HTOTAL) to calculate the poverty composite. When exact income was not available because the exact income question was not asked, the midpoint of the detailed income category (X9INCCAT_I) was used in conjunction with household size (X9HTOTAL).[31]

---

[29] No adjustment was made for inflation when household income was longitudinally imputed from a prior round.

[30] The CAPI program used to conduct the parent interview was programmed to only ask for exact income when parent respondents reported a detailed household income range suggesting the household income was close to or lower than 200 percent of the U.S. Census Bureau poverty threshold for a household of its size. Although the parent interview in which this information was collected was conducted in the spring of 2016, the 2014 poverty thresholds were used for instrument programming because they were the most recent thresholds available when programming was done. The question about exact income was asked for the following conditions: (NUMBER IN HH = 1 AND PAQ.110 < 6) OR (NUMBER IN HH = 2 AND PAQ.110 < 8) OR (NUMBER IN HH = 3 AND PAQ.110 < 9) OR (NUMBER IN HH = 4 AND PAQ.110 < 11) OR (NUMBER IN HH = 5 AND PAQ.110 < 13) OR (NUMBER IN HH = 6 AND PAQ.110 < 14) OR (NUMBER IN HH = 7 AND PAQ.110 < 16) OR (NUMBER IN HH = 8 AND PAQ.110 < 17) OR (NUMBER IN HH is greater than or equal to 9 AND PAQ.110 < 17).

[31] Because exact income information was not collected from all parents, the ECLS-K:2011 provides an approximate but not exact measure of poverty.

Table 7-4. Criteria for reporting income to the nearest $1,000 in the spring parent interview and 2015 thresholds for 200 percent of poverty: Spring 2016

Household size	ECLS-K:2011 parent interview income categories	200 percent of weighted average thresholds for 2015[1, 2]
Two	Less than or equal to $35,000	$30,782 or less
Three	Less than or equal to $40,000	$37,742 or less
Four	Less than or equal to $50,000	$48,514 or less
Five	Less than or equal to $60,000	$57,482 or less
Six	Less than or equal to $65,000	$65,084 or less
Seven	Less than or equal to $75,000	$73,996 or less
Eight	Less than or equal to $100,000	$82,058 or less
Nine or more	Less than or equal to $100,000	$98,354 or less

[1] U.S. Census Bureau, Current Population Survey. Poverty Thresholds for 2015 by Size of Family and Number of Related Children Under 18 Years Old, retrieved 9/28/2016 from http://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html.
[2] The 2015 weighted poverty thresholds were used for the poverty composite because respondents in the spring of 2016 were asked about household income in the past year. At the time that the spring 2016 parent interview was finalized, the most updated poverty thresholds available were the weighted 2014 poverty thresholds. Poverty thresholds for 2014 were similar to the poverty thresholds for 2015. However, because of differences in one category, exact income should have been asked for one narrow range of incomes according to the 2015 thresholds, but it was not asked because the 2014 thresholds were used. Using the 2015 poverty thresholds rather than the 2014 poverty thresholds, cases with six household members and an income between $65,001 and $65,084 were not asked exact income when they should have been.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

Household poverty status in the spring of 2016 was determined by comparing total household income reported in the parent interview to the weighted 2015 poverty thresholds from the U.S. Census Bureau (shown in table 7-5), which vary by household size. Although the parent interview was conducted in the spring of 2016, the 2015 weighted poverty thresholds were used in the derivation of the poverty composite because respondents were asked about household income in the past year. Exact income (P9TINCTH_I) was asked in the parent interview or imputed for all persons in categories 1 and 2 of the poverty composite. Imputation of exact income was conducted according to thresholds in the parent interview. Households with an exact income that fell below the appropriate threshold were classified as category 1, "below the poverty threshold," in the composite variable. Households with an exact income that was at or above the poverty threshold but below 200 percent of the poverty threshold were classified as category 2, "at or above the poverty threshold, but below 200 percent of the poverty threshold," in the composite variable. Households with a total income (either exact or the income representing the midpoint of the detailed range reported by the composite) that was at or above 200 percent of the poverty threshold were classified as category 3, "at or above 200 percent of the poverty threshold," in the composite variable.[32] For example, if a household contained two members and the household income was lower than $15,391, the household was considered to be below the poverty threshold and would have a value of 1 for the composite. If a household with two members had an income of $15,391 or more, but less than

[32] In the ECLS-K:2011, there are three categories in the poverty composite rather than two categories for "below poverty threshold" and "at or above poverty threshold" as there were in the ECLS-K. The ECLS-K:2011 categories 2 and 3 can be combined to create a poverty composite variable comparable to the ECLS-K poverty composite variable.

$30,782 (200 percent of the poverty threshold for a household of two), the composite would have a value of 2. If a household with two members had an income of $30,782 or more, the composite would have a value of 3.

Table 7-5. ECLS-K:2011 poverty composite and 2015 census poverty thresholds: Spring 2016

Household size poverty threshold	Census weighted average poverty thresholds for 2015 (X9POVTY_I = 1)[1]	100 percent to less than 200 percent of census weighted average poverty thresholds for 2015 (X9POVTY_I = 2)[1]	Census weighted average thresholds for poverty 2015[1]
Two	Less than $15,391	$15,391 to less than $30,782	$15,391
Three	Less than $18,871	$18,871 to less than $37,742	$18,871
Four	Less than $24,257	$24,257 to less than $48,514	$24,257
Five	Less than $28,741	$28,741 to less than $57,482	$28,741
Six	Less than $32,542	$32,542 to less than $65,084	$32,542
Seven	Less than $36,998	$36,998 to less than $73,996	$36,998
Eight	Less than $41,029	$41,029 to less than $82,058	$41,029
Nine or more	Less than $49,177	$49,177 to less than $98,354	$49,177

[1] U.S. Census Bureau, Current Population Survey. Poverty Thresholds for 2015 by Size of Family and Number of Related Children Under 18 Years Old, retrieved 9/28/2016 from http://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

7.5.2.8 Socioeconomic Status (SES) (X9SESL_I)

SES was computed at the household level using data from collected parents who completed the parent interview in the spring of 2016.[33] The SES variable reflects the socioeconomic status of the household at the time of data collection. The five components used to create the SES are as follows:

- Parent/guardian 1’s education;
- Parent/guardian 2’s education;
- Parent/guardian 1’s occupational prestige score;
- Parent guardian 2’s occupational prestige score; and
- Household income.

[33] In the fall of 2011, spring of 2012, and spring 2016, occupation prestige scores were included as individual variables and, along with income and education, were used to create a composite variable for socioeconomic status (SES). In the spring of 2013, occupation prestige scores were included as individual variables, but parents were not asked for education information and thus the composite for socioeconomic status was not created.

Not all parents completed the parent interview in the spring of 2016; among those who did, not all responded to every question. There are 7,954 children for whom no spring 2016 parent interview was completed. Table 7-6 shows the numbers of cases with missing data on each of the five component variables used to compute SES, among the 10,220 children who had an otherwise complete parent interview.

Table 7-6. Missing data for socioeconomic status (SES) source variables, fifth grade year: School year 2015–16

Variable	Number missing	Percent
Parent/guardian 1's education	956	9.35
Parent/guardian 2's education	741	7.25
Parent/guardian 1's occupation	1,014	9.92
Parent/guardian 2's occupation	789	7.72
Detailed income range	1,775	17.37

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

In order to provide SES data for as many children who had an otherwise complete parent interview as possible, missing values were imputed for each of the individual items used to compute the composite variables that factor into the derivation of SES, namely parent education, employment, occupational prestige, and household income. For example, missing values for highest grade completed (P9HIG_*n*_I) and diploma status (P9HIS_*n*_I) were imputed for cases for which these items were asked in the spring of 2016 but the data were missing (-7 (refused), -8 (don't know), or -9 (not ascertained)) and those imputed data were used to compute the parent education composite variables. Missing data for individual items related to parent employment (whether the parent had worked for pay in the last week or was on leave or vacation, hours worked in a typical work week, whether the parent was looking for work and if, so, what the parent was doing to find work) were imputed, and then those imputed data were used to compute the occupation composite variables if necessary (i.e., cases missing employment status that were imputed to be working or on leave from a job also had their occupation imputed and a prestige score assigned to the imputed occupation; cases missing data for the variables about looking for work and that were imputed to be actively looking for work (defined by EMQ070 answers 1-7) also had occupation imputed). The different income category variables were also imputed.

Two methods were used to impute missing data: longitudinal imputation and hot deck imputation. Longitudinal imputation (carrying forward a previous round value) was sometimes used when previous round data were available for the items for which data were missing in the spring of 2016. For example, in some cases a parent interview broke off before the questions in the employment section were asked, but employment and occupation data for the parent(s) in the household are available from previous rounds. Similarly, for some cases data for the income variables were reported in a previous round but not in the spring 2016 parent interview. Longitudinal imputation was used to impute data for the various employment and occupation items only for parent figures who were household members in spring 2016 and a previous round. Longitudinal imputation was used for household income items only if there was no change in parent figures in the household (that is, the two parents or only parent present in an earlier round remained in spring 2016). Values imputed in this manner are flagged as being imputed longitudinally.

When longitudinal imputation was not possible (either because there was a change in parent figures or previous round data were not available), hot deck imputation was used. In hot deck imputation, the value reported by a respondent for a particular component variable (e.g., highest grade completed or occupation) is assigned or "donated" to a "similar" person who failed to respond to that question. Auxiliary demographic information known for both donors and nonrespondents is used to form imputation cells that include donors and nonrespondents with similar values for the characteristics that define the cells. The specific demographic characteristics used to define imputation cells varied by the component being imputed, as noted below. The imputed value for a case with a missing value is taken from a randomly selected donor among the respondents within the cell.

For each imputed variable, imputation cells were created using demographic characteristics that were the best predictors of the variable. Characteristics such as census region, school type (public/Catholic/non-Catholic religious/private nonsectarian), school locale (city/suburb/town/rural), household type (female single parent/male single parent/two parents), parents' race/ethnicity, and parents' age range were used to form the cells. Chi-square automatic interaction detector (CHAID) analyses were used to determine these predictors.

The order of imputation is parent 1's education variables; parent 2's education variables; parent 1's labor force status variables; parent 1's occupation; parent 2's labor force status variables; parent 2's occupation; detailed income range when the broad income range is known; detailed income range when the broad income range is not known; and exact income where applicable based on household income and detailed income range. Imputation cells for each component imputed were created using the other components, when possible.

The hot deck imputation was implemented as follows:

- For households with both parents present, parent 1's and parent 2's variables were imputed separately.
- Imputed as well as reported values were used to create imputation cells. For any given component, the imputation cells were created using (1) collected and imputed data for those variables that were imputed before the given component, and (2) collected data only for those variables that were imputed after the given component.
- Values imputed by hot deck were not donated.

After imputation was completed, the occupational prestige variables (X9PAR1SCR_I and X9PAR2SCR_I) were created by assigning the average of the 1989 GSS prestige score associated with parent occupation, as described above in section 7.5.2.6.

Upon completion of imputation, the composite variables that are used in the computation of SES were created. These are parent education (X9PAR1ED_I and X9PAR2ED_I), parent occupational prestige scores (X9PAR1SCR_I and X9PAR2SCR_I), and household income (X9INCCAT_I). Although imputation was conducted at the level of the component variables used to compute these composites, the names of the composites themselves also carry the _I designation to indicate that they contain imputed data. These composite variables do not have their own imputation flags. The imputation flags associated with the variables used to compute the composites can be reviewed to identify cases for which the composite is based on imputed data.[34]

The values of each SES component were then normalized so that the component had a mean of 0 and a standard deviation of 1. In this normalization step, -1 (not applicable) values are treated as missing. This is also known as the *z*-score. For the *h*-th SES component, a *z*-score z_{hi} for the *i*-th household was computed as

$$z_{hi} = \frac{x_{hi} - \bar{x}_w}{sd(\bar{x}_w)},$$

where x_{hi} is the value of the *h*-th SES component for the *i*-th household; $\bar{x}_w$ is the weighted mean[35] of x_{hi}; and $sd(\bar{x}_w)$ is the standard deviation of $\bar{x}_w$. Note that where *h* is household income, x_{hi} is the natural log of the midpoint of the detailed income range. The weight used to compute the *z* score was the spring 2016 child base weight, W9CI0.

[34] The questionnaire items about occupation (job title, job activities, employer, industry) are not included in the data file; the imputation flags for occupation are associated with the occupation composite variables.
[35] The fifth-grade base weight (i.e., sample weight) adjusted for base-year nonresponse and mover subsampling was used.

The SES variable for the *i*-th household was then computed as

$$SES_i = \frac{\sum_{h=1}^{m} z_{hi}}{m},$$

where *m* is the number of components. Note that for households with only one parent present and for parents who were retired or not currently in the labor force, not all the components were defined. In these cases, the SES is the average of the *z*-scores of the available components.

7.5.2.9 Respondent ID and Relationship to Focal Child (X9RESID, X9RESREL2)

The respondent to the parent interview was a person identified as the household member who knew the most about the child's care, education, and health. X9RESID indicates the household roster number of the spring 2016 parent interview respondent. The relationship variables (P9REL_1-P9REL_25, P9MOM_1-P9MOM_25, P9DAD_1-P9DAD_25, and P9UNR_1-P9UNR_25) associated with the respondent's household roster number were used to code X9RESREL2. If the respondent was a biological mother or father, X9RESREL2 is coded as 1 (biological mother) or 4 (biological father), respectively. If the respondent was an adoptive, step-, or foster mother or father, or other female or male guardian, X9RESREL2 is coded as 2 (other mother type) or 5 (other father type), respectively. If the respondent was a mother or father but the type of mother (P9MOM_#) or father (P9DAD_#) was coded as -7 (refused), -8 (don't know), or -9 (not ascertained), X9RESREL2 is coded as 3 (mother of unknown type) or 6 (father of unknown type).[36] If the respondent was a grandparent, aunt, uncle, cousin, sibling, or other relative, X9RESREL2 is coded as 7 (nonparent relative). If the respondent was a girlfriend or boyfriend of the child's parent or guardian; a daughter or son of the child's parent's partner; other relative of the child's parent's partner; or another nonrelative, X9RESREL2 is coded as 8 (nonrelative). Otherwise, X9RESREL2 is coded as -9 (not ascertained). Because the interviewer initially asked to speak with the previous round respondent at the beginning of the spring 2016 parent interview, the respondent for previous interviews (X*RESID) was the same person for many cases.

[36] Categories for mothers and fathers of unknown type were new for the spring 2012 composite. Mothers and fathers of unknown type were included in the categories "other mother type" and "other father type" for the fall 2010 and spring 2011 composites, X1RESREL and X2RESREL.

7.5.2.10 Food Security Status

The food security status of the children's household was determined by responses to the 18 food security questions (P9WORRFD through P9NOMONY) asked in section FDQ of the spring 2016 parent interview.[37] The questions measured the households' experiences related to food insecurity and reduced food intake in the last 12 months. Questions were asked about adults' experiences separately from the experiences of the children in the household.[38] They were combined into scales using statistical methods based on the Rasch measurement model. The food security questions were developed by academic researchers using ethnographic and case-study methods with low-income women and families to identify natural language used to describe their situations and behaviors when they had difficulty obtaining enough food. The scales derived from the food security questions were validated using statistical methods based on item response theory and by comparing measured food security with other indicators of food adequacy. Composites were created that indicate the food security status of the child's household generally (based on all 18 adult and child items), as well as the food security status of the adults (based on 10 household- and adult-referenced items) and of the children (based on 8 child-referenced items) in the household separately.

When interpreting food security statistics, users should keep in mind that food security status is a household-level characteristic. In most households classified as having very low food security, the children in the household were not food insecure at that level of severity. Young children in U.S. households are generally protected from disrupted diets and reduced food intake to a greater extent than are older children or adults in the same households (Nord and Hopwood 2007). The household scale combines adult and child items and reflects primarily experiences of adults in the household. The child scale is more likely to reflect the food security of the sampled child, but it may reflect, primarily, the experiences of elder siblings of the sampled child if any are present. The questions refer to conditions among any or all of the children in the household. Thus, for many research applications, the adult scale may be preferred instead of the household scale or children's scale. In other applications, the household or children's scale may be used with controls for the presence and age of older children in the household.

Calculations of the scales indicating household food security and adult food security were carried out in accordance with the standard methods described in *Guide to Measuring Household Food*

---

[37] Some of the item numbers for these variables are different from those used in the ECLS-K because the food security section was reordered in the ECLS-K:2011. Three items (FDQ160, FDQ170, and FDQ180) also had slight wording changes compared to how they were asked in the ECLS-K. Composites that involve items with wording changes relative to the ECLS-K have a "2" at the end of them.

[38] In spring 2011, spring 2012, and spring 2016, questions were asked about adults' experiences separately from the experiences of the children in the household. In spring 2014 and spring 2015, to reduce respondent burden, a shorter 10-item version of this measure suggested by the United States Department of Agriculture (USDA) was used to measure adult food security. The adult food security measure can be used to predict child food security.

Security, Revised 2000 (U.S. Department of Agriculture 2000). Calculations of the scale indicating children's food security were carried out in accordance with the standard methods described in *Measuring Children's Food Security in U.S. Households, 1995–99* (U.S. Department of Agriculture 2002). Analysis of the ECLS-K:2011 data using statistical methods based on the Rasch measurement model found that item severity parameters in the ECLS-K:2011 data were near enough to the standards benchmarked by the Current Population Survey Food Security Supplement that it was appropriate to use the standard benchmark household scores, which are based on the latter data source.

7.5.2.10.1 Food Security Status: Raw Scores (X9FSRAW2, X9FSADRA2, and X9FSCHRA)

The household food security raw score, X9FSRAW2, is a count of affirmative responses to the 18 food security items, and an ordinal-level measure of food insecurity. It can be used in analyses as an ordinal measure of food insecurity or to identify more severe or less severe categories of food insecurity than those identified in the categorical food security variables described in section 7.5.2.10.3. The raw score is ordinal, not interval, so it should not be used when a linear measure is required, such as for calculation of a mean. Responses to items skipped because of screening are assumed to be negative for the purpose of creating the score. For cases that have some missing data but at least some valid responses, missing responses were considered to be negatives. Cases with no valid responses to any of the 18 food security items are coded as missing -9 (not ascertained). X9FSRAW2 is based on 18 items, with a potential range of 0 to 18, but in the round 9 data ranges from 0 to 17. X9FSADRA2 is the adult food security raw score, which is a simple count of the number of household- and adult-referenced food security items affirmed by the parent, and ranges from 0 to 10. X9FSCHRA is the children's food security raw score, which is a simple count of the number of child-referenced food security items affirmed by the parent. It ranges from 0 to 8.

Responses to items skipped because of screening are assumed to be negative for the purpose of creating the score. For cases that have some missing data but at least some valid responses, missing responses were considered to be negatives. Cases with no valid responses to any of the 18 food security items, or those with all -7 (refused) or -8 (don't know) answers to P9WORRFD, P9FDLAST, P9BLMEAL, P9LOWCST, P9NOBAL, and P9CANTAF are coded as missing -9 (not ascertained). Definitions for negative and affirmed values of food security items are shown in exhibit 7-5.

Exhibit 7-5. Definitions of negative and affirmed values for the food security items in the ECLS-K:2011 kindergarten–fifth grade restricted-use data file

Question number	Negative responses (coded 0)	Affirmative responses (coded 1)
FDQ130A	3 (never true)	1 (often true); or 2 (sometimes true)
FDQ130B	3 (never true)	1 (often true); or 2 (sometimes true)
FDQ130C	3 (never true)	1 (often true); or 2 (sometimes true)
FDQ140	2 (no); or screened out in previous questions	1 (yes)
FDQ150	3 (only 1 or 2 months; FDQ140 = 2; or screened out in previous questions	1 (almost every month); or 2 (some months, but not every month)
FDQ160	2 (no); or screened out in previous questions	1 (yes)
FDQ170	2 (no); or screened out in previous questions	1 (yes)
FDQ180	2 (no); or screened out in previous questions	1 (yes)
FDQ190	2 (no); or screened out in previous questions	1 (yes)
FDQ191	3 (only 1 or 2 months); FDQ190 = 2; or screened out in previous questions	1 (almost every month); or 2 (some months, but not every month)
FDQ192A	3 (never true)	1 (often true); or 2 (sometimes true)
FDQ192B	3 (never true)	1 (often true); or 2 (sometimes true)
FDQ192C	3 (never true)	1 (often true); or 2 (sometimes true)
FDQ210	2 (no); or screened out in previous questions	1 (yes)
FDQ240	2 (no); or screened out in previous questions	1 (yes)
FDQ242	2 (no); or screened out in previous questions	1 (yes)
FDQ243	3 (only 1 or 2 months); FDQ242 = 2; or screened out in previous questions	1 (almost every month); or 2 (some months, but not every month)
FDQ250	2 (no); or screened out in previous questions	1 (yes)

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011), kindergarten-fifth grade (K-5) restricted-use data file.

7.5.2.10.2 Food Security Status: Continuous Measures (X9FSSCAL2, X9FSADSC2, and X9FSCHSC)

X9FSSCAL2 is the scale score presentation of the household food security items. It is a continuous, interval-level measure of food insecurity and is appropriate for linear models, such as correlation, regression, or analysis of variance. This scale score is a Rasch transformation of the raw score (X9FSRAW2). Valid values range from 1.4 to 12.2, with higher values indicating more severe food deprivation. Under Rasch-model assumptions, the scale score for households that affirm no items (raw score = 0) is undefined. It is less than the lowest measured value (1.4), but its precise value is unknown and may vary substantially among households. X9FSSCAL2 for such cases is assigned a value of -6. These households are food secure, but the appropriate size of the interval between their score and the score of households that affirmed one item is not known and varies from household to household. If these cases (a substantial majority of all cases) are included in linear models, appropriate methods must be used. If the food security scale score is a predictor variable, a value of 0 may be assigned to cases with a raw score of 0 and a dummy variable added to identify households with a raw score of 0.

X9FSADSC2 is the adult food security scale score. This is a measure of the severity of food insecurity experienced by adults in the household in the previous 12 months. It is a continuous, interval-level measure based on the Rasch measurement model and is appropriate for linear models, such as correlation, regression, or analysis of variance. It is on the standard (logistic-unit) metric described in *Guide to Measuring Household Food Security, Revised 2000* (U.S. Department of Agriculture 2000) (for households without children). Valid values range from 1.7 to 11.1, with higher values indicating more severe food deprivation. The scale score is undefined for households that affirmed no adult-referenced items and is coded -6 (see discussion of X9FSSCAL2 above).

X9FSCHSC is the children's food security scale score. This is a measure of the severity of food insecurity experienced by children in the household in the previous 12 months. It is a continuous, interval-level measure based on the Rasch measurement model and is appropriate for linear models, such as correlation, regression, or analysis of variance. It is on the standard (logistic-unit) metric described in *Measuring Children's Food Security in U.S. Households, 1995–99* (U.S. Department of Agriculture 2002). Valid values range from 4.1 to 12.2, with higher values indicating more severe food deprivation. The scale score is undefined for households that affirmed no child-referenced items and is coded -6 (see discussion of X9FSSCAL2 above).

7.5.2.10.3 Food Security Status: Categorical Measures (X9FSSTAT2, X9FSADST2, and X9FSCHST)

X9FSSTAT2 is a categorical measure of household food security status based on the household's food security raw score, X9FSRAW2. X9FSSTAT2 assigns households into one of three ordered categories: food secure (raw scores 0-2), having low food security (raw scores 3-7), and having very low food security (raw scores of 8 or more). The two categories "low food security" and "very low food security" together make up the more general category, food insecurity. X9FSSTAT2 is appropriate for comparing percentages of households with food insecurity or very low food security across subpopulations and can be used as a categorical variable in associative models.

X9FSADST2 is a categorical measure of adults’ food security status based on the household’s adult food security raw score, X9FSADRA2. X9FSADST2 identifies households as food secure (raw scores 0-2), having low food security among adults (raw scores 3-5), or having very low food security among adults (raw scores of 6 or more). Users may combine the latter two categories as indicating food insecurity among adults. This variable is appropriate for comparing percentages of households with food insecurity among adults and very low food security among adults across subpopulations.

X9FSCHST is a categorical measure of children’s food security status based on the children’s food security raw score, X9FSCHRA. X9FSCHST identifies households as having only food secure children (raw scores 0-1), having low food security among children (raw scores 2-4), or having very low food security among children (raw scores 5-8). The two categories “low food security among children” and “very low food security among children” together make up the more general category, food insecurity among children (alternatively described as “households with food insecure children”). X9FSCHST is appropriate for comparing percentages of households with food insecurity among children and very low food security among children across subpopulations. When interpreting children’s food security statistics, users should remember that these variables represent the most severe food insecurity experienced by any child in the household and may not reflect experiences of the child in the ECLS-K:2011 study if there are other children—especially older children—in the household.

7.5.3 Teacher Composite Variables

In addition to the teacher data flags discussed in section 7.4.3 above, there are several composite variables on the file that use data from teachers. For example, there are composite variables created from teacher reports about the child’s approaches to learning and self-control (X9TCHAPP, X9TCHCON). These two variables are described in chapter 3 (section 3.4.1), along with other variables derived from teacher reports of children’s social skills. Other variables that use teacher data are about the child’s grade level (e.g., X9GRDLVL) and are discussed above in section 7.5.1 about the child composites.

7.5.4 School Composite Variables

Variables describing children's school characteristics were constructed using data from the teacher, the school administrator, and the sample frame. Details on how these variables were created are provided below.

A change in approach to school composite variables was implemented starting in spring 2014 and this approach was also used in spring 2015 and spring 2016. ECLS-K:2011 data were prioritized over school master file[39] data in assigning values to school composites. As a result, data from the school administrator questionnaire were used for the current round or the most recent available prior round before using current school master file data to assign composite values.

Because many children move from one school to another over the course of the study, the construction of school composites (e.g., school type) can be challenging when current-round data are missing or when items are not asked in the current round if the school submitted an SAQ in a prior round. Using the school value for a child from a prior round can be erroneous due to children moving. As a result, many school composites are constructed by combining data across years at the school level, calculating the composite value, and then assigning that value to participating children currently enrolled in the school.

7.5.4.1 School Type (X9SCTYP)

In the spring of 2016, the questionnaire given to administrators (SAQ) contained a question on school type that was used in the creation of the spring school type composite (X9SCTYP). School master file data were used if school responses were not available from any ECLS-K:2011 round.

X9SCTYP was created as follows: If question A5 in the SAQ ("Which of the following characterizes your school?") was answered as "a regular public school (not including magnet school or school of choice)" (S9REGPSK); "a public magnet school" (S9MAGSKL); or "a charter school" (S9CHRSKL); the school was coded as "public." If the question was answered as "a Catholic school" of any type (S9CATHOL, S9DIOCSK, S9PARSKL, or S9PRVORS), the school was coded as "Catholic." If the question was answered as "other private school, religious affiliation" (S9OTHREL), the school was

[39] The school master file was created for the ECLS-K:2011 from the Common Core of Data (CCD) for public schools, the Private School Universe Survey (PSS) for private schools, and other data sources. It is updated regularly as new files from those surveys become available.

coded as "other religious." Otherwise, if the question was answered as "private school, no religious affiliation" (S9OTNAIS, S9OTHRNO), then the school was coded as "other private."

If data about school type were missing from the SAQ for the current round or prior rounds, information about school type from the school master file (which included FMS and frame data) was used to create X9SCTYP.[40]

Homeschooled children have a code of -1 (not applicable) on X9SCTYP.[41] Children who changed schools and were not followed and children who were not located in the spring of 2016 have a code of -9 (not ascertained) for X9SCTYP. The variable X9SCTYP is set to system missing for children who were not participants in the spring 2016 round. In addition, nonparticipants have a value of 990000000 on the variable F9CCDLEA.

7.5.4.2 Public or Private School (X9PUBPRI)

X9PUBPRI is a broad indicator of school type with only two categories—public and private. X9PUBPRI, which is derived from the more detailed school type variable X9SCTYP described above, has valid values for the 12,346 cases that have either child assessment or parent interview data in round 9.

This composite was created as follows: X9PUBPRI is coded 1 (public) if school type indicated in X9SCTYP is 4 (public). X9PUBPRI is coded 2 (private) if school type indicated in X9SCTYP is 1, 2, or 3 (Catholic, other religious, or other private). If the school identification number for spring 2016 indicated that the child was homeschooled, then X9PUBPRI is coded -1 (not applicable). X9PUBPRI is coded -9 (not ascertained) if data on school type are not available in the spring 2016 school master file. X9PUBPRI is set to system missing for children who did not participate in round 9.

7.5.4.3 School Enrollment (X9ENRLS)

There is a composite variable in the data file (X9ENRLS) that indicates total school enrollment on October 1, 2015 (or the date nearest to that date for which the school administrator had data

[40] X9SCTYP and the round 8 and round 7 versions of the composite, X8SCTYP and X7SCTYP, respectively, are constructed differently than previous versions of the same composite. For example, for the round 6 version of the composite, X6SCTYP, if spring 2013 school administrator data were missing, previous round composite values for school type (X4PUBPRI, X2PUBPRI) were used. If those data were missing, data from the school master file were used.

[41] These children were enrolled in a school at the time of sampling in the base year, but were homeschooled during the spring of 2016.

available). This total school enrollment composite was created using the school enrollment variable from the school administrator questionnaire (S9ANUMCH). If school administrator data on total school enrollment were missing for spring 2016, enrollment data were obtained from the most recent round of the study with nonmissing school administrator data about school enrollment. If those data were missing, information from the Private School Universe Survey (PSS) for private schools and from the Common Core of Data (CCD) public school universe data for public schools were used.[42] In all other cases the variable is coded -9 (not ascertained).

7.5.4.4 Percent Non-White Students in the School (X9RCETH)

The composite variable X9RCETH indicates the percentage of the student population that was not White in the spring of 2016.[43] The composite is derived from a question in the school administrator questionnaire (question A9 in SAQ) that asked the number or percentage of students in the school who were the following race/ethnicities: Hispanic/Latino of any race; American Indian or Alaska Native, not Hispanic or Latino; Asian, not Hispanic or Latino; Black or African American, not Hispanic or Latino; Native Hawaiian or other Pacific Islander, not Hispanic or Latino; White, not Hispanic or Latino; or two or more races, not Hispanic or Latino. The composite was calculated by summing the percentages for all categories except White, not Hispanic or Latino.

School administrators were allowed to report their answers to the student racial/ethnic composition questions as either numbers or percentages. All answers provided as numbers were converted to percentages using the total enrollment variable S9TOTENR as the denominator before computing the composite variable.[44] The sum of the calculated percentages for each race/ethnicity category was allowed

[42] X9ENRLS and the round 8 and 7 versions of the composite, X8ENRLS and X7ENRLS, respectively, are constructed differently than previous versions of the same composite. For example, for the round 6 version of the composite, X6ENRLS, if spring 2013 school administrator data were missing, X6ENRLS was set using school master file data. If those data were missing, data from previous round composites (X4KENRLS, X2KENRLS) were used.

[43] This variable was S*MINOR in the ECLS-K. In the ECLS-K:2011, there is a different variable factored into the composite that indicates the percentage of students classified as “two or more races, non-Hispanic or Latino” (S*MULTPT).

[44] There were five recoding rules used for data with apparent errors:

1. If answers were reported as numbers and the total number of students in the school (S9TOTENR) was missing, the total from another question about total enrollment (Q2b S9ANUMCH) was used if the difference between the summed total of students in different race/ethnicity groups and the reported Q2a total was within +/-5 percent of 100 percent (95–105 percent). For example, if the number of students in each race/ethnicity group in the school added to 501 students, but the total number of students by race (S9TOTENR) was missing, and total enrollment from S9ANUMCH was 500 students, the sum of the number of students in the race/ethnicity categories (501) would be 100.2 percent of the value of 500 reported in S9ANUMCH. The value of 100.2 percent is within the 95-105 percent range of allowed errors, so S9ANUMCH is used as the denominator for calculating the percentage of students in each race/ethnicity category.
2. If the method of reporting was mixed (some as numbers, others as percentages), the race/ethnicity percentages were coded as -9 (not ascertained).
3. If percentages were recorded, with none of the above errors, and the summed total across categories was within +/-5 percent of 100 percent (95–105 percent) of the value in S9TOTENR, any race/ethnicity categories that the school administrator left blank were recoded to 0.

to be within +/- 5 percent of 100 percent to allow for minor reporting errors of numbers that did not add to the reported total or percentages that did not add to 100 percent. In a few cases, this procedure resulted in a total sum of percentages that was slightly over 100 percent. Totals greater than 100 percent are top-coded to 100 percent.

A flag for each individual race/ethnicity variable indicating whether the school administrator reported the information as a number or a percent is included in the data file.[45] Because the composite is calculated as a percent, these flags will not be needed by users unless they are interested in examining how answers were reported. If the flag (S9ASIAFL S9HISPFL, S9BLACFL, S9WHITFL, S9AIANFL, S9HAWPFL, and S9MULTFL) for each of the race/ethnicity variables (S9ASIAPT, S9HISPPT, S9BLACPT, S9WHITPT, S9AIANPT, S9HAWPPT, and S9MULTPT) is equal to 1, that indicates the information was reported by the school administrator as a percentage, or was reported as both a number and a percentage. If the flag (S9ASIAFL S9HISPFL, S9BLACFL, S9WHITFL, S9AIANFL, S9HAWPFL, and S9MULTFL) for each of the race/ethnicity variables (S9ASIAPT, S9HISPPT, S9BLACPT, S9WHITPT, S9AIANPT, S9HAWPPT, and S9MULTPT) is equal to 2, that indicates the information was reported by the school administrator as a number.

In some cases, the composite could not be derived from the school administrator questionnaire responses because some data used to compute it were missing or the data collected from administrators appeared to be in error (e.g., if school administrators reported both numbers and percents that were not consistent with one another and it was unclear which data were correct). If the composite could not be derived from the spring 2016 data, the percentage of non-White students in the school was obtained from school administrator questionnaire responses from spring 2015, spring 2014, spring 2013, spring 2012, or spring 2011.[46] If those data were also missing, the percentage of non-White students in the school was obtained from the CCD (for public schools) or the PSS (for private schools). If those data were also missing, X9RCETH is coded -9 (not ascertained). If the study child was homeschooled in the spring of 2016, X9RCETH is coded -1 (not applicable).

4. If the summed total of students in race/ethnicity categories was not +/-5 percent of 100 percent (95–105) percent of the sum reported in S9TOTENR or not 95–105 percent of total enrollment from another question (Q2b S9ANUMCH), the individually reported percentages and numbers were made -9 (not ascertained).

5. If numbers were reported, with none of the above errors, and the summed total across categories was within +/- 5 percent of the reported total, any race/ethnicity categories that the school administrator left blank were recoded to 0.

[45] In addition to flags for race/ethnicity variables, there is another flag that indicates whether school administrators reported average daily attendance as a number or percent. The flag is S9ADAFLG (average daily attendance reported as number or percent). If school administrators reported both a number and a percent, the flag is recorded as a percent.

[46] X9RCETH and the round 8 and round 7 versions of the composite, X8RCETH and X7RCETH, respectively, are constructed differently than previous versions of the same composite. For example, for the round 6 version of the composite, X6RCETH, if spring 2013 school administrator data were missing, X6RCETH was set using school frame data. If those data were missing, data from previous round composites (X4RCETH, X2KRCETH) were used.

7.5.4.5 Highest and Lowest Grade at the School (X9LOWGRD, X9HIGGRD)

Composite variables indicate the lowest grade taught at the school (X9LOWGRD) and the highest grade taught at the school (X9HIGGRD). They are derived from information collected from the school administrator during the spring 2016 data collection or from the spring of 2015, spring of 2014, spring of 2013, spring of 2012, or the spring of 2011. Variables X9LOWGRD and X9HIGGRD were created by first coding answers of "ungraded" in question A5 ("Mark all grade levels included in your school") as category 15 (ungraded) and then coding the lowest grade in the school and the highest grade in the school, respectively. The grade level for children in transitional kindergarten, kindergarten, or pre-first grade is coded as category 2 (kindergarten). For schools with missing data for school grade levels, the composites X9HIGGRD and X9LOWGRD were set to the values reported in previous school administrator data in spring 2015, spring 2014, spring 2013, spring 2012, or spring 2011. Data from the school master file were used if information about the highest and lowest grade at the school was not collected in school administrator variables for any round.[47]

7.5.4.6 Students Eligible for Free or Reduced-Price School Meals (X9FRMEAL_I)

The composite variable X9FRMEAL_I indicates the percent of students in the school who were approved for free or reduced-price school meals (X9FRMEAL_I). This composite has valid values for the 12,346 cases that have either child assessment or parent interview data in round 9. This composite differs from the school meal composites created in for the spring of 2011 and the spring of 2012 (X2FLCH2_I, X2RLCH2_I, X4FMEAL_I, and X4RMEAL_I) because the spring 2016 school administrator questionnaire, like the spring 2015 and spring 2014 school administrator questionnaires, did not include questions on U.S. Department of Agriculture (USDA) program participation or the numbers of students eligible for free and reduced priced meals (breakfast or lunch) that were used as the sources of the composite variables for spring 2011 and spring 2012. However, in the spring of 2016 and in previous rounds of the study, school administrators were asked for the percentage of children eligible for free or reduced-price lunch. This question and several other sources of information were used to create X9FRMEAL_I. Specifically, X9FRMEAL_I is derived from the percentage of children eligible for free or reduced- price lunch reported by the school administrator during the spring 2016 data collection, or

[47] X9LOWGRD and X9HIGGRD, and the round 8 and 7 versions of the composites, X8LOWGRN, X8HIGGRD, X7LOWGRD, and X7HIGGRD, are constructed differently than previous versions of the same composites. For example, for the round 6 versions of the composites, X6LOWGRD and X6HIGGRD, if spring 2013 school administrator data were missing, previous round composite (X4HIGGRD and X4LOWGRD, X2HIGGRD, and X2LOWGRD) values were used to set the composites. If those data were missing, data from the school master file were used.

imputed if the item was missing from the SAQ, using information collected from school administrators in the spring of 2015, spring of 2014, the spring of 2013, the spring of 2012, or the spring of 2011, frame variables or hot deck imputation.[48] For schools where no SAQ was received for spring 2016 (and therefore SAQ missing values were not imputed), the composite was completed by assigning, in the following order, a value from prior rounds of the study, the school master file, or hot deck imputation. [49] X9FRMEAL_I, based on school administrator data about children eligible for free or reduced-price lunch, was imputed with information from previous rounds about students eligible for free or reduced-price meals because children are approved for free or reduced-price meals generally, not just for lunch. Children who were homeschooled have X9FRMEAL_I set to -1.

The percent of children reported by school administrators in spring 2016 to be eligible for free or reduced-price lunch (S9PCTFLN_I) was used as the first source of data for X9FRMEAL_I. There are three schools that appear to have reported a number of students rather than a percentage in S9PCTFLN_I; their values were retained for the composite and a flag (X9FRMEALFLG) can be used to identify them. A fourth school also has a value for X9FRMEAL_I that appears to be based on number of students rather than a percentage. This school's value comes from the school's report in round 8 (S8PCTFLN_I). S9PCTFLN_I was imputed for all cases that had child assessment or parent interview data in the spring 2016 round and a completed SAQ, but for which the administrator did not provide free and reduced-price lunch information. Table 7-7 shows the level of missing data for the school administrator variable for the percent of children who were eligible for free or reduced-price lunch (S9PCTFLN) among the schools that had at least one child or parent respondent in the spring 2016 data collection.

Table 7-7. Number and percent of public and private schools and study students with missing data for the percent of children in the school eligible for free or reduced-price lunch (S9PCTFLN): Spring 2016

School meal composite	Number missing	Percent missing	Number of students in these schools	Percent of students with missing values
Percent eligible for free or reduced-price meal	74	3.3	350	3.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), spring 2016.

[48] Both public schools and nonprofit private schools are eligible for the National School Lunch Program (NSLP).

[49] X9FRMEAL_I and the round 8 and round 7 versions of the composite, X8FRMEAL_I and X7FRMEAL_I, are constructed differently than previous versions of the same composite. For example, for the round 6 version of the composite, X6FRMEAL_I, data from the imputed spring 2013 school administrator questionnaire were used first to set the composite value, followed by variables in the following order of priority: unimputed school administrator data from the most recent previous round of the study available, data from the school master file, the sum of the spring 2012 composite for free school meals added to the spring 2012 composite for reduced-price school meals, and then the sum of the spring 2011 composite for free school meals added to the spring 2011 composite for reduced-price school meals. Finally, if X6FRMEAL_I did not have an assigned value following each of the above steps, the remaining missing values were imputed using hot deck imputation at the composite level.

The imputation flag IFS9PCTFLN indicates whether the school administrator questionnaire variable S9PCTFLN_I was longitudinally imputed using spring 2015, spring 2014, spring 2013, spring 2012, or spring 2011 data, was filled with data from the CCD, was imputed using the hot deck method, or was not imputed. For cases with missing data on S9PCTFLN, longitudinal imputation was used first, if possible, taking a value from school administrator data in a previous round for the same school in spring 2015 (S8PCTFLN_I), spring 2014 (S7PCTFLN_I), spring 2013 (S6PCTFLN_I), spring 2012 (S4PCTFLN), or spring 2011 (S2LUNCH). If historical survey data were not available, then data from the CCD were used to impute for these missing S9PCTFLN_I values for public schools. The PSS does not have data on school meals that can be used to compute an imputed value for S9PCTFLN_I. If CCD data were not available, then the values of the meal composites from previous rounds were used to compute an imputed value for S9PCTFLN_I, where available, with the imputed value computed as X8FRMEAL_I, if this was available, X7FRMEAL_I, if this was available, X6FRMEAL_I, if this was available, the sum of X4FMEAL_I and X4RMEAL_I, if these were available, and otherwise the sum of X2FLCH2_I and X2RLCH2_I, if available.

If S9PCTFLN_I was still missing after data from previous rounds and the CCD were used, it was imputed using the hot deck method described above in section 7.5.2.8. Hot-deck imputation was done at the school level and the imputed value was then assigned to each child in the school. In hot-deck imputation, a school with a non-missing value for a component has this value assigned or “donated” to a similar school with a missing value for the component. Schools are similar if they belong in the same imputation cell. Imputation cells were created using district poverty category (created from the district poverty variable X9DISTPOV described in section 7.5.7), census region, school type, the percentage of students in minority ethnic groups, whether the school received Title I funding, and school size (total enrollment).

Cases that did not have any data from the school administrator questionnaire in the spring of 2016 did not have a value for S9PCTFLN_I to set the value of the composite X9FRMEAL_I, so other sources were used to assign a value for the composite. X9FRMEAL_I was set to the percentage of students in the child’s current school eligible for free or reduced-price lunch reported by the school administrator in the spring of 2015 (S8PCTFLN_I), if those data were available, spring of 2014 (S7PCTFLN_I), if those data were available, spring of 2013 (S6PCTFLN_I), if those data were available, or the spring of 2012 (S4PCTFLN), if those data were available. If spring 2012 data were not available but data from the spring of 2011 (S2LUNCH) were, the 2011 data were used. Otherwise, if the school master file had data for the school’s total enrollment, the number of children approved for free meals, and the number of children approved for reduced-price meals, X9FRMEAL_I, was set to the percentage of children approved for free meals plus the percentage of children approved for reduced-price meals.

Finally, if X9FRMEAL_I did not have an assigned value following each of the above steps, the remaining missing value was imputed using hot deck imputation at the composite level. The imputation flag IFX9FRMEAL indicates whether X9FRMEAL_I was imputed using the hot deck method, or was not imputed.

In some cases, the children's schools are unknown because the child was unlocatable or the child moved to a nonsampled county and was not followed into his/her new school, but a parent interview was completed. In such cases, data were not imputed for X9FRMEAL_I because no information about the school was available (e.g., public or private control, school size, or even if the child was enrolled in a school). X9FRMEAL_I is coded as -9 for these cases.

7.5.4.7 Geographic Region and Locality of the Child's School (X9REGION, X9LOCALE)

Composite variables indicating the geographic region (X9REGION) and locality type (X9LOCALE) of the child's school come from the PSS for private schools and the CCD for public schools. For the spring 2016 geographic region composite, X9REGION, if the geographic region is missing in the PSS and CCD files, then the state in which the school was located was used to assign region. If those data are missing and the geographic region for the school was identified in an earlier round, the composite was set to the value from the most recent round (as reported in X8REGION, X7REGION, X6REGION, X4REGION, X2REGION, or X1REGION).[50] Values for X9REGION are the following:

1 = Northeast: CT, ME, MA, NH, RI, VT, NJ, NY, PA;

2 = Midwest: IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD;

3 = South: DE, DC, FL, GA, MD, NC, SC, VA, WV, AL, KY, MS, TN, AR, LA, OK, TX; and

4 = West: AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA.

X9REGION is coded -9 (not ascertained) for children who were unlocatable or moved out of a sampled county and were not followed to new schools in the spring of 2016, but for whom there are

[50] X9REGION and the round 8 and round 7 versions of the composite, X8REGION and X7REGION, are constructed differently from all previous versions of the same composite. Although X9REGION, X8REGION, and X7REGION use the same data sources that were used to construct the composite in previous rounds, the order of the data sources used is different in these rounds than in previous rounds. For example, for the round 6 version of the composite, X6REGION, the state in which the school was located was used as a final step in assigning the composite value, if data from the CCD or PSS files and geographic location from a previous round (X4REGION, X2REGION, or X1REGION) were not available.

parent interview data. Children who were homeschooled in the spring of 2016 have a code of -1 on X9REGION. X9REGION is set to system missing for those who did not participate in round 9.

For the spring 2016 school locality variable, X9LOCALE, the categories correspond to the 2006 NCES system for coding locale (https://nces.ed.gov/surveys/ruraled/definitions.asp). If data are not available for the child's school from the PSS or CCD, and locale data were available from an earlier round, the composites were set to the value from the most recent round (X8LOCALE, X7LOCALE, X6LOCALE, X4LOCALE, X2LOCALE, or X1LOCALE). Otherwise, the composites are coded -9 (not ascertained). Some -9 (not ascertained) values for X9LOCALE are associated with cases in which children who moved were unlocatable or moved out of a sampled county and were not followed to new schools in spring 2016, but for whom there are parent interview data. Children who were homeschooled in spring 2016 are coded as -1 on X9LOCALE. X9LOCALE is set to system missing for those who did not participate in round 9. Values for X9LOCALE are the following:

11 - City, Large: Territory inside an urbanized area and inside a principal city with population of 250,000 or more;

12 - City, Midsize: Territory inside an urbanized area and inside a principal city with population less than 250,000 and greater than or equal to 100,000;

13 - City, Small: Territory inside an urbanized area and inside a principal city with population less than 100,000;

21 - Suburb, Large: Territory outside a principal city and inside an urbanized area with population of 250,000 or more;

22 - Suburb, Midsize: Territory outside a principal city and inside an urbanized area with population less than 250,000 and greater than or equal to 100,000;

23 - Suburb, Small: Territory outside a principal city and inside an urbanized area with population less than 100,000;

31 - Town, Fringe: Territory inside an urban cluster that is less than or equal to 10 miles from an urbanized area;

32 - Town, Distant: Territory inside an urban cluster that is more than 10 miles and less than or equal to 35 miles from an urbanized area;

33 - Town, Remote: Territory inside an urban cluster that is more than 35 miles from an urbanized area;

41 - Rural, Fringe: Census-defined rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster;

42 - Rural, Distant: Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster; and

43 - Rural, Remote: Census-defined rural territory that is more than 25 miles from an urbanized area and is also more than 10 miles from an urban cluster.

Some schools have different values for X*LOCALE between the base year and subsequent rounds. The differences in values reflect changes in the PSS or CCD source data.

The classification of locale has undergone some changes since the ECLS-K study conducted with children in the kindergarten class of 1998-99. Information on these changes is available on the NCES website at https://nces.ed.gov/programs/edge/docs/EDGE_NCES_LOCALE_2015.pdf.

7.5.5 Field Management System (FMS) Composite Variables

Several composite variables were created from data stored in the FMS, which were obtained from frame data as well as by field staff during visits to the schools and discussions with school staff.

7.5.5.1 School Year Start and End Dates (X9SCHBDD, X9SCHBMM, X9SCHBYY, X9SCHEDD, X9SCHEMM, X9SCHEYY)

The composite variables indicating school year start and end dates, which are listed below, were derived from information contained in the FMS.

- X9SCHBDD – X9 School Year Starting Date, Day;
- X9SCHBMM – X9 School Year Starting Date, Month;
- X9SCHBYY – X9 School Year Starting Date, Year;
- X9SCHEDD – X9 School Year Ending Date, Day;
- X9SCHEMM – X9 School Year Ending Date, Month; and
- X9SCHEYY – X9 School Year Ending Date, Year.

The composite variables for beginning and ending school dates are derived differently in spring 2016, spring 2015, and spring 2014 than in previous rounds. In previous rounds of the study, the school administrator questionnaire data were used as the first source of data for creating the composites, followed by the use of FMS data if the questionnaire data were missing. In spring 2016, spring 2015, and spring 2014, the school administrator questionnaire did not include a question about beginning and ending school dates, so the FMS was used to derive the composites.

7.5.5.2 Year-Round Schools (X9YRRND)

The year-round school composite variable is based on information obtained from the school staff member who helps coordinate the data collection activities in the school (referred to as the school coordinator) about whether a school is a year-round school. This composite has valid values for the 12,346 cases that have child assessment or parent interview data in round 9. The values for this composite variable are 1 (year-round school) and 0 (not year-round school). If the child was homeschooled in the spring of 2016, the composite is coded as -1 (not applicable). If these data were not obtained in the spring of 2016 but information about being a year-round school was collected in an earlier round, the composite was set to the value from the most recent round (X8YRRND, X7YRRND, X6YRRND, X4YRRND, or X12YRRND).

7.5.6 School District Poverty (X9DISTPOV)

X9DISTPOV is a district-level indicator of the percentage of children age 5–17 in a school district who are in poverty. It is derived from the 2015 Small Area Income & Poverty Estimates (SAIPE) and is computed as the estimated number of children 5–17 years old in poverty divided by the estimated population of children 5–17 years old in the district multiplied by 100 and rounded to 0 decimals. The school district boundaries were based on the 2015 school district mapping survey that included school districts as of January 1, 2016 and reflect district boundaries for the 2015–16 school year (U.S. Census Bureau n.d.). There are 123 ECLS-K:2011 public schools with a missing value for X9DISTPOV because the values were missing in the SAIPE source data.[51]

7.6 Methodological Variables

To facilitate methodological research, variables pertaining to aspects of the data collection work were extracted from the FMS and included in the data file. These include disposition codes for the

[51] Children who attended private school or were homeschooled were coded as -1 (inapplicable).

child assessment and parent interview (F9CADISP and F9PIDISP, respectively); Federal Information Processing Standards (FIPS) codes for school counties and states (F9FIPSCT and F9FIPSST, respectively); school zip and census tract codes (F9SCHZIP and F9CENTRC, respectively); identifiers for public schools (F9CCDLEA, F9CCDSID); an identifier for private schools (F9SCHPIN); identifiers for parent interview work area (F9PWKARE); parent interviewer identification number (F9PINTVR); the month the parent interview was conducted (F9INTVMM); the year the parent interview was conducted (F9INTVYY); child assessment work area (F9CWKARE); and child assessor identification number (F9CASSOR). A "work area" is the group of schools that each team leader was assigned. Team leaders managed a group of one to four other individuals who worked as child assessors and parent interviewers for the sampled cases in the work area. If a case was not assigned to an interviewer (e.g., a child who moved and was not followed), then F9PINTVR is system missing. Similarly, if a case was not assigned to an assessor, then F9CASSOR is system missing.

This page intentionally left blank.

8. ELECTRONIC CODEBOOK (ECB)

8.1 Introduction

This chapter provides specific instructions for using the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Electronic Codebook (ECB). The functionality of the ECB, which is the same throughout the ECLS studies, is fully described in the Help File for the ECLS-K:2011 longitudinal kindergarten–fifth grade (K–5) ECB. The information in the ECB's Help File provides a comprehensive tour through the ECB and addresses all of the functions and capabilities of the program. These functions allow users to access the accompanying data catalog and view the data in various ways by performing customized searches and extractions. Using the ECB, the data user can create SAS, SPSS for Windows, and Stata syntax programs that can be run to generate an extract data file from the text (ASCII) data file.

8.1.1 Hardware and Software Requirements

The ECB program is designed to run under Windows 95®, Windows 98®, Windows 2000®, Windows XP®, or Windows NT® 4.0 on a Pentium-class or higher personal computer (PC). The ECB has been successfully tested using current versions of Windows Vista and Windows 7. It has not been tested on Windows 10. The ECB is not designed for use on Apple Macintosh systems, but Mac users can create a data file using the file record layout.

The PC should have a minimum of 20 megabytes of available disk space. The program will fit best visually on screens set to a desktop area of 1024 x 768 pixels. It will still work on other screen settings, but it may not make the best use of the available screen space. If you have a Windows NT® or earlier operating system, you can check or set your desktop area as follows:

1. Click the Windows Start button.
2. Select the Settings menu and then the Control Panel folder icon.
3. In the Control Panel window, click the Display icon.
4. Select the Settings tab.
5. Set the Desktop Area to 1024 x 768 pixels with the Desktop Area slidebar.

If you have a Windows Vista or Windows 7® operating system, you can check or set your desktop area as follows:

1. Click the Windows Start Button.
2. Select the Control Panel tab.
3. In the Control Panel window, click the Display icon.[1]
4. Select the Change display settings tab.
5. Set the Desktop Area[2] to 1024 x 768 pixels with the Desktop Area slidebar.

As noted above, the ECB requires approximately 20 megabytes of available disk space on your hard drive. If 20 megabytes of space is not available, you may wish to delete unnecessary files from the drive to make space for the ECB.

8.2 Installing, Starting, and Exiting the ECB

The ECB is intended to be installed and run from within the Windows 95®, Windows 98®, Windows 2000®, Windows XP®, Windows NT® 4.0, Windows Vista, or Windows 7® environment. The sections in this chapter provide you with step-by-step instructions for installing the program on your PC, starting the program, and exiting the program once you have completed your tasks.

8.2.1 Installing the ECB Program on Your Personal Computer

Program installation is initiated by running the "InstallECLSECB.exe" executable file.

How to Install the Program

1. Close all applications on your computer.
2. Run program "InstallECLSECB.exe."

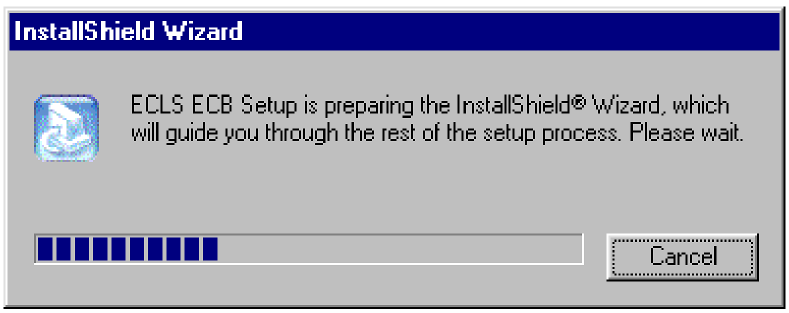
[1] The Display icon is reached through the Appearance and Personalization section of the Control Panel on a Windows 7 operating system.
[2] In Windows 7, the Desktop Area is called Resolution.

Depending on your PC's configuration, you may encounter warning messages during installation. To respond, always keep the newer version of a file being copied and ignore any access violations that occur during file copying.

If you are installing multiple ECBs (not different versions of the same ECB) on your PC, you may receive a message warning that Setup is about to replace pre-existing files. To respond, always opt to continue the installation although the default is to cancel the setup. When you get a follow-up message to confirm whether the installation should be continued, press Yes to continue, although the default is No.

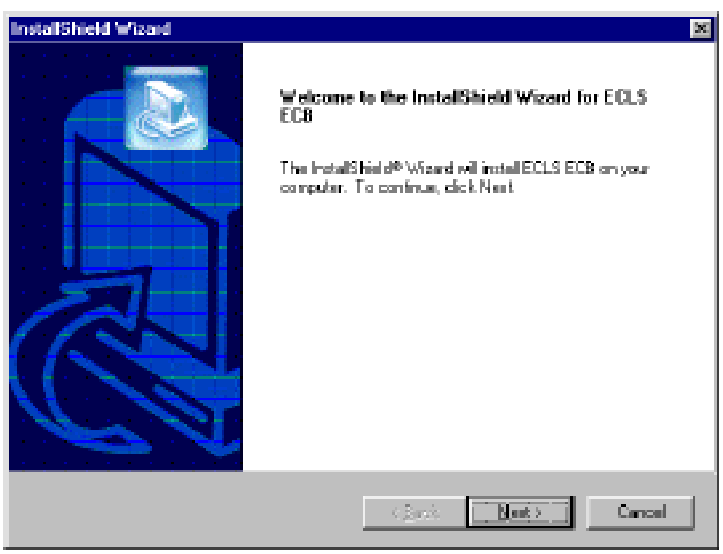
3. The screen shown in exhibit 8-1 indicates that the setup is being prepared.

Exhibit 8-1. InstallShield Wizard



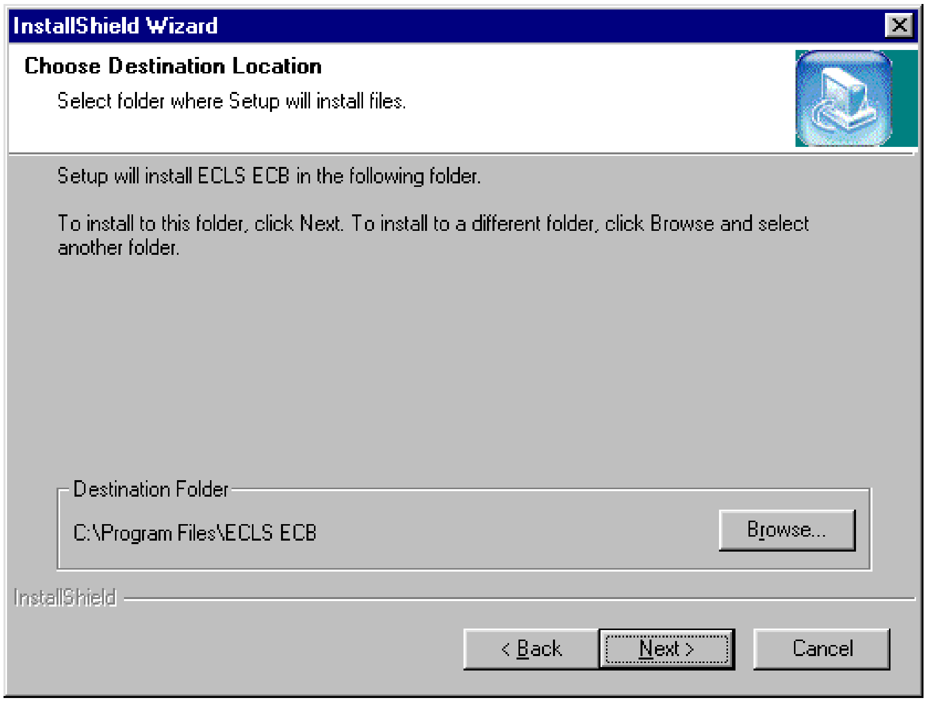
4. You will be prompted to continue with the installation in the Welcome window shown in exhibit 8-2. Click the Next button to continue.

Exhibit 8-2. Welcome window



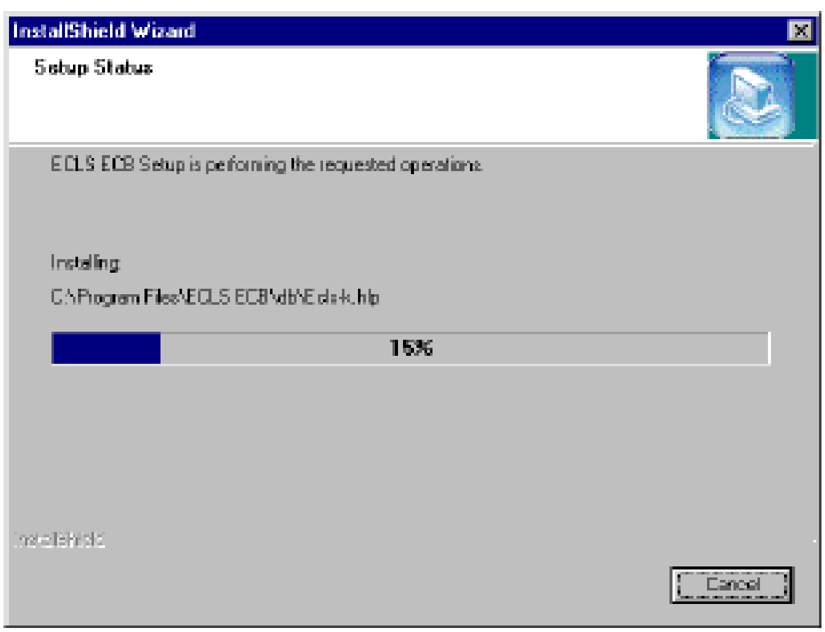
5. When you continue, you will be prompted to choose a destination location for the installation in the window shown in exhibit 8-3. If you wish to change the destination location, click the Browse button to change the directory. Click the Next button when the desired destination folder is shown.

Exhibit 8-3. Choose Destination Location



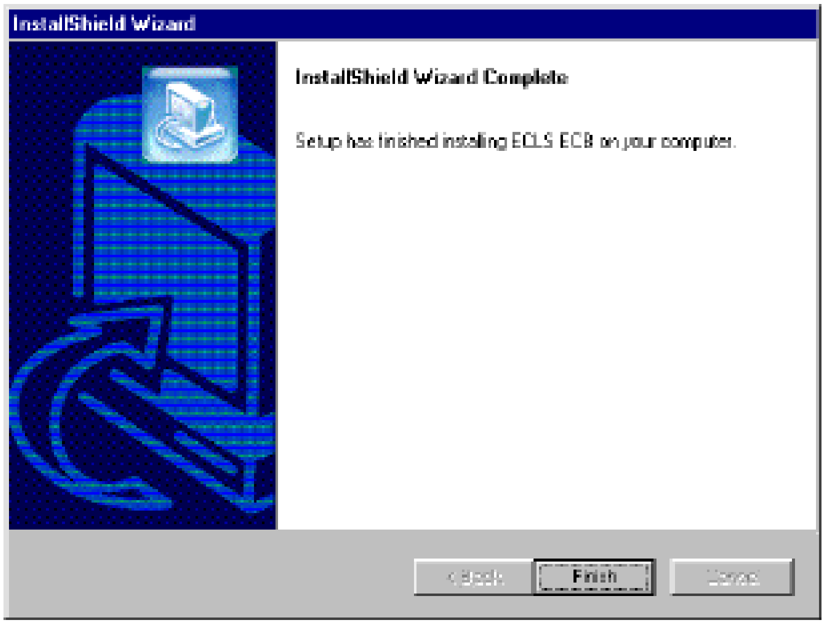
6. Setup will then start installing files. Exhibit 8-4 shows the setup status.

Exhibit 8-4. Setup Status



7. Once the installation is completed, the InstallShield Wizard Complete window shown in exhibit 8-5 will appear. Click the Finish button to finish the process and return to your PC's desktop.

Exhibit 8-5. InstallShield Wizard Complete



8. The installation process should take about a minute, depending on the speed of the computer on which the ECB is being installed.

8.2.2 How to Start the ECB

On the desktop screen, click the ECB desktop icon (exhibit 8-6a) shown below to initiate the program. Alternatively, on the desktop screen, click the Start button and then point to Programs (exhibit 8-6b). Click the ECB title to start the program. In Windows 7, click the Start button, click on All Programs, and click the ECB title to start the program.

Exhibit 8-6a. Desktop icon

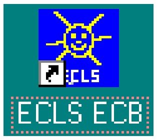
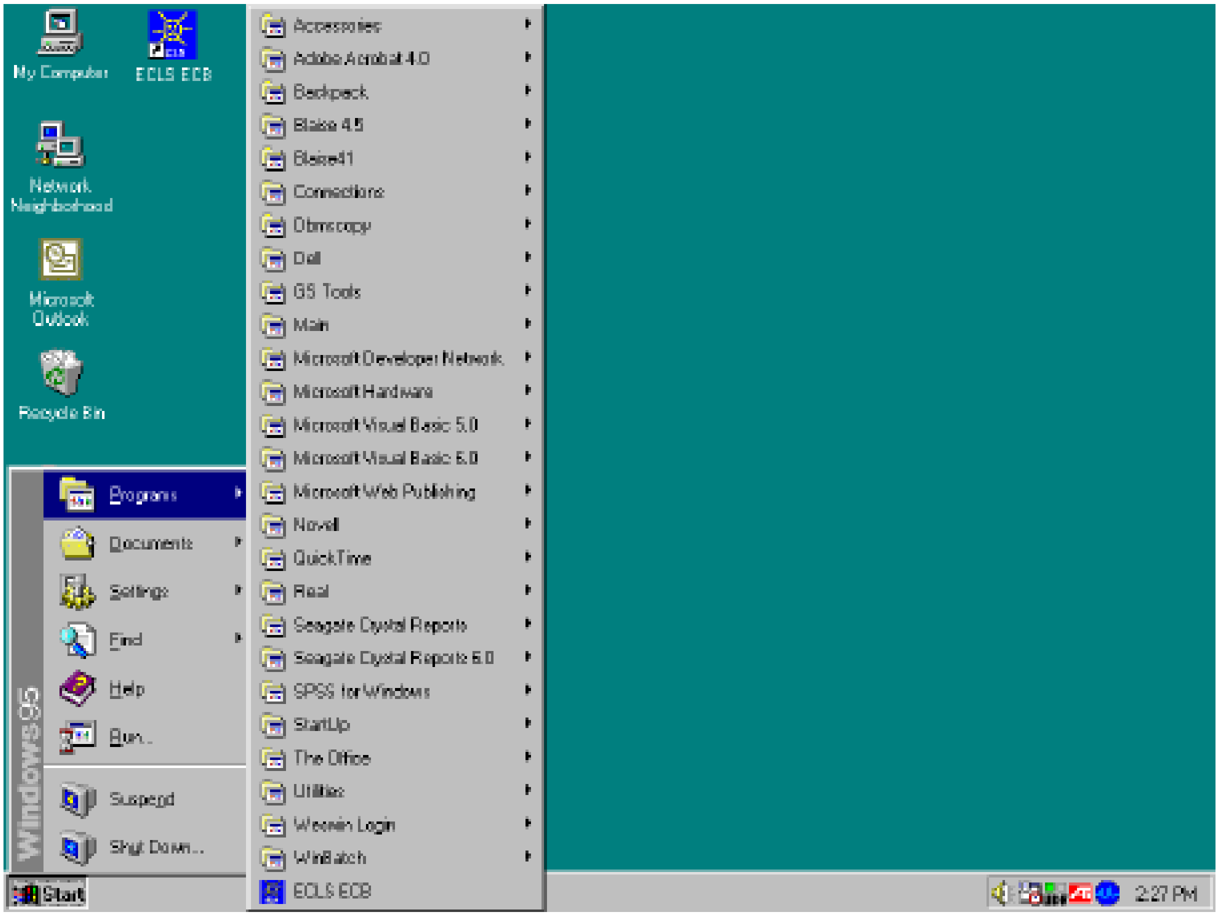


Exhibit 8-6b. Desktop screen—click start

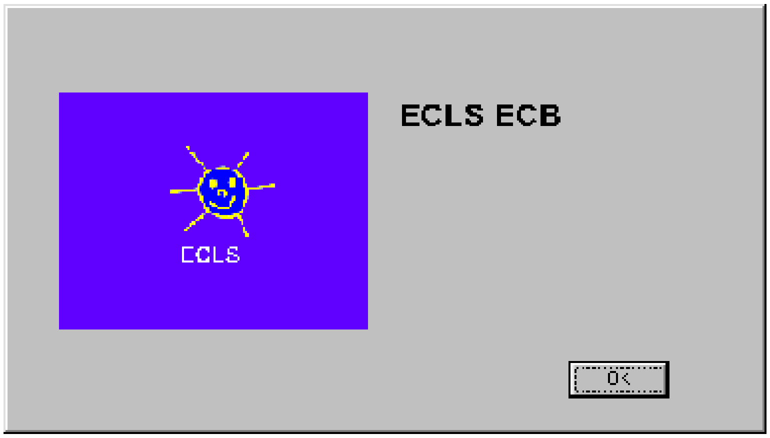


If you are a first-time user of the ECB, exhibit 8-7 will appear and ask if you are a new user.

Exhibit 8-7. First-time user dialog box

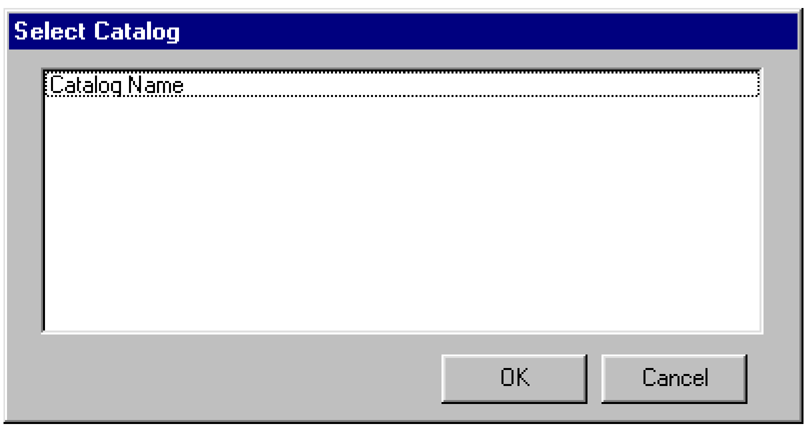
Click Yes if you are a first-time user. The ECB splash screen shown in exhibit 8-8 will appear.

Exhibit 8-8. ECB splash screen



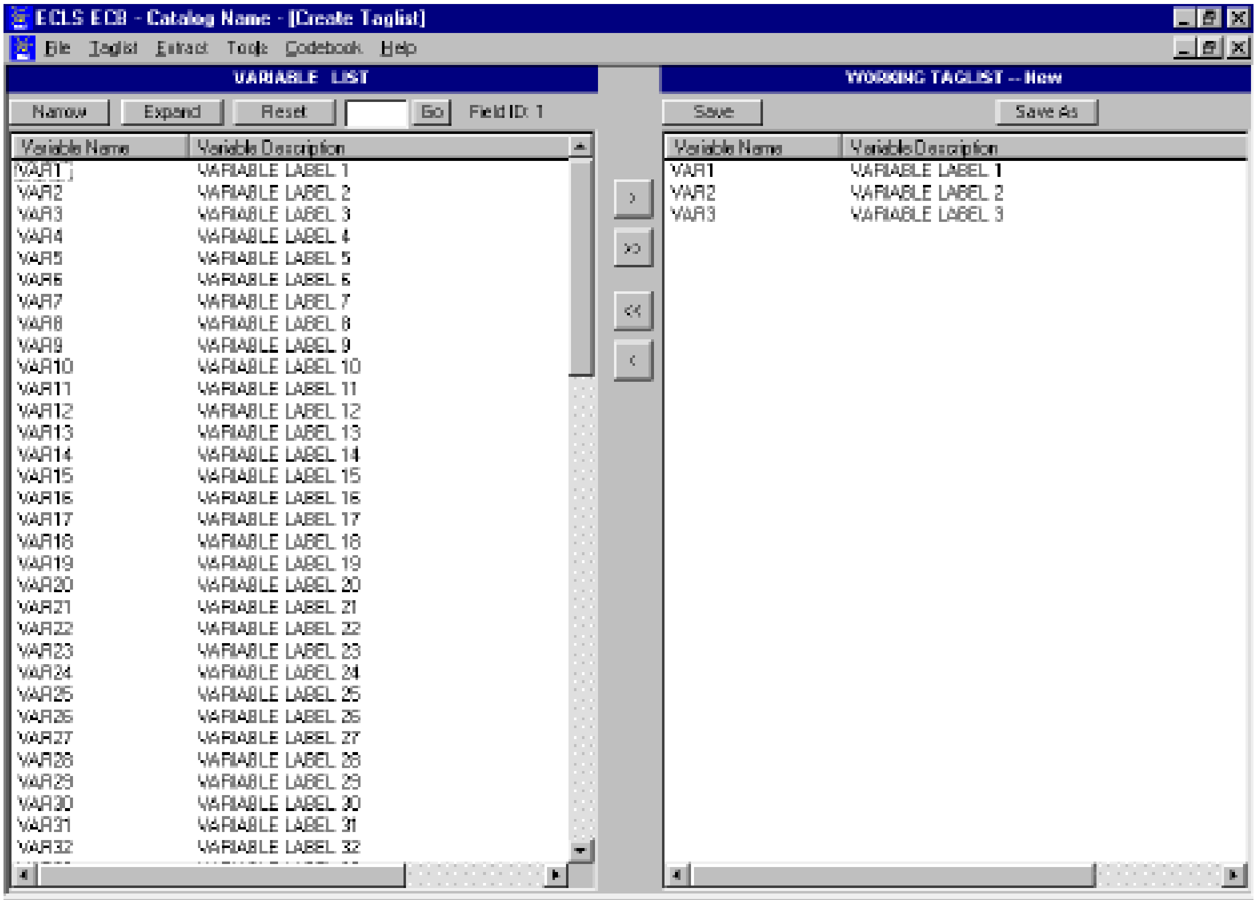
On the Select Catalog screen (exhibit 8-9), highlight the name of the catalog. (The ECLS-K:2011 has only one catalog.)

Exhibit 8-9. Select Catalog screen



Click OK to open the main ECB screen, shown in exhibit 8-10.

Exhibit 8-10. Main ECB screen



You are now ready to use the functions of the ECB as described in the ECB Help File.

REFERENCES

Centers for Disease Control and Prevention (CDC). (2000). Growth Charts. Retrieved from www.cdc.gov/growthcharts/html_charts/statage.htm.

Coie, J.D., and Dodge, K.A. (1988). Multiple Sources of Data on Social Behavior and Social Status in School: A Cross-Age Comparison. *Child Development, 59:* 815–829.

Crick, N.R., and Grotpeter, J.K. (1995). Relational Aggression, Gender, and Social Psychological Adjustment. *Child Development, 66*: 710–722.

Davidson, M.C., Amso, D., Cruess-Anderson, L., and Diamond, A. (2006). Development of Cognitive Control and Executive Function From 4–13 Years: Evidence from Manipulations of Memory, Inhibition and Task Switching. *Neuropsychologia*, *44*: 2037–2078.

Duckworth, A.L., and Quinn, P.D. (2009). Development and Validation of the Short Grit Scale (Grit–S). *Journal of Personality Assessment, 91*:2, 166–174.

Eriksen, B.A., and Eriksen, C.W. (1974). Effects of Noise Letters Upon the Identification of a Target Letter in a Nonsearch Task. *Perception and Psychophysics, 16:* 143–149.

Espelage, D.L., and Holt, M. (2001). Bullying and Victimization During Early Adolescence: Peer Influences and Psychosocial Correlates. *Journal of Emotional Abuse, 2:* 123–142.

Gresham, F.M., and Elliott, S.N. (1990). *Social Skills Rating System.* Circle Pines, MN: American Guidance Service.

Holcomb, R., Williams, R.C., and Richards, P.S. (1985). The Elements of Attachment: Relationship Maintenance and Intimacy. *Journal of the Delta Society*, *2*(1): 28–34.

Kerr, M., and Stattin, H. (2000). What Parents Know, How They Know It, and Several Forms of Adolescent Adjustment: Further Support for a Reinterpretation of Monitoring. *Developmental Psychology, 36:* 366–380.

Keys, A., Fidanza, F., Karvonen, M.J., Kimura, N., and Taylor, H.L. (1972). Indices of Relative Weight and Obesity. *Journal of Chronic Disease, 25*: 329–343.

Ladd, G.W. (1990). Having Friends, Keeping Friends, Making Friends and Being Liked by Peers in the Classroom: Predictors of Children's Early School Adjustment? *Child Development, 61:* 1081–1100.

Ladd, G.W., and Price, J. (1987). Predicting Children's Social and School Adjustment Following the Transition From Preschool to Kindergarten. *Child Development*, *58*(5): 1168–1189.

La Greca, A.M., and Stone, W.L. (1993). Social Anxiety Scale for Children—Revised: Factor Structure and Concurrent Validity. *Journal of Clinical Child Psychology, 22*(1): 17–27.

Marsh, H. (1990). *Self Description Questionnaire I (SDQ I)*. SELF Research Centre (Bankstown Campus) University of Western Sydney, Australia.

Mather, N., and Woodcock, R.W. (2001). *Woodcock-Johnson III Tests of Achievement Examiner's Manual: Standard and Extended Batteries.* Itasca, IL: Riverside Publishing.

McGrew, K.S., and Woodcock, R.W. (2001). Technical Manual. *Woodcock-Johnson III.* Itasca, IL: Riverside Publishing.

Mei, Z., Grummer-Strawn, L., Pietrobelli, A., Goulding, A., Goran, M., and Dietz, W.H. (2002). Validity of Body Mass Index Compared with Other Body-Composition Screening Indexes for the Assessment of Body Fatness in Children and Adolescents. *American Journal of Clinical Nutrition*, *75*(6): 978–985.

Najarian, M., Tourangeau, K., Nord, C., and Wallner-Allen, K. (2018a). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), Kindergarten Psychometric Report* (NCES 2018-182). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Najarian, M., Tourangeau, K., Nord, C., and Wallner-Allen, K. (2018b). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), First-Grade and Second-Grade Psychometric Report* (NCES 2018-183). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Najarian, M., Tourangeau, K., Nord, C., Wallner-Allen, K., and Vaden-Kiernan, N. (Forthcoming). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), Third-Grade, Fourth-Grade, and Fifth-Grade Psychometric Report* (NCES 2019-023). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

National Assessment Governing Board. (2004a). *Mathematics Framework for the 2005 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office. Retrieved February 1, 2016, from https://www.nagb.gov/content/nagb/assets/documents/publications/frameworks/mathematics/2005-mathematics-framework.pdf.

National Assessment Governing Board. (2004b). *Science Framework for the 2005 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office. Retrieved February 1, 2016, from https://www.nagb.gov/content/nagb/assets/documents/publications/frameworks/science/2005-science-framework.pdf.

National Assessment Governing Board. (2008). *Reading Framework for the 2009 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office. Retrieved February 1, 2016, from https://www.nagb.gov/content/nagb/assets/documents/publications/frameworks/reading/2009-reading-framework.pdf.

National Assessment Governing Board. (2010a). *Reading Framework for the 2011 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office. Retrieved February 1, 2016, from https://www.nagb.gov/content/nagb/assets/documents/publications/frameworks/reading/2011-reading-framework.pdf.

National Assessment Governing Board. (2010b). *Science Framework for the 2011 National Assessment of Educational Progress.* Washington, DC: U.S. Government Printing Office. Retrieved February 1, 2016, from https://www.nagb.gov/content/nagb/assets/documents/publications/frameworks/science/2011-science-framework.pdf.

National Council of Teachers of Mathematics. (2000). *Principles and Standards for School Mathematics.* (Book and E-Standards CD). Reston, VA: Author. Online version available from http://www.nctm.org/standards/content.aspx?id=16909.

National Mathematics Advisory Panel. (2008). *Foundations for Success: The Final Report of the National Mathematics Advisory Panel.* Washington, DC: U.S. Department of Education.

Nord, M., and Hopwood, H. (2007). Recent Advances Provide Improved Tools for Measuring Children's Food Security. *Journal of Nutrition, 137*(3): 533–536.

Parker, J.G., and Asher, S.R. (1993). Friendship and Friendship Quality in Middle Childhood: Links With Peer Group Acceptance and Feelings of Loneliness and Social Dissatisfaction. *Developmental Psychology*, *29*(4): 611–621.

Pierce, K.M., Hamm, J.V., and Vandell, D.L. (1999). Experiences in After-School Programs and Children's Adjustment in First-Grade Classrooms. *Child Development, 70:* 756–767.

Princeton Survey Research Associates International. (2009). Pew September Tracking Survey 2009. Pew Internet & American Life Project.

Putnam, S.P., and Rothbart, M.K. (2006). Development of Short and Very Short Forms of the Children's Behavior Questionnaire. *Journal of Personality Assessment, 87*(1): 103-113.

Rueda, M.R., Fan, J., McCandliss, B.D., Halparin, J.D., Gruber, D.B., Lercari, L.P., and Posner, M.I. (2004). Development of Attentional Networks in Childhood. *Neuropsychologia, 42*: 1029-1040.

Rothbart, M.K., Ahadi, S.A., Hershey, K.L., and Fisher, P. (2001). Investigations of Temperament at 3–7 Years: The Children's Behavior Questionnaire. *Child Development, 72:* 1394–1408.

Simonds, J., and Rothbart, M.K. (2004, October). *The Temperament in Middle Childhood Questionnaire (TMCQ): A Computerized Self-Report Measure of Temperament for Ages 7–10*. Poster session presented at the Occasional Temperament Conference, Athens, GA.

Skinner, E.A., Kindermann, T.A., and Furrer, C.J. (2009). A Motivational Perspective on Engagement and Disaffection: Conceptualization and Assessment of Children's Behavioral and Emotional Participation in Academic Activities in the Classroom. *Educational and Psychological Measurement*, *69*(3): 493–525.

Slotkin, J., Kallen, M., Griffith, J., Magasi, S., Salsman, J., Nowinski, C., and Gershon, R. (2012). *NIH Toolbox Technical Manual.* © 2006–12 National Institutes of Health and Northwestern University. Retrieved August 20, 2014 from http://www.healthmeasures.net/images/nihtoolbox/Technical_Manuals/Cognition/Toolbox_Cognition_Battery_Composite_Scores_Technical_Manual.pdf.

Slotkin, J., Nowinski, C., Hays, R., Beaumont, J., Griffith, J., Magasi, S., Salsman, J., and Gershon, R. (2012). *NIH Toolbox Scoring and Interpretation Guide.* © 2006–12 National Institutes of Health and Northwestern University. Retrieved August 20, 2014 from http://www.healthmeasures.net/images/nihtoolbox/Training-Admin-Scoring_Manuals/NIH_Toolbox_Scoring_and_Interpretation_Manual_9-27-12.pdf

Stocking, M., and Lord, F.M. (1983). Developing a Common Metric in Item Response Theory. *Applied Psychological Measurement, 7:* 207-210.

Tourangeau, K., Lê, T., Daly, P., and Themann, C. (2019a). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) User's Manual for the Fifth-Grade Hearing Evaluations Component Data File* (NCES 2019-019). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Tourangeau, K., Nord, C., Lê, T., Sorongon, A.G., Hagedorn, M.C., Daly, P., and Najarian, M. (2015a). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook, Public Version* (NCES 2015-074). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Tourangeau, K., Nord, C., Lê, T., Sorongon, A.G., and Najarian, M. (2009). *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Combined User's Manual for the ECLS-K Eighth-Grade and K–8 Full Sample Data Files and Electronic Codebooks* (NCES 2009–004). Institute of Education Sciences, U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Tourangeau, K., Nord, C., Lê, T., Wallner-Allen, K., Hagedorn, M.C., Leggitt, J., and Najarian, M. (2015b). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data File and Electronic Codebook, Public Version* (NCES 2015-078). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Tourangeau, K., Nord, C., Lê, T., Wallner-Allen, K., Vaden-Kiernan, N., Blaker, L., and Najarian, M. (2017). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Second Grade Data File and Electronic Codebook, Public Version* (NCES 2017-285). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Tourangeau, K., Nord, C., Lê, T., Wallner-Allen, K., Vaden-Kiernan, N., Blaker, L. and Najarian, M. (2018a). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Third Grade Data File and Electronic Codebook, Public Version* (NCES 2018-034). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Tourangeau, K., Nord, C., Lê, T., Wallner-Allen, K., Vaden-Kiernan, N., Blaker, L. and Najarian, M. (2018b). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Fourth Grade Data File and Electronic Codebook, Public Version* (NCES 2018-032). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Tourangeau, K., Nord, C., Lê, T., Wallner-Allen, K., Vaden-Kiernan, N., Blaker, L. and Najarian, M. (2019b). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) User's Manual for the ECLS-K:2011 Kindergarten–Fifth Grade Data File and Electronic Codebook, Restricted Version* (NCES 2019-101). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

U.S. Census Bureau, Current Population Survey. (n.d.). Poverty Thresholds for 2015 by Size of Family and Number of Related Children Under 18 Years Old. Retrieved September 28, 2016, from http://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html.

U.S. Census Bureau (n.d.), SAIPE School District Estimates for 2015. (n.d.). Retrieved August 27, 2018, from https://www.census.gov/data/datasets/2015/demo/saipe/2015-school-districts.html.

U.S. Department of Agriculture, Food and Nutrition Service. (2000). *Guide to Measuring Household Food Security, Revised 2000*. Alexandria, VA: Author.

U.S. Department of Agriculture, Food and Nutrition Service. (2002). *Measuring Children's Food Security in U.S. Households, 1995–99.* Alexandria, VA: Author.

U.S. Department of Commerce, Office of Federal Statistical Policy and Planning (1980). *Standard Occupational Classification Manual—1980.* Washington, DC: U.S. Government Printing Office.

U.S. Department of Education, National Center for Education Statistics. (1999). *Manual for Coding Industries and Occupations* (NCES 2000-077). Washington, DC: U.S. Government Printing Office.

U.S. Department of Education, National Center for Education Statistics. (2019). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) Fifth-Grade Hearing Evaluations Component Restricted-Use Data File* (NCES 2019-018).

Vandell, D. (2000). Peer Social Support, Bullying, and Victimization (Form FLV05GS: *Kids in My Class at School*) [measurement instrument]. NICHD Study of Early Child Care and Youth Development: Phase III, 2000–2004.

Vandell, D L. (2001). *Relationships With Peers: Part D (Teacher).* Unpublished scale, NICHD Study of Early Child Care and Youth Development, Form FSV10G3.

Woodcock, R.W., McGrew, K.S., and Mather, N. (2001). *Woodcock-Johnson III Tests of Cognitive Abilities.* Itasca, IL: Riverside Publishing.

Zelazo, P.D. (2006). The Dimensional Change Card Sort (DCCS): A Method of Assessing Executive Function in Children. *Nature Protocols, 1*: 297–301.

Zelazo, P.D., Anderson, J.E., Richler, J., Wallner-Allen, K., Beaumont, J.L., and Weintraub, S. (2013). NIH Toolbox Cognition Battery (CB): Measuring executive function and attention. In P.D. Zelazo and P.J. Bauer (Eds.), *National Institutes of Health Toolbox Cognition Battery (NIH Toolbox CB): Validation for Children Between 3 and 15 Years. Monographs of the Society for Research in Child Development*.

This page intentionally left blank.

APPENDIX A
DATA ADDENDA, ANOMALIES, ERRATA, AND DATA CONSIDERATIONS

INTRODUCTION

This appendix provides information on data addenda, data anomalies, errata, and data considerations. Addenda are meant to provide additional details for issues from previously released documentation or data files that have no applicability to the manual's focal round of data collection. Anomalies and errata listed here were identified during the editing and review of the data and are those known at the time this manual was prepared. Other anomalies and errata may exist in the data.

The information presented here will be more easily understood, and is most useful, *after* the survey items or variables to be used in analyses have been identified. Each anomaly, error, or data consideration is associated with a specific survey question or variable in the data file (or both). Rather than read through this entire appendix, users may find it easier to identify any issues associated with their data of interest by searching for the survey question number, variable name, or keyword in this appendix. For example, an analyst who is interested in information about children's diagnoses of attention deficit hyperactivity disorder (ADHD) could search (1) CHQ125, which is the number of the question in which this information was asked in the parent interview; (2) P9ADHA, which is the name of the variable in which data from CHQ125 about ADHD are stored; and (3) "Attention Deficit Hyperactivity Disorder" or "ADHD."

These anomalies, errors, and considerations are noted so that users are aware these issues with the data exist. Leaving the anomalous or erroneous data as they are will not significantly affect most analyses, because the number of cases affected is generally very small. However, analyses focused on a small subpopulation or examining rare characteristics could be significantly affected by data issues with even a small number of cases. Therefore, analysts doing such analyses should consider the impact these data issues may have on their results.

This appendix is organized into sections as shown on the following page.

CONTENTS

INTRODUCTION **A-1**

ADDENDA **A-3**

Revised Variables A-3
Revised Variable Names A-3
Analyses to Examine Possible Assessor Effects A-3

PARENT INTERVIEW **A-4**

Spring 2016 Anomalies A-4
Spring 2016 Errors in the CAI Programming A-5
Spring 2016 Data Considerations A-5

CHILD ASSESSMENT **A-6**

Spring 2016 Data Considerations A-6

HARD-COPY QUESTIONNAIRES **A-6**

Teacher Questionnaires: Spring 2016 Anomalies A-6

COMPOSITE VARIABLES **A-7**

Spring 2016 Anomalies A-7
Spring 2016 Data Considerations A-8

ADDENDA

Revised variables

- The variable, X4BRKFNL, was adjusted in the fifth grade data file. Because of the revision, it was renamed X4BRKFNL_R and its label was changed to "X4 PARENT INTERVIEW BREAKOFF QUESTION-REVISED." This change was necessary because the copyrighted social skills variables (P4SS1 through P4SS18) were included for the first time on the fifth grade file, after permission was received from the publisher. Previously, if a breakoff occurred in the parent interview and the breakoff was at the point where one of the copyrighted social skills questions was being administered, the breakoff point was noted as the last non-copyrighted variable that was administered (P4ATNDSERV). When the copyrighted variables for children's social skills were added to the data file, the breakoff points were adjusted to reflect the actual breakoff points that corresponded to one of the newly delivered copyrighted variables (if applicable). The value of X4BRKFNL was updated for 33 cases so that its value accurately reflects where the break off occurred.

- The variables, X7ENLS and X7RCETH, were corrected after an error was discovered in their derivation. Because of this revision, the variables were renamed to X7ENRLS_R and X7RCETH_R. Their labels were changed to "X7 TOTAL SCHOOL ENROLLMENT-REVISED" and "X7 PERCENT NONWHITE STUDENTS IN SCHOOL-REVISED," respectively.

Revised variable names

Two variables names from previous rounds of the study included typos and did not match the names of the same variables from other rounds of the study. The variable names were corrected as shown below. There were no data changes to these variables.

- B2OTHRCT (changed from B2OTHCRT)

- A4KOTHRCT (changed from A4KOTHCRT)

Analyses to Examine Possible Assessor Effects

The possibility of assessor effects was examined for the executive function measures in all rounds of the study, including those not covered by the current manual. Findings are discussed in the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011) *Third-Grade, Fourth-Grade, and Fifth-Grade Psychometric Report* (NCES 2019-023) (Najarian et al. forthcoming).

PARENT INTERVIEW

Spring 2016 Anomalies

- In one case (CHILDID = 10007194), the respondent answered "don't know" for whether two persons who were previously in the household were still household members. One of these persons was the child's biological father. Because there was not enough information provided in the interview to suggest making changes to the household roster, these persons were retained as household members.

- In one case (CHILDID = 10008937), there was an interviewer and editing error in round 2 that produced a missing record for the fifth person in the household roster. The fifth person in the household is recorded as person 9. This issue is present in all rounds of the study since round 2.

- There are cases that have a disability diagnosis for the focal child and have follow-up questions about that diagnosis recorded in variables other than those used for the child's specific diagnosis. In the parent interview, respondents were asked to provide the diagnosis of the child's disability, if applicable, in question CHQ125 (P9LRNDIS-P9OTHDIA). If a diagnosis did not fit one of the categories in the parent interview specifications, the diagnosis was entered as "other." Follow-up questions about age at diagnosis and medication taken for a particular diagnosis (CHQ130-CHQ173) were asked about the diagnosis entered as "other." During data editing and review of "other" responses conducted after the parent interview was completed, it was determined that some answers in the "other" category fit within existing codes that were available in the interview and were assigned codes for those existing categories. For example, in a situation in which the parent report was initially coded as an "other" diagnosis in CHQ125 but was later determined to be depression, the diagnosis was recategorized from "other" to depression (P9DEPRESS = 1), but the information collected in follow-up questions about age at diagnosis and medication taken for a particular diagnosis (CHQ130-CHQ173) remain in the variables pertaining to the "other" category. If the category for depression was already chosen in CHQ125, the follow-up questions about age at diagnosis and medication taken for a particular diagnosis (CHQ130-CHQ173) would be both in the variables pertaining to depression and in the variables pertaining to the "other" category.

- There are four cases (10008751, 10003817, 10014329 and 10009109) where the parent figures were reported to have read want ads or looked on the Internet to look for work in the past 4 weeks (P9DO9_1=1), but there are data about whether they could have taken a job last week (P9TAK_1). There is also one case (10003866) where the parent figure was reported to have attended job training to look for work in the past 4 weeks (P9DO8_2=1), but there are data about whether this person could have taken a job last week (P9TAK_2). Although these cases would not have been asked whether they could have taken a job in the last week if it had been answered during the interview that their activity to find work had been reading want ads or obtaining job training (with no other activities to find work indicated), the data pattern is valid because the answers (P9DO9_1 or P9DO10_1) were upcoded to 1 from the "other specify" answer for "doing something else to find work" in P9DO10_1 (which was then coded 2). Because the answers were originally coded in a category for "doing something else to find work"

(P9DO10_1 = 91), P9TAK_1 and P9TAK_2 (EMQ100) were correctly asked according to the specifications in section EMQ, Box 3, that indicate: "IF DOING SOMETHING ELSE IN THE PAST 4 WEEKS (EMQ.070 = 91), CONTINUE WITH EMQ100."

Spring 2016 Errors in the CAI Programming

- There are three cases that have previous answers in the nonresident parent section (NRQ) that a biological parent had no contact since adoption. These cases should not have received questions in later rounds about the nonresident biological parent; however, an error in the CAI programming allowed them to receive these questions. For one case (CHILDID=10006193), NRQ variables for the biological mother, P7BMCNTC, P8BMCNTC, and P9BMCNTC, should not have been asked. For another case (CHILDID=10006907), NRQ variables for the biological mother, P8BMCNTC and P9BMCNTC, should not have been asked. For another case (CHILDID=10006193), NRQ variables for the biological father, P7BDCNTC, P8BDCNTC, and P9BDCNTC, should not have been asked. Because there are data for the cases, the answers have been retained in the data file.

Spring 2016 Data Considerations

- There are cases with reports of parent education levels in spring 2016 that are lower than the education levels reported in previous rounds. Because there was no information to indicate which report was accurate, the data were left as reported.

- The nonresident parent section of the parent interview (NRQ) was designed to ask about biological and adoptive parents who were not in the household. If there was one adoptive parent in the household, questions were asked about contact the child might have had with another adoptive parent who was not in the household. Questions in this section were asked about a nonresident adoptive parent who was the opposite sex of the adoptive parent in the household. Questions were not asked about a nonresident adoptive parent who was the same sex as the other adoptive parent in the household.

- There are cases that do not have parent interview data but have valid values in the field management system for the month of the parent interview (F9INTVMM) or the parent interviewer identification number (F9PINTVR). Cases prepared for interviewing are assigned these values; however, some cases are later excluded for eligibility reasons.

CHILD ASSESSMENT

Spring 2016 Data Considerations

- There are cases that do not have child assessment data, but have valid values in the field management system for the child assessor identification number (F9CASSOR). Cases prepared for interviewing are assigned child assessor identification numbers; however, some cases are later excluded for eligibility reasons. There is also one case (CHILDID = 10012478) with child assessment data, but no child assessor identification number.

HARD-COPY QUESTIONNAIRES

For the hard-copy instruments (school administrator questionnaires, teacher-level teacher questionnaire, and teacher child-level questionnaire), both range and consistency checks were performed.

- Range checks include logical soft checks for continuous variables.
- Consistency checks include logical soft comparisons between related variables within a form to check for inconsistencies.

When data were identified during quality control (QC) processes as possibly in error, the original questionnaire returned by the respondent was reviewed to determine whether the response was incorrectly captured during the questionnaire scanning process. For those cases listed as anomalies, data reviewers confirmed that the data matched the form and reasonable correction(s) could not be ascertained. Therefore, the data were left as reported.

Anomalies for the hard-copy instruments are described below.

Teacher Questionnaires: Spring 2016 Anomalies

The following CHILDIDs belong to classes with no designated key child for child-level teacher data. This situation occurred for one of two reasons: (1) the child-level teacher data for the key child in the class was not completed, but data were returned for non-key children in the class, or (2) operational error resulted in a key child not being indicated for a class (i.e., no survey for a child in that class had the red dot sticker on the questionnaire cover to indicate the questionnaire belonged to the “key child”), so the teacher had no questionnaire for which he or she was asked to complete the classroom-level items for the class.

Reading		Math	Science
10000646	10006530	10001389	10004683
10000986	10007326	10007886	10004766
10001389	10010247	10008938	10004812
10001900	10010253	10009071	10009570
10002305	10010996		10010996
10003320	10011068		10015737
10003382	10011768		
10003711	10013554		
10004984	10016035		
10005664	10017615		
10006229			

COMPOSITE VARIABLES

Spring 2016 Anomalies

Chapter 7 of this manual provides detailed information about the composite variables that were created and included in the data file. In this section, errors and data considerations related to the composite variables are described. Analysts are encouraged to carefully review the descriptions of the composite measures of interest to them in chapter 7.

- There were inconsistencies in the reporting of school type in the School Administrator Questionnaires. In five schools (school ID=2052, 1416, 2542, 3809, and 4845), respondents chose inconsistent responses in the SAQ, e.g., checking both Catholic and other religious, or checking both a public type (e.g., charter school) and a private type. In eight schools (school ID=1607, 1416, 1360, 2231, 3809, 5540, 5871, and 6169), the SAQ was inconsistent with the school master file information on the school type. Each case was investigated using information on the field management system and/or the school website. Values for the composites X9SCTYP and X9PUBPRI were set based on the results of these investigations. Original SAQ responses were not altered, so information reported by the school administrator may conflict with information in the school type composites.

- There is variation in the value of X*LOCALE (school locale) across rounds for some schools, that is, cases for which the value of X9LOCALE does not match the value of one or more X*LOCALE composites for that school from a prior round. In each round, the X*LOCALE composite values were confirmed against the school master file current at the time of file creation for that round. Differences in values may reflect growth of a community, correction to the source data, or other causes of changes in the school master file values.

- Some values of X9FRMEAL_I (the percent of students in the school who were approved for free or reduced-price school meals) were greater than 100 percent. These were coded as category 4 (75 to 100 percent).

Spring 2016 Data Considerations

- In one case (CHILDID = 10008493), the child does not appear to have any direct cognitive assessment data (all individual cognitive assessment flags are correctly set to "0: FALSE," but X9ASMTST = 1). X9ASMTST was set to 1 for this case because the child completed the child questionnaire (X9CQFLG=1). Thus, despite not having completed any of the direct cognitive assessment items, the child is considered as having an assessment.

- There are cases that do not have parent survey data (X9PARDAT = 0), but have values for interviewer ID (F9PINTVR), interview month (F9INTVMM), and interview year (F9INTVYY). All cases are assigned these interview values; however, some cases were not fielded and thus have no parent data. All rounds of data except round 7 have interview months and years even if there are no parent data.

APPENDIX B

SUPPLEMENTAL GUIDE FOR THE KINDERGARTEN-FIFTH GRADE PUBLIC-USE DATA FILE

1 Introduction

This guide provides information specific to the Early Childhood Longitudinal Study, Kindergarten Class of 2010-11 (ECLS-K:2011) kindergarten–fifth grade public-use data file, referred to hereinafter as the K-5 PUF, which includes data from the base-year (kindergarten) through fifth-grade data collections. This guide is a supplemental document that describes the edits made to the restricted-use file in order to produce the public-use file. This guide focuses on the variables associated with the fifth-grade data collection. Users should refer to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook, Public Version* (NCES 2015-074) (Tourangeau et al. 2015a), hereinafter referred to as the base-year User's Manual, for information about the general study methodology and the kindergarten rounds of data collection; to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–First Grade Data File and Electronic Codebook, Public Version* (NCES 2015-078) (Tourangeau et al. 2015b) for information about the first-grade rounds of data collection; to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Second Grade Data File and Electronic Codebook, Public Version* (NCES 2017-285) (Tourangeau et al. 2017) for information about the second-grade rounds of data collection; to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Third Grade Data File and Electronic Codebook, Public Version* (NCES 2018-034) (Tourangeau et al. 2018a) for information about the third-grade round of data collection; and to the *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten–Fourth Grade Data File and Electronic Codebook, Public Version* (NCES 2018-032) (Tourangeau et al. 2018b) for information about the fourth-grade round of data collection.

The K-5 PUF is derived from the K-5 restricted-use file, or RUF, and is identical in format. All the variables from the K-5 restricted-use file are included in the same order on the K-5 public-use file. Like the RUF, the PUF is a child-level file that contains assessment data and parent, teacher, and school information collected for all 18,174 study children who are considered base-year respondents. Data masking techniques were applied to variables in the K-5 RUF to make it suitable for release to researchers without a restricted-use license. These masking techniques, which are described further in the next section, include suppressing sensitive data or variables that apply to only a small subset of study participants, collapsing variable categories, top- or bottom-coding values that are unusually low or unusually high, converting continuous variables to categorical variables, and adding noise to school information from the study that is also present in the school sampling frame. These techniques are applied to the data to minimize the risk that any study participant can be identified using the information provided in the data file about them.

2 Masked Variables

As noted above, the masking techniques used to produce the ECLS-K:2011 public-use data file include variable recoding and suppression. The purpose of masking is to provide data in a format that minimizes the potential for a respondent to be identified because of that respondent's characteristics or a unique combination of characteristics. For example, there is potential for the principal of a school to be identified if the zip code of that school, the number of students in the school, and the age and race/ethnicity of that principal are all provided in the data file. To guard against this potential disclosure, zip code and principal race/ethnicity are suppressed (i.e., not provided) in the PUF, and the number of students in the school and principal age are provided in categories rather than as exact values. There are several types of modifications to variables in the K-5 PUF, as described below.

- Outliers (that is, unusually high or unusually low values) are top- or bottom-coded to prevent identification of unique schools, teachers, parents, and children without affecting overall data quality. The category value labels for variables that are top- and bottom-coded in the PUF are edited versions of the RUF category labels and reflect the new highest and lowest categories.

- Some continuous variables are converted into categorical variables, and some categorical variables have their categories collapsed in the K-5 PUF. Category value labels are provided for continuous variables that are converted into categorical variables.

- Variables with too few cases and/or a sparse distribution are suppressed in the K-5 PUF. The values for these variables are set to -2 and labeled "suppressed" in the Electronic Codebook (ECB). The value -2 means that the data for this variable are suppressed to protect the respondent's confidentiality.

- Variables that provide a particularly identifying characteristic, such as a specific disability, or information that could be matched against external data sources to obtain a specific identifying characteristic, such as exact date of marriage or divorce, are also suppressed. The values for these variables are set to -2.

- The variables from kindergarten through fourth grade are masked identically in the K-5 PUF as they were in the K-4 PUF. To the greatest extent possible, fifth-grade variables have been masked to be consistent with the masking for similar kindergarten through fourth-grade variables.

- Variables with information that could be found in the school sampling frame have noise added to them unless they were already masked using any of the methods above. This is only for a small number of records that might be identified using these and other frame variables.

There is a comment field in the variable frequency distribution view screen of the ECB that displays a comment for each masked variable indicating whether the variable from the restricted-use file has been recoded or suppressed in the K-5 PUF.

Exhibits B-1 to B-8 present the lists of masked variables for fifth grade. The exhibits display the variable name, variable label, and a comment indicating whether the variable was recoded or suppressed. See section 7.1 of this manual for the variable naming conventions.

All variables from the special education teacher questionnaire part A (i.e., all variables with the prefix D9) and from the special education teacher questionnaire part B (i.e., all variables with the prefix E9) are suppressed on the K-5 PUF. For brevity, these variables are not included in the exhibits.

Exhibit B-1. ECLS-K:2011 masked variables, spring 2016 child assessment

Variable name	Variable description	Comments
C9HGT1	C9 ACQ005 HEIGHT MEASUREMENT 1	Data recoded for respondent confidentiality
C9WGT1	C9 ACQ010 WEIGHT MEASUREMENT 1	Data recoded for respondent confidentiality
C9HGT2	C9 ACQ015 HEIGHT MEASUREMENT 2	Data recoded for respondent confidentiality
C9WGT2	C9 ACQ020 WEIGHT MEASUREMENT 2	Data recoded for respondent confidentiality
C9FRDRILL	C9 ACQ030 INTERRUPTION - FIRE DRILL	Data suppressed for respondent confidentiality
C9BMBTHR	C9 ACQ030 INTERRUPTION - BOMB THREAT	Data suppressed for respondent confidentiality
C9LIMITX	C9 ACQ041 PHYS LIMITN AFFECT DCCS/FLANKR	Data suppressed for respondent confidentiality
C9SPECAC	C9 ACQ045 SPECIAL ACCOMMODATION LISTED	Data suppressed for respondent confidentiality
C9ACCOM	C9 ONE OF LISTED ACCOMMODATIONS PROVIDED	Data suppressed for respondent confidentiality
C9SETTNG	C9 ACQ055 ACCMMDTNS PROVIDED - SETTING	Data suppressed for respondent confidentiality
C9SCHEDL	C9 ACQ055 ACCMMDTNS PROVIDED - SCHEDULE	Data suppressed for respondent confidentiality
C9AIDE	C9 ACQ055 ACCMMDTNS PROVIDED - AIDE	Data suppressed for respondent confidentiality
C9DEVICE	C9 ACQ055 ACCMMDTNS PROVIDED - DEVICE	Data suppressed for respondent confidentiality
C9IEPPRO	C9 ACQ055 ACCMMDTNS PROVIDED - IEP	Data suppressed for respondent confidentiality
C9BREAKS	C9 ACQ055 ACCMMDTNS PROVIDED - BREAKS	Data suppressed for respondent confidentiality
C9EXTTIM	C9 ACQ055 ACCMMDTNS PROVIDED - EXT TIME	Data suppressed for respondent confidentiality
C9STAFF	C9 ACQ055 ACCMMDTNS PROVIDED - STAFF	Data suppressed for respondent confidentiality
C9BRKRES	C9 REASON FOR THE BREAKOFF	Data suppressed for respondent confidentiality

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) kindergarten–fifth grade (K-5) public-use data file.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview

Variable name	Variable description	Comments
P9CENTRC	P9 HOME CENSUS TRACT CODE	Data suppressed for respondent confidentiality
P9HOMZIP	P9 HOME ZIP CODE	Data suppressed for respondent confidentiality
P9BTHPLC	P9 INQ300 CHILD BORN IN THIS COUNTRY	Data suppressed for respondent confidentiality
P9CNTRYB	P9 INQ310 CHILD COUNTRY OF BIRTH	Data suppressed for respondent confidentiality
P9YRCOME	P9 INQ320 YEAR CHILD CAME TO UNITED STATES	Data suppressed for respondent confidentiality
P9CITIZN	P9 INQ330 CHILD A U.S. CITIZEN	Data suppressed for respondent confidentiality
P9SCHOOL	P9 PIQ060 SCHOOL ASSIGNED OR SELECTED	Data recoded for respondent confidentiality
P9ATTSCH	P9 PIQ065 DOES CHILD ATTEND SCHOOL	Data suppressed for respondent confidentiality
P9HRSSCH	P9 PIQ066 HOURS IN SCHOOL PER WEEK	Data suppressed for respondent confidentiality
P9REASL1	P9 FSQ015 REASON LEFT - PERS 1	Data suppressed for respondent confidentiality
P9REASL2	P9 FSQ015 REASON LEFT - PERS 2	Data suppressed for respondent confidentiality
P9REASL3	P9 FSQ015 REASON LEFT - PERS 3	Data suppressed for respondent confidentiality
P9REASL4	P9 FSQ015 REASON LEFT - PERS 4	Data suppressed for respondent confidentiality
P9REASL5	P9 FSQ015 REASON LEFT - PERS 5	Data suppressed for respondent confidentiality
P9REASL6	P9 FSQ015 REASON LEFT - PERS 6	Data suppressed for respondent confidentiality
P9REASL7	P9 FSQ015 REASON LEFT - PERS 7	Data suppressed for respondent confidentiality
P9REASL8	P9 FSQ015 REASON LEFT - PERS 8	Data suppressed for respondent confidentiality
P9REASL9	P9 FSQ015 REASON LEFT - PERS 9	Data suppressed for respondent confidentiality
P9REASL10	P9 FSQ015 REASON LEFT - PERS 10	Data suppressed for respondent confidentiality
P9REASL11	P9 FSQ015 REASON LEFT - PERS 11	Data suppressed for respondent confidentiality
P9REASL12	P9 FSQ015 REASON LEFT - PERS 12	Data suppressed for respondent confidentiality
P9REASL13	P9 FSQ015 REASON LEFT - PERS 13	Data suppressed for respondent confidentiality
P9REASL14	P9 FSQ015 REASON LEFT - PERS 14	Data suppressed for respondent confidentiality
P9REASL15	P9 FSQ015 REASON LEFT - PERS 15	Data suppressed for respondent confidentiality
P9REASL16	P9 FSQ015 REASON LEFT - PERS 16	Data suppressed for respondent confidentiality
P9REASL17	P9 FSQ015 REASON LEFT - PERS 17	Data suppressed for respondent confidentiality
P9REASL18	P9 FSQ015 REASON LEFT - PERS 18	Data suppressed for respondent confidentiality
P9REASL19	P9 FSQ015 REASON LEFT - PERS 19	Data suppressed for respondent confidentiality
P9REASL20	P9 FSQ015 REASON LEFT - PERS 20	Data suppressed for respondent confidentiality
P9REASL21	P9 FSQ015 REASON LEFT - PERS 21	Data suppressed for respondent confidentiality
P9REASL22	P9 FSQ015 REASON LEFT - PERS 22	Data suppressed for respondent confidentiality
P9REASL23	P9 FSQ015 REASON LEFT - PERS 23	Data suppressed for respondent confidentiality
P9REASL24	P9 FSQ015 REASON LEFT - PERS 24	Data suppressed for respondent confidentiality
P9REASL25	P9 FSQ015 REASON LEFT - PERS 25	Data suppressed for respondent confidentiality
P9CHPUERTR	P9 FSQ196B2 CHILD PUERTO RICAN	Data suppressed for respondent confidentiality
P9CHCUBAN	P9 FSQ196B3 CHILD CUBAN	Data suppressed for respondent confidentiality
P9CHOTHHSP	P9 FSQ196B4 CHILD OTHER SPAN/HISP/LATINO	Data suppressed for respondent confidentiality
P9CHASIND	P9 FSQ197B1 CHILD ASIAN INDIAN	Data suppressed for respondent confidentiality
P9CHCHIN	P9 FSQ197B2 CHILD CHINESE	Data suppressed for respondent confidentiality
P9CHFILIP	P9 FSQ197B3 CHILD FILIPINO	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview—Continued

Variable name	Variable description	Comments
P9CHJAPN	P9 FSQ197B4 CHILD JAPANESE	Data suppressed for respondent confidentiality
P9CHKORN	P9 FSQ197B5 CHILD KOREAN	Data suppressed for respondent confidentiality
P9CHVIETN	P9 FSQ197B6 CHILD VIETNAMESE	Data suppressed for respondent confidentiality
P9CHHMNG	P9 FSQ197B7 CHILD HMONG	Data suppressed for respondent confidentiality
P9CHOTHASN	P9 FSQ197B8 CHILD OTHER ASIAN	Data suppressed for respondent confidentiality
P9CHPACISL	P9 FSQ198A CHILD MEMBER PACIFIC ISLANDER	Data suppressed for respondent confidentiality
P9CHHAWIAN	P9 FSQ198B1 CHILD NATIVE HAWAIIAN	Data suppressed for respondent confidentiality
P9CHGUAMCH	P9 FSQ198B2 CHILD GUAMANIAN OR CHAMORRO	Data suppressed for respondent confidentiality
P9CHSOMOAN	P9 FSQ198B3 CHILD SAMOAN	Data suppressed for respondent confidentiality
P9CHOTHPAC	P9 FSQ198B4 CHILD OTHER PACIFIC ISLANDER	Data suppressed for respondent confidentiality
P9CURMAR	P9 FSQ200 CURRENT MARITAL STATUS	Data recoded for respondent confidentiality
P9ARABIC	P9 PLQ040 OTHER LANGUAGE - ARABIC	Data suppressed for respondent confidentiality
P9FLPNO	P9 PLQ040 OTHER LANGUAGE - FILIPINO	Data suppressed for respondent confidentiality
P9FRENCH	P9 PLQ040 OTHER LANGUAGE - FRENCH	Data suppressed for respondent confidentiality
P9GERMAN	P9 PLQ040 OTHER LANGUAGE - GERMAN	Data suppressed for respondent confidentiality
P9GREEK	P9 PLQ040 OTHER LANGUAGE - GREEK	Data suppressed for respondent confidentiality
P9ITALN	P9 PLQ040 OTHER LANGUAGE - ITALIAN	Data suppressed for respondent confidentiality
P9JAPNES	P9 PLQ040 OTHER LANGUAGE - JAPANESE	Data suppressed for respondent confidentiality
P9KOREAN	P9 PLQ040 OTHER LANGUAGE - KOREAN	Data suppressed for respondent confidentiality
P9POLISH	P9 PLQ040 OTHER LANGUAGE - POLISH	Data suppressed for respondent confidentiality
P9PORTUG	P9 PLQ040 OTHER LANGUAGE - PORTUGUESE	Data suppressed for respondent confidentiality
P9VIETNM	P9 PLQ040 OTHER LANGUAGE - VIETNAMESE	Data suppressed for respondent confidentiality
P9FARSI	P9 PLQ040 OTHER LANGUAGE - FARSI	Data suppressed for respondent confidentiality
P9HMONG	P9 PLQ040 OTHER LANGUAGE - HMONG	Data suppressed for respondent confidentiality
P9SIGNLG	P9 PLQ040 OTHER LANGUAGE - SIGN LANG	Data suppressed for respondent confidentiality
P9AFRLNG	P9 PLQ040 OTHER LANGUAGE - AFRICAN LANG	Data suppressed for respondent confidentiality
P9EASTEUR	P9 PLQ040 OTHER LANGUAGE - EASTRN EUROPN	Data suppressed for respondent confidentiality
P9NATVAM	P9 PLQ040 OTHER LANGUAGE - NATIVE AMER	Data suppressed for respondent confidentiality
P9MIDEST	P9 PLQ040 OTHER LANGUAGE - MIDDLE EASTRN	Data suppressed for respondent confidentiality
P9WSTEUR	P9 PLQ040 OTHER LANGUAGE - WESTRN EUROPN	Data suppressed for respondent confidentiality
P9SOASIA	P9 PLQ040 OTHER LANGUAGE - SOUTHEAST ASN	Data suppressed for respondent confidentiality
P9PACISL	P9 PLQ040 OTHER LANGUAGE - PACIFIC ISLDR	Data suppressed for respondent confidentiality
P9CREOLE	P9 PLQ040 OTHER LANGUAGE - CREOLE	Data suppressed for respondent confidentiality
P9OTHLNG	P9 PLQ040 OTHER LANGUAGE - OTHER	Data suppressed for respondent confidentiality
P9PRMLNG	P9 PLQ060 WHAT PRIMARY LANGUAGE AT HOME	Data recoded for respondent confidentiality
P9RELNUM	P9 CCQ060 # REL CARE ARRANGMNTS NOW	Data recoded for respondent confidentiality
P9RELMST	P9 CCQ065 WHICH RELATIVE GIVES MOST CARE	Data recoded for respondent confidentiality
P9RDAYS	P9 CCQ085 # OF DAYS/WK OF REL CARE	Data recoded for respondent confidentiality
P9NRNUM	P9 CCQ165 # NONREL CARE ARRANGMNTS NOW	Data suppressed for respondent confidentiality
P9NDAYS	P9 CCQ185 # OF DAYS/WK OF NONREL CARE	Data recoded for respondent confidentiality

See note at end of exhibit.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview—Continued

Variable name	Variable description	Comments
P9NHROTH	P9 CCQ205 # HRS/WK OTHER NONREL CARE	Data suppressed for respondent confidentiality
P9CTRNUM	P9 CCQ325 # CNTR CARE ARRANGMNTS NOW	Data suppressed for respondent confidentiality
P9CWKEND	P9 CCQ335C WHEN PROGRAM - WEEKENDS	Data suppressed for respondent confidentiality
P9CDAYS	P9 CCQ350 # OF DAYS/WK OF CENTER CARE	Data recoded for respondent confidentiality
P9CHROTH	P9 CCQ375 #HRS/WK AT OTHER PROGRAMS	Data suppressed for respondent confidentiality
P9SCHRWK	P9 CCQ377 HR/WK CHILD CARES FOR SELF	Data recoded for respondent confidentiality
P9BMCNTC	P9 NRQ040 TIME FROM LAST CONTACT-BIOMOM	Data recoded for respondent confidentiality
P9AMCNTC	P9 NRQ040 TIME FROM LAST CONTACT-ADPMOM	Data suppressed for respondent confidentiality
P9AMPHEM	P9 NRQ123 #TIMES PHONE/CALL/EMAIL/TEXT	Data suppressed for respondent confidentiality
P9BDCNTC	P9 NRQ040 TIME FROM LAST CONTACT-BIODAD	Data recoded for respondent confidentiality
P9ADCNTC	P9 NRQ040 TIME FROM LAST CONTACT-ADPDAD	Data suppressed for respondent confidentiality
P9ADPHEM	P9 NRQ123 #TIMES PHONE/CALL/EMAIL/TEXT	Data suppressed for respondent confidentiality
P9BMCOB	P9 COQ005 COUNTRY OF BIRTH-BIOMOM	Data suppressed for respondent confidentiality
P9BMAGEM	P9 COQ010 AGE WHEN MOVED TO USA-BIOMOM	Data suppressed for respondent confidentiality
P9BDCOB	P9 COQ020 COUNTRY OF BIRTH-BIODAD	Data recoded for respondent confidentiality
P9BDAGEM	P9 COQ025 AGE WHEN MOVED TO USA-BIODAD	Data suppressed for respondent confidentiality
P9DENTIS	P9 CHQ010 LAST VISIT TO DENTIST	Data recoded for respondent confidentiality
P9DOCTOR	P9 CHQ020 LAST VISIT-ROUTINE HEALTH CARE	Data recoded for respondent confidentiality
P9DIAEAR	P9 CHQ023 DIAGNSE EAR INFCT SINCE SPRING	Data recoded for respondent confidentiality
P9KDECN	P9 CHQ024B EAR TREATMENT - DECONGEST	Data suppressed for respondent confidentiality
P9KTUBE	P9 CHQ024D EAR TREATMENT - EAR TUBES	Data suppressed for respondent confidentiality
P9KFLSH	P9 CHQ024G EAR TREATMENT - FLUSH/IRRIG	Data suppressed for respondent confidentiality
P9KTONS	P9 CHQ024H EAR TREATMENT - TONSILS/ADNOID	Data suppressed for respondent confidentiality
P9KCHIR	P9 CHQ024I EAR TREATMENT - CHIROPRACTIC	Data suppressed for respondent confidentiality
P9KNODR	P9 CHQ024J EAR TREATMENT - NO DR VISIT	Data suppressed for respondent confidentiality
P9KOTHR	P9 CHQ024K EAR TREATMENT - OTHER	Data suppressed for respondent confidentiality
P9KETLO	P9 CHQ025 EAR TUBES IN WHICH EAR	Data suppressed for respondent confidentiality
P9LRNDIS	P9 CHQ125 DIAGNOSIS - LEARN DISABILITY	Data suppressed for respondent confidentiality
P9ADD	P9 CHQ125 DIAGNOSIS - ADD	Data suppressed for respondent confidentiality
P9ADHA	P9 CHQ125 DIAGNOSIS - ADHD	Data suppressed for respondent confidentiality
P9DEVDLY	P9 CHQ125 DIAGNOSIS - DEVELOP DELAY	Data suppressed for respondent confidentiality
P9AUTSM	P9 CHQ125 DIAGNOSIS - AUTISM SPEC DISORD	Data suppressed for respondent confidentiality
P9DYSLXA	P9 CHQ125 DIAGNOSIS - DYSLEXIA	Data suppressed for respondent confidentiality
P9DYSCLC	P9 CHQ125 DIAGNOSIS - DYSCALCULIA	Data suppressed for respondent confidentiality
P9COGNTV	P9 CHQ125 DIAGNOSIS - SEVERE COGNITIVE	Data suppressed for respondent confidentiality
P9ORTHOP	P9 CHQ125 DIAGNOSIS - ORTHOPEDIC IMPAIR	Data suppressed for respondent confidentiality
P9EMODIS	P9 CHQ125 DIAGNOSIS - SER EMOTION DISTRB	Data suppressed for respondent confidentiality
P9TRMBRI	P9 CHQ125 DIAGNOSIS - TRAUMATC BRAIN INJ	Data suppressed for respondent confidentiality
P9PNCDIS	P9 CHQ125 DIAGNOSIS - PANIC DISORDER	Data suppressed for respondent confidentiality
P9SEPANX	P9 CHQ125 DIAGNOSIS - SEPARATION ANXIETY	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview—Continued

Variable name	Variable description	Comments
P9OCD	P9 CHQ125 DIAGNOSIS - OCD	Data suppressed for respondent confidentiality
P9GENANX	P9 CHQ125 DIAGNOSIS - GEN ANXIETY DIS	Data suppressed for respondent confidentiality
P9OTHANX	P9 CHQ125 DIAGNOSIS - OTHER ANXIETY DIS	Data suppressed for respondent confidentiality
P9BIPOLR	P9 CHQ125 DIAGNOSIS - BIPOLAR DISORDER	Data suppressed for respondent confidentiality
P9DEPRESS	P9 CHQ125 DIAGNOSIS - DEPRESSION	Data suppressed for respondent confidentiality
P9SPEECH	P9 CHQ125 DIAGNOSIS - SPEECH PROBLEMS	Data suppressed for respondent confidentiality
P9SENSDF	P9 CHQ125 DIAGNOSIS - SENSORY DEFICIT	Data suppressed for respondent confidentiality
P9OPPDEF	P9 CHQ125 DIAGNOSIS - OPPOS DEFIANCE DIS	Data suppressed for respondent confidentiality
P9OTHDIA	P9 CHQ125 DIAGNOSIS - OTHER	Data suppressed for respondent confidentiality
P9AUTSPC	P9 CHQ126 TYPE OF AUTISM SPECRM DISORDER	Data suppressed for respondent confidentiality
P9AGELD	P9 CHQ130 AGE AT 1ST DIAGNS-LRN DISABLTY	Data suppressed for respondent confidentiality
P9AGELDU	P9 CHQ131 AGE 1ST DIAGNS-LRN DISBL UNIT	Data suppressed for respondent confidentiality
P9AGELDM	P9 CHQ135A AGE 1ST DIAGNS-LRN DIS MONTH	Data suppressed for respondent confidentiality
P9AGELDY	P9 CHQ135B AGE 1ST DIAGNS-LRN DIS YEAR	Data suppressed for respondent confidentiality
P9MEDLD	P9 CHQ140 TAKE PRESCRIPTION FOR LRN DIS	Data suppressed for respondent confidentiality
P9MEDLDL	P9 CHQ173 HOW LONG TAKING MED - LRN DIS	Data suppressed for respondent confidentiality
P9AGEADD	P9 CHQ130 AGE AT 1ST DIAGNS-ADD	Data suppressed for respondent confidentiality
P9AGEADU	P9 CHQ131 AGE 1ST DIAGNS-ADD UNIT	Data suppressed for respondent confidentiality
P9AGEADM	P9 CHQ135A AGE 1ST DIAGNS-ADD MONTH	Data suppressed for respondent confidentiality
P9AGEADY	P9 CHQ135B AGE 1ST DIAGNS-ADD YEAR	Data suppressed for respondent confidentiality
P9MEDAD	P9 CHQ140 TAKING PRESCRIPTION FOR ADD	Data suppressed for respondent confidentiality
P9LOCMED1	P9 CHQ155 LOCATION TAKING RX -ADD	Data suppressed for respondent confidentiality
P9MEDLAD	P9 CHQ173 HOW LONG TAKING MED - ADD	Data suppressed for respondent confidentiality
P9AGEAHD	P9 CHQ130 AGE AT 1ST DIAGNS-ADHD	Data suppressed for respondent confidentiality
P9AGEHDU	P9 CHQ131 AGE 1ST DIAGNS-ADHD UNIT	Data suppressed for respondent confidentiality
P9AGEHDM	P9 CHQ135A AGE 1ST DIAGNS-ADHD MONTH	Data suppressed for respondent confidentiality
P9AGEHDY	P9 CHQ135B AGE 1ST DIAGNS-ADHD YEAR	Data suppressed for respondent confidentiality
P9MEDHD	P9 CHQ140 TAKE PRESCRIPTION FOR ADHD	Data suppressed for respondent confidentiality
P9LOCMED2	P9 CHQ155 LOCATION TAKING RX-ADHD	Data suppressed for respondent confidentiality
P9MEDLHD	P9 CHQ173 HOW LONG TAKING MED - ADHD	Data suppressed for respondent confidentiality
P9AGEDV	P9 CHQ130 AGE AT 1ST DIAGNS-DEV DELAY	Data suppressed for respondent confidentiality
P9AGEDVU	P9 CHQ131 AGE 1ST DIAGNS-DEV DEL UNIT	Data suppressed for respondent confidentiality
P9AGEDVM	P9 CHQ135A AGE 1ST DIAGNS-DEV DEL MONTH	Data suppressed for respondent confidentiality
P9AGEDVY	P9 CHQ135B AGE 1ST DIAGNS-DEV DEL YEAR	Data suppressed for respondent confidentiality
P9MEDDV	P9 CHQ140 TAKE PRESCRIPTION FOR DEV DEL	Data suppressed for respondent confidentiality
P9MEDDVL	P9 CHQ173 HOW LONG TAKING MED - DEV DEL	Data suppressed for respondent confidentiality
P9AGEAU	P9 CHQ130 AGE AT 1ST DIAGNS-AUTISM SD	Data suppressed for respondent confidentiality
P9AGEAUU	P9 CHQ131 AGE 1ST DIAGNS-AUTISM SD UNIT	Data suppressed for respondent confidentiality
P9AGEAUM	P9 CHQ135A AGE 1ST DIAGNS-AUTISM SD MNTH	Data suppressed for respondent confidentiality
P9AGEAUY	P9 CHQ135B AGE 1ST DIAGNS-AUTISM SD YEAR	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview—Continued

Variable name	Variable description	Comments
P9MEDAU	P9 CHQ140 TAKE PRESCRIPTION AUTISM SD	Data suppressed for respondent confidentiality
P9MEDAUL	P9 CHQ173 HOW LONG TAKING MED -AUTISM SD	Data suppressed for respondent confidentiality
P9AGEDL	P9 CHQ130 AGE AT 1ST DIAGNS-DYSLXIA	Data suppressed for respondent confidentiality
P9AGEDLU	P9 CHQ131 AGE 1ST DIAGNS-DYSLXIA UNIT	Data suppressed for respondent confidentiality
P9AGEDLM	P9 CHQ135A AGE 1ST DIAGNS-DYSLXIA MONTH	Data suppressed for respondent confidentiality
P9AGEDLY	P9 CHQ135B AGE 1ST DIAGNS-DYSLXIA YEAR	Data suppressed for respondent confidentiality
P9MEDDL	P9 CHQ140 TAKE PRESCRIPTION FOR DYSLXIA	Data suppressed for respondent confidentiality
P9MEDDLL	P9 CHQ173 HOW LONG TAKING MED - DYSLXIA	Data suppressed for respondent confidentiality
P9AGEDC	P9 CHQ130 AGE AT 1ST DIAGNS-DYSCALCULIA	Data suppressed for respondent confidentiality
P9AGEDCU	P9 CHQ131 AGE 1ST DIAGNS-DYSCLC UNIT	Data suppressed for respondent confidentiality
P9AGEDCM	P9 CHQ135A AGE 1ST DIAGNS-DYSCLC MONTH	Data suppressed for respondent confidentiality
P9AGEDCY	P9 CHQ135B AGE 1ST DIAGNS-DYSCLC YEAR	Data suppressed for respondent confidentiality
P9MEDDC	P9 CHQ140 TAKE PRESCRIPTION FOR DYSCLC	Data suppressed for respondent confidentiality
P9MEDDCL	P9 CHQ173 HOW LONG TAKING MED - DYSCLC	Data suppressed for respondent confidentiality
P9AGECD	P9 CHQ130 AGE AT 1ST DIAGNS-COGN DIS/MR	Data suppressed for respondent confidentiality
P9AGECDU	P9 CHQ131 AGE 1ST DIAGNS-COG/MR UNIT	Data suppressed for respondent confidentiality
P9AGECDM	P9 CHQ135A AGE 1ST DIAGNS-COG/MR MONTH	Data suppressed for respondent confidentiality
P9AGECDY	P9 CHQ135B AGE 1ST DIAGNS-COG/MR YEAR	Data suppressed for respondent confidentiality
P9MEDCD	P9 CHQ140 TAKE PRESCRIPTION FOR COG/MR	Data suppressed for respondent confidentiality
P9MEDCDL	P9 CHQ173 HOW LONG TAKING MED - COG/MR	Data suppressed for respondent confidentiality
P9AGEOR	P9 CHQ130 AGE AT 1ST DIAGNS-ORTHO IMPAIR	Data suppressed for respondent confidentiality
P9AGEORU	P9 CHQ131 AGE 1ST DIAGNS-ORTHO UNIT	Data suppressed for respondent confidentiality
P9AGEORM	P9 CHQ135A AGE 1ST DIAGNS-ORTHO MONTH	Data suppressed for respondent confidentiality
P9AGEORY	P9 CHQ135B AGE 1ST DIAGNS-ORTHO YEAR	Data suppressed for respondent confidentiality
P9MEDOR	P9 CHQ140 TAKE PRESCRIPTION FOR ORTHO	Data suppressed for respondent confidentiality
P9MEDORL	P9 CHQ173 HOW LONG TAKING MED - ORTHO	Data suppressed for respondent confidentiality
P9AGEEM	P9 CHQ130 AGE AT 1ST DIAGNS-EMOT DISTRB	Data suppressed for respondent confidentiality
P9AGEEMU	P9 CHQ131 AGE 1ST DIAGNS-EMOT UNIT	Data suppressed for respondent confidentiality
P9AGEEMM	P9 CHQ135A AGE 1ST DIAGNS-EMOT MONTH	Data suppressed for respondent confidentiality
P9AGEEMY	P9 CHQ135B AGE 1ST DIAGNS-EMOT YEAR	Data suppressed for respondent confidentiality
P9MEDEM	P9 CHQ140 TAKE PRESCRIPTION FOR EMOT	Data suppressed for respondent confidentiality
P9MEDEML	P9 CHQ173 HOW LONG TAKING MED - EMOT	Data suppressed for respondent confidentiality
P9AGEBR	P9 CHQ130 AGE AT 1ST DIAGNS-BRAIN INJRY	Data suppressed for respondent confidentiality
P9AGEBRU	P9 CHQ131 AGE 1ST DIAGNS-BRAIN UNIT	Data suppressed for respondent confidentiality
P9AGEBRM	P9 CHQ135A AGE 1ST DIAGNS-BRAIN MONTH	Data suppressed for respondent confidentiality
P9AGEBRY	P9 CHQ135B AGE 1ST DIAGNS-BRAIN YEAR	Data suppressed for respondent confidentiality
P9MEDBR	P9 CHQ140 TAKE PRESCRIPTION FOR BRAIN	Data suppressed for respondent confidentiality
P9MEDBRL	P9 CHQ173 HOW LONG TAKING MED - BRAIN	Data suppressed for respondent confidentiality
P9AGEPC	P9 CHQ130 AGE AT 1ST DIAGNS-PANIC DIS	Data suppressed for respondent confidentiality
P9AGEPCU	P9 CHQ131 AGE 1ST DIAGNS-PANIC UNIT	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview—Continued

Variable name	Variable description	Comments
P9AGEPCM	P9 CHQ135A AGE 1ST DIAGNS-PANIC MONTH	Data suppressed for respondent confidentiality
P9AGEPCY	P9 CHQ135B AGE 1ST DIAGNS-PANIC YEAR	Data suppressed for respondent confidentiality
P9MEDPC	P9 CHQ140 TAKE PRESCRIPTION FOR PANIC	Data suppressed for respondent confidentiality
P9MEDPCL	P9 CHQ173 HOW LONG TAKING MED - PANIC	Data suppressed for respondent confidentiality
P9AGESA	P9 CHQ130 AGE AT 1ST DIAGNS-SEP ANXTY	Data suppressed for respondent confidentiality
P9AGESAU	P9 CHQ131 AGE 1ST DIAGNS-SEP ANX UNIT	Data suppressed for respondent confidentiality
P9AGESAM	P9 CHQ135A AGE 1ST DIAGNS-SEP ANX MONTH	Data suppressed for respondent confidentiality
P9AGESAY	P9 CHQ135B AGE 1ST DIAGNS-SEP ANX YEAR	Data suppressed for respondent confidentiality
P9MEDSA	P9 CHQ140 TAKE PRESCRIPTION FOR SEP ANX	Data suppressed for respondent confidentiality
P9MEDSAL	P9 CHQ173 HOW LONG TAKING MED - SEP ANX	Data suppressed for respondent confidentiality
P9AGEOC	P9 CHQ130 AGE AT 1ST DIAGNS-OCD	Data suppressed for respondent confidentiality
P9AGEOCU	P9 CHQ131 AGE 1ST DIAGNS-OCD UNIT	Data suppressed for respondent confidentiality
P9AGEOCM	P9 CHQ135A AGE 1ST DIAGNS-OCD MONTH	Data suppressed for respondent confidentiality
P9AGEOCY	P9 CHQ135B AGE 1ST DIAGNS-OCD YEAR	Data suppressed for respondent confidentiality
P9MEDOC	P9 CHQ140 TAKE PRESCRIPTION FOR OCD	Data suppressed for respondent confidentiality
P9MEDOCL	P9 CHQ173 HOW LONG TAKING MED - OCD	Data suppressed for respondent confidentiality
P9AGEGA	P9 CHQ130 AGE AT 1ST DIAGNS-GAD	Data suppressed for respondent confidentiality
P9AGEGAU	P9 CHQ131 AGE 1ST DIAGNS-GAD UNIT	Data suppressed for respondent confidentiality
P9AGEGAM	P9 CHQ135A AGE 1ST DIAGNS-GAD MONTH	Data suppressed for respondent confidentiality
P9AGEGAY	P9 CHQ135B AGE 1ST DIAGNS-GAD YEAR	Data suppressed for respondent confidentiality
P9MEDGA	P9 CHQ140 TAKE PRESCRIPTION FOR GAD	Data suppressed for respondent confidentiality
P9MEDGAL	P9 CHQ173 HOW LONG TAKING MED - GAD	Data suppressed for respondent confidentiality
P9AGEAN	P9 CHQ130 AGE AT 1ST DIAGNS-OTH ANXTY DS	Data suppressed for respondent confidentiality
P9AGEANU	P9 CHQ131 AGE 1ST DIAGNS-ANXTY UNIT	Data suppressed for respondent confidentiality
P9AGEANM	P9 CHQ135A AGE 1ST DIAGNS-ANXTY MONTH	Data suppressed for respondent confidentiality
P9AGEANY	P9 CHQ135B AGE 1ST DIAGNS-ANXTY YEAR	Data suppressed for respondent confidentiality
P9MEDAN	P9 CHQ140 TAKE PRESCRIPTION FOR ANXTY	Data suppressed for respondent confidentiality
P9MEDANL	P9 CHQ173 HOW LONG TAKING MED - ANXTY	Data suppressed for respondent confidentiality
P9AGEBI	P9 CHQ130 AGE AT 1ST DIAGNS-BIPOLAR	Data suppressed for respondent confidentiality
P9AGEBIU	P9 CHQ131 AGE 1ST DIAGNS-BIPLR UNIT	Data suppressed for respondent confidentiality
P9AGEBIM	P9 CHQ135A AGE 1ST DIAGNS-BIPLR MONTH	Data suppressed for respondent confidentiality
P9AGEBIY	P9 CHQ135B AGE 1ST DIAGNS-BIPLR YEAR	Data suppressed for respondent confidentiality
P9MEDBI	P9 CHQ140 TAKE PRESCRIPTION FOR BIPLR	Data suppressed for respondent confidentiality
P9MEDBIL	P9 CHQ173 HOW LONG TAKING MED - BIPLR	Data suppressed for respondent confidentiality
P9AGEDE	P9 CHQ130 AGE AT 1ST DIAGNS-DEPRSSION	Data suppressed for respondent confidentiality
P9AGEDEU	P9 CHQ131 AGE 1ST DIAGNS-DEPRSS UNIT	Data suppressed for respondent confidentiality
P9AGEDEM	P9 CHQ135A AGE 1ST DIAGNS-DEPRSS MONTH	Data suppressed for respondent confidentiality
P9AGEDEY	P9 CHQ135B AGE 1ST DIAGNS-DEPRSS YEAR	Data suppressed for respondent confidentiality
P9MEDDE	P9 CHQ140 TAKE PRESCRIPTION FOR DEPRSS	Data suppressed for respondent confidentiality
P9MEDDEL	P9 CHQ173 HOW LONG TAKING MED - DEPRSS	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview—Continued

Variable name	Variable description	Comments
P9AGESPC	P9 CHQ130 AGE AT 1ST DIAGNS-SPEECH	Data suppressed for respondent confidentiality
P9AGESPU	P9 CHQ131 AGE 1ST DIAGNS-SPEECH UNIT	Data suppressed for respondent confidentiality
P9AGESPM	P9 CHQ135A AGE 1ST DIAGNS-SPEECH MONTH	Data suppressed for respondent confidentiality
P9AGESPY	P9 CHQ135B AGE 1ST DIAGNS-SPEECH YEAR	Data suppressed for respondent confidentiality
P9MEDSPC	P9 CHQ140 TAKE PRESCRIPTION FOR SPEECH	Data suppressed for respondent confidentiality
P9MEDSPL	P9 CHQ173 HOW LONG TAKING MED - SPEECH	Data suppressed for respondent confidentiality
P9AGESDF	P9 CHQ130 AGE AT 1ST DIAGNS-SENS DEF	Data suppressed for respondent confidentiality
P9AGESDU	P9 CHQ131 AGE 1ST DIAGNS-SENS DEF UNIT	Data suppressed for respondent confidentiality
P9AGESDM	P9 CHQ135A AGE 1ST DIAGNS-SENS DEF MONTH	Data suppressed for respondent confidentiality
P9AGESDY	P9 CHQ135B AGE 1ST DIAGNS-SENS DEF YEAR	Data suppressed for respondent confidentiality
P9MEDSDF	P9 CHQ140 TAKE PRESCRIPTION FOR SENS DEF	Data suppressed for respondent confidentiality
P9MEDSDL	P9 CHQ173 HOW LONG TAKING MED-OPP DEF	Data suppressed for respondent confidentiality
P9AGEODF	P9 CHQ130 AGE AT 1ST DIAGNS-OPP DEF	Data suppressed for respondent confidentiality
P9AGEODU	P9 CHQ131 AGE 1ST DIAGNS-OPP DEF UNIT	Data suppressed for respondent confidentiality
P9AGEODM	P9 CHQ135A AGE 1ST DIAGNS-OPP DEF MONTH	Data suppressed for respondent confidentiality
P9AGEODY	P9 CHQ135B AGE 1ST DIAGNS-OPP DEF YEAR	Data suppressed for respondent confidentiality
P9MEDODF	P9 CHQ140 TAKE PRESCRIPTION FOR OPP DEF	Data suppressed for respondent confidentiality
P9MEDODL	P9 CHQ173 HOW LONG TAKING MED - OPP DEF	Data suppressed for respondent confidentiality
P9AGEOT	P9 CHQ130 AGE AT 1ST DIAGNS-OTHER	Data suppressed for respondent confidentiality
P9AGEOTU	P9 CHQ131 AGE 1ST DIAGNS-OTH UNIT	Data suppressed for respondent confidentiality
P9AGEOTM	P9 CHQ135A AGE 1ST DIAGNS-OTH MONTH	Data suppressed for respondent confidentiality
P9AGEOTY	P9 CHQ135B AGE 1ST DIAGNS-OTH YEAR	Data suppressed for respondent confidentiality
P9MEDOT	P9 CHQ140 TAKE PRESCRIPTION FOR OTH	Data suppressed for respondent confidentiality
P9MEDOTL	P9 CHQ173 HOW LONG TAKING MED - OTH	Data suppressed for respondent confidentiality
P9DEHEAR	P9 CHQ216 DESCRIBE HEARING	Data recoded for respondent confidentiality
P9HEARWH	P9 CHQ217 HEAR WHISPER IN QUIET ROOM	Data suppressed for respondent confidentiality
P9HEARNO	P9 CHQ218 HEAR NORMAL IN QUIET ROOM	Data suppressed for respondent confidentiality
P9HEARQT	P9 CHQ219 HEAR SHOUT IN QUIET ROOM	Data suppressed for respondent confidentiality
P9HEARYL	P9 CHQ220 HEAR IF SPEAKS LOUDLY IN EAR	Data suppressed for respondent confidentiality
P9DESCHR	P9 CHQ222 DESCRIBES HEARING IN WORSE EAR	Data suppressed for respondent confidentiality
P9EARWX	P9 CHQ246 HEARING DIAGNOSIS-EAR WAX	Data suppressed for respondent confidentiality
P9CLDFRM	P9 CHQ246 HEARING DIAGNOSIS-CANAL DEFORM	Data suppressed for respondent confidentiality
P9EARSCK	P9 CHQ246 HEARING DIAGNOSIS-EAR INFECTN	Data suppressed for respondent confidentiality
P9FLDNER	P9 CHQ246 HEARING DIAGNOSIS-FLUID IN EAR	Data suppressed for respondent confidentiality
P9EARDRM	P9 CHQ246 HEARING DIAGNOSIS-EAR DRUM PRB	Data suppressed for respondent confidentiality
P9ILLNES	P9 CHQ246 HEARING DIAGNOSIS-ILLNESS	Data suppressed for respondent confidentiality
P9CMV	P9 CHQ246 HEARING DIAGNOSIS-CMV	Data suppressed for respondent confidentiality
P9OTOTXC	P9 CHQ246 HEARING DIAGNOSIS-OTOTOXIC	Data suppressed for respondent confidentiality
P9NOISE	P9 CHQ246 HEARING DIAGNOSIS-NOISE EXP	Data suppressed for respondent confidentiality
P9GENES	P9 CHQ246 HEARING DIAGNOSIS-GENETIC	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview—Continued

Variable name	Variable description	Comments
P9HDINJY	P9 CHQ246 HEARING DIAGNOSIS-HEAD INJURY	Data suppressed for respondent confidentiality
P9SURGRY	P9 CHQ246 HEARING DIAGNOSIS-SURGERY	Data suppressed for respondent confidentiality
P9NRVDF	P9 CHQ246 HEARING DIAGNOSIS-NERVE DEAF	Data suppressed for respondent confidentiality
P9CAPDIS	P9 CHQ246 HEARING DIAGNOSIS-CAP DISORDER	Data suppressed for respondent confidentiality
P9DEAF	P9 CHQ246 HEARING DIAGNOSIS-DEAF	Data suppressed for respondent confidentiality
P9HRLSDK	P9 CHQ246 HEARING DIAGNOSIS-CAUSE UNKNWN	Data suppressed for respondent confidentiality
P9AWAIT	P9 CHQ246 HEARING DIAGNOSIS-AWAITING EVAL	Data suppressed for respondent confidentiality
P9HROTHR	P9 CHQ246 HEARING DIAGNOSIS-OTHER	Data suppressed for respondent confidentiality
P9AGHCU1	P9 CHQ250A AGE 1ST DIAGNS-HEARNG/COM UNT	Data suppressed for respondent confidentiality
P9AGHCM1	P9 CHQ250B AGE 1ST DIAGNS-HEARNG/COM MO	Data suppressed for respondent confidentiality
P9AGHCY1	P9 CHQ250C AGE 1ST DIAGNS-HEARNG/COM YR	Data suppressed for respondent confidentiality
P9DTHCM1	P9 CHQ255A L1 COMMUN DIAG DATE - MONTH	Data suppressed for respondent confidentiality
P9DTHCY1	P9 CHQ255B L1 COMMUN DIAG DATE - YEAR	Data suppressed for respondent confidentiality
P9AGHCU2	P9 CHQ250A AGE 1ST DIAGNS-HEARNG/COM UNT	Data suppressed for respondent confidentiality
P9AGHCM2	P9 CHQ250B AGE 1ST DIAGNS-HEARNG/COM MO	Data suppressed for respondent confidentiality
P9AGHCY2	P9 CHQ250C AGE 1ST DIAGNS-HEARNG/COM YR	Data suppressed for respondent confidentiality
P9DTHCM2	P9 CHQ255A L2 HEARING DIAG DATE - MONTH	Data suppressed for respondent confidentiality
P9DTHCY2	P9 CHQ255B L2 HEARING DIAG DATE - YEAR	Data suppressed for respondent confidentiality
P9SLIHRA	P9 CHQ256A SINCE LAST INTVW-HEARING AID	Data suppressed for respondent confidentiality
P9EVRHRA	P9 CHQ256B CHILD EVER WORE HEARING AID	Data suppressed for respondent confidentiality
P91REHAU	P9 CHQ257A 1ST RECOMMEND HEARING AID-UNT	Data suppressed for respondent confidentiality
P91REHAM	P9 CHQ257B 1ST RECOMMEND HEARING AID-MTH	Data suppressed for respondent confidentiality
P91REHAY	P9 CHQ257C 1ST RECOMMEND HEARING AID -YR	Data suppressed for respondent confidentiality
P9AIDSCH	P9 CHQ258 HOW OFTEN HEAR AID IN SCHOOL	Data suppressed for respondent confidentiality
P9AIDWHS	P9 CHQ259 HEAR WHISPER IN QUIET RM W/AID	Data suppressed for respondent confidentiality
P9AIDREG	P9 CHQ260 HEAR NORMAL IN QUIET RM W/AID	Data suppressed for respondent confidentiality
P9AIDSHT	P9 CHQ261 HEAR SHOUT IN QUIET RM W/AID	Data suppressed for respondent confidentiality
P9AIDEAR	P9 CHQ262 HEAR SPEAKS LOUDLY EAR W/AID	Data suppressed for respondent confidentiality
P9DRREHA	P9 CHQ263 DOCTOR RECOMMEND HEAR AID	Data suppressed for respondent confidentiality
P9DR1REU	P9 CHQ264A DOCTOR 1ST RECOM AID - UNIT	Data suppressed for respondent confidentiality
P9DR1REM	P9 CHQ264B DOCTOR 1ST RECOM AID - MONTH	Data suppressed for respondent confidentiality
P9DR1REY	P9 CHQ264C DOCTOR 1ST RECOM AID - YEAR	Data suppressed for respondent confidentiality
P9COCHLE	P9 CHQ270 CHILD HAS COCHLEAR IMPLANT	Data suppressed for respondent confidentiality
P9IMPLNT	P9 CHQ271 YEAR OF IMPLANT	Data suppressed for respondent confidentiality
P9COAGEU	P9 CHQ272A AGE AT IMPLANT - UNIT	Data suppressed for respondent confidentiality
P9COAGEM	P9 CHQ272B AGE AT IMPLANT - MONTH	Data suppressed for respondent confidentiality
P9COAGEY	P9 CHQ272C AGE AT IMPLANT - YEAR	Data suppressed for respondent confidentiality
P9LIMPYR	P9 CHQ273 LEFT EAR IMPLANT YEAR	Data suppressed for respondent confidentiality
P9RIMPYR	P9 CHQ274 RIGHT EAR IMPLANT YEAR	Data suppressed for respondent confidentiality
P9ALIMPU	P9 CHQ275A AGE L IMPLANT - UNIT	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview—Continued

Variable name	Variable description	Comments
P9ALIMPM	P9 CHQ275B AGE L IMPLANT - MONTH	Data suppressed for respondent confidentiality
P9ALIMPY	P9 CHQ275C AGE L IMPLANT - YEAR	Data suppressed for respondent confidentiality
P9ARIMPU	P9 CHQ276A AGE R IMPLANT - UNIT	Data suppressed for respondent confidentiality
P9ARIMPM	P9 CHQ276B AGE R IMPLANT - MONTH	Data suppressed for respondent confidentiality
P9ARIMPY	P9 CHQ276C AGE R IMPLANT - YEAR	Data suppressed for respondent confidentiality
P9COCHWH	P9 CHQ277 HR WHISPER IN QUIET RM W/COCH	Data suppressed for respondent confidentiality
P9COCHRG	P9 CHQ278 HEAR NORMAL IN QUIET RM W/COCH	Data suppressed for respondent confidentiality
P9COCHSH	P9 CHQ279 HEAR SHOUT IN QUIET RM W/COCH	Data suppressed for respondent confidentiality
P9COCHER	P9 CHQ280 HEAR SPEAKS LOUDLY EAR W/COCH	Data suppressed for respondent confidentiality
P9VISCLR	P9 CHQ301 VISION DIAGNOSIS - COLOR BLIND	Data suppressed for respondent confidentiality
P9VISCRS	P9 CHQ301 VISION DIAGNOSIS - CROSS EYED	Data suppressed for respondent confidentiality
P9VISRET	P9 CHQ301 VISION DIAGNOSIS - RETINOPATHY	Data suppressed for respondent confidentiality
P9VISBLN	P9 CHQ301 VISION DIAGNOSIS - BLINDNESS	Data suppressed for respondent confidentiality
P9AWAITG	P9 CHQ301 VISION DIAGNOSIS - AWAITING EVAL	Data suppressed for respondent confidentiality
P9AGVIU1	P9 CHQ305A AGE 1ST DIAGNS-VISION UNIT	Data suppressed for respondent confidentiality
P9AGVIM1	P9 CHQ305B AGE 1ST DIAGNS-VISION MONTH	Data suppressed for respondent confidentiality
P9AGVIY1	P9 CHQ305C AGE 1ST DIAGNS-VISION YEAR	Data suppressed for respondent confidentiality
P9VISMO	P9 CHQ310A MONTH 1ST DIAGNS-VISION	Data suppressed for respondent confidentiality
P9VISYR	P9 CHQ310B YEAR 1ST DIAGNS-VISION	Data suppressed for respondent confidentiality
P9OFTLEN	P9 CHQ312 HOW OFTEN CHD WEAR GLASS/LENS	Data recoded for respondent confidentiality
P9HVELEN	P9 CHQ313 DOES CHILD HAVE GLASSES/LENS	Data suppressed for respondent confidentiality
P9HSCALE	P9 CHQ330 1-5 SCALE OF CHILD'S HEALTH	Data recoded for respondent confidentiality
P9HIG_1_I	P9 PEQ020 PERS 1 HIGHEST EDUCATION LEVEL (IMPUTED)	Data recoded for respondent confidentiality
P9HIG_2_I	P9 PEQ020 PERS 2 HIGHEST EDUCATION LEVEL (IMPUTED)	Data recoded for respondent confidentiality
P9JOB_1	P9 EMQ040 PERSON 1 NUMBER OF CUR JOBS	Data recoded for respondent confidentiality
P9DO6_1_I	P9 EMQ070 PERS 1 CHKD SCHL/UNIV EMPL CTR (IMPUTED)	Data suppressed for respondent confidentiality
P9DO7_1_I	P9 EMQ070 PERS 1 CHKD UNION/PROFSSL REG (IMPUTED)	Data suppressed for respondent confidentiality
P9DO8_1	P9 EMQ070 PERS 1 ATTENDED JOB TRAINING	Data suppressed for respondent confidentiality
P9DO10_1	P9 EMQ070OS PERS 1 DID SOMETHING ELSE	Data suppressed for respondent confidentiality
P9DOW_1	P9 EMQ080 WHAT PERSON 1 DOING LAST WEEK	Data recoded for respondent confidentiality
P9EVRACTV1	P9 EMQ210 PERS 1 SERVED ACTIVE DUTY	Data suppressed for respondent confidentiality
P9CURACTV1	P9 EMQ215 PERS 1 CURR ON ACTIVE DUTY	Data suppressed for respondent confidentiality
P9JOB_2	P9 EMQ040 PERSON 2 NUMBER OF CUR JOBS	Data recoded for respondent confidentiality
P9DO6_2_I	P9 EMQ070 PERS 2 CHKD SCHL/UNIV EMPL CTR (IMPUTED)	Data suppressed for respondent confidentiality
P9DO7_2_I	P9 EMQ070 PERS 2 CHKD UNION/PROFSSL REG (IMPUTED)	Data suppressed for respondent confidentiality
P9DO8_2	P9 EMQ070 PERS 2 ATTENDED JOB TRAINING	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-2. ECLS-K:2011 masked variables, spring 2016 parent interview—Continued

Variable name	Variable description	Comments
P9DO10_2	P9 EMQ070OS PERS 2 DID SOMETHING ELSE	Data suppressed for respondent confidentiality
P9DOW_2	P9 EMQ080 WHAT PERSON 2 DOING LAST WEEK	Data recoded for respondent confidentiality
P9CURACTV2	P9 EMQ215 PERS 2 CURR ON ACTIVE DUTY	Data suppressed for respondent confidentiality
P9TINCTH_I	P9 PAQ120 TOTAL HOUSEHOLD INCOME ($-LOW) (IMPUTED)	Data suppressed for respondent confidentiality
P9HOUSIT	P9 PAQ140 CURRENT HOUSING SITUATION	Data recoded for respondent confidentiality
P9BTRSCH	P9 CMQ020 WHY MOVED-BETTER SCHOOL	Data suppressed for respondent confidentiality
P9SAFER	P9 CMQ020 WHY MOVED-SAFER AREA	Data suppressed for respondent confidentiality
P9FORCLS	P9 CMQ020 WHY MOVED-BANK FORECLOSED	Data suppressed for respondent confidentiality
P9EVICT	P9 CMQ020 WHY MOVED-EVICTED	Data suppressed for respondent confidentiality
P9DAMAGE	P9 CMQ020 WHY MOVED-DAMAGED HOUSE	Data suppressed for respondent confidentiality
P9HSSOLD	P9 CMQ020 WHY MOVED-HOUSE SOLD/NO NEW	Data suppressed for respondent confidentiality
P9NOLEAS	P9 CMQ020 WHY MOVED-LEASE UP/OWNER WANTED BACK	Data suppressed for respondent confidentiality
P9LEFTRL	P9 CMQ020 WHY MOVED-LEFT RELATV'S HOME	Data suppressed for respondent confidentiality
P9CLSFAM	P9 CMQ020 WHY MOVED-BE CLOSER TO FAM	Data suppressed for respondent confidentiality
P9LANGUA	P9 CMQ690 LANGUAGE INTERVIEW CONDUCTED	Data recoded for respondent confidentiality

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011)) kindergarten–fifth grade (K-5) public-use data file.

Exhibit B-3. ECLS-K:2011 masked variables, spring 2016 teacher-level reading teacher questionnaire

Variable name	Variable description	Comments
A9TXMUS	A9 A3E TIME FOR MUSIC	Data recoded for respondent confidentiality
A9TXART	A9 A3F TIME FOR ART	Data recoded for respondent confidentiality
A9TXDAN	A9 A3H TIME FOR DANCE	Data recoded for respondent confidentiality
A9TXTHTR	A9 A3I TIME FOR THEATER	Data recoded for respondent confidentiality
A9YRBORN	A9 C2 TEACHER'S YEAR OF BIRTH	Data recoded for respondent confidentiality
A9HISP	A9 C3 HISPANIC OR LATINO (ANY RACE)	Data suppressed for respondent confidentiality
A9AMINAN	A9 C4 AMER IND/ALASKA NAT	Data suppressed for respondent confidentiality
A9ASIAN	A9 C4 ASIAN	Data suppressed for respondent confidentiality
A9BLACK	A9 C4 BLACK/AFRICAN AMERICAN	Data suppressed for respondent confidentiality
A9HAWPI	A9 C4 NATIVE HAWAIIAN/PAC ISL	Data suppressed for respondent confidentiality
A9WHITE	A9 C4 WHITE	Data suppressed for respondent confidentiality
A9YRSPRK	A9 C5A YRS TAUGHT PRESCHL/KINDRGTN	Data suppressed for respondent confidentiality
A9YRSFST	A9 C5B YRS TEACHER TAUGHT FIRST GRADE	Data suppressed for respondent confidentiality
A9YRS2ND	A9 C5C YRS TEACHER TAUGHT SECOND GRADE	Data suppressed for respondent confidentiality
A9YRS3RD	A9 C5D YRS TEACHER TAUGHT THIRD GRADE	Data suppressed for respondent confidentiality
A9YRS4TH	A9 C5E YRS TEACHER TAUGHT FOURTH GRADE	Data suppressed for respondent confidentiality
A9YRS5TH	A9 C5F YRS TEACHER TAUGHT FIFTH GRADE	Data suppressed for respondent confidentiality
A9YRS6PL	A9 C5G YRS TEACHER TAUGHT 6 GRADE OR UP	Data suppressed for respondent confidentiality
A9YRSEBD	A9 C5H YRS TAUGHT ESL/BILING/DUAL LANG	Data suppressed for respondent confidentiality
A9YRSSPE	A9 C5I YRS TEACHER TAUGHT SPECIAL ED	Data suppressed for respondent confidentiality
A9YRSGFT	A9 C5J YRS TEACHER TAUGHT GIFTED ED	Data suppressed for respondent confidentiality
A9YRSTCH	A9 C6 NUMBER YEARS BEEN SCHOOL TEACHER	Data recoded for respondent confidentiality
A9HGHSTD	A9 C8 HIGHEST ED LEVEL TEACHER ACHIEVED	Data recoded for respondent confidentiality
A9DEGERL	A9 C9A UNDER GRAD/EARLY CHILDHOOD ED	Data suppressed for respondent confidentiality
A9DEGELM	A9 C9B UNDER GRAD/ELEMENTARY ED	Data suppressed for respondent confidentiality
A9DEGENG	A9 C9C UNDER GRAD/ ENGLISH	Data suppressed for respondent confidentiality
A9DEGRED	A9 C9D UNDER GRAD/ READING/LANG ART	Data suppressed for respondent confidentiality
A9DEGCUR	A9 C9E UNDER GRAD/ CURRICULUM INS	Data suppressed for respondent confidentiality
A9DEGMTE	A9 C9F UNDER GRAD/ MATH EDUCATION	Data suppressed for respondent confidentiality
A9DEGMTH	A9 C9G UNDER GRAD/ MATHEMATICS	Data suppressed for respondent confidentiality
A9DEGSCE	A9 C9H UNDER GRAD/ SCIENCE EDU	Data suppressed for respondent confidentiality
A9DEGLSC	A9 C9I UNDER GRAD/ LIFE SCIENCE	Data suppressed for respondent confidentiality
A9DEGPSC	A9 C9J UNDER GRAD/ PHYSICAL SCIENCE	Data suppressed for respondent confidentiality
A9DEGESC	A9 C9K UNDER GRAD/ EARTH SCIENCE	Data suppressed for respondent confidentiality
A9DEGSPE	A9 C9L UNDER GRAD/SPECIAL ED	Data suppressed for respondent confidentiality
A9DEGOTH	A9 C9M UNDER GRAD/OTHER ED MAJOR	Data suppressed for respondent confidentiality
A9DEGNON	A9 C9N UNDER GRAD/NON ED MAJOR	Data suppressed for respondent confidentiality
A9GRDERL	A9 C10A GRAD DEG/EARLY CHILDHOOD ED	Data suppressed for respondent confidentiality
A9GRDELM	A9 C10B GRAD DEG/ELEMENTARY ED	Data suppressed for respondent confidentiality
A9GRDENG	A9 C10C GRAD DEG/ ENGLISH	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-3. ECLS-K:2011 masked variables, spring 2016 teacher-level reading teacher questionnaire—Continued

Variable name	Variable description	Comments
A9GRDRED	A9 C10D GRAD DEG/ READING/LANG ART	Data suppressed for respondent confidentiality
A9GRDCUR	A9 C10E GRAD DEG/ CURRICULUM INS	Data suppressed for respondent confidentiality
A9GRDMTE	A9 C10F GRAD DEG/ MATH EDUCATION	Data suppressed for respondent confidentiality
A9GRDMTH	A9 C10G GRAD DEG/ MATHEMATICS	Data suppressed for respondent confidentiality
A9GRDSCE	A9 C10H GRAD DEG/ SCIENCE EDU	Data suppressed for respondent confidentiality
A9GRDLSC	A9 C10I GRAD DEG/ LIFE SCIENCE	Data suppressed for respondent confidentiality
A9GRDPSC	A9 C10J GRAD DEG/ PHYSICAL SCIENCE	Data suppressed for respondent confidentiality
A9GRDESC	A9 C10K GRAD DEG/ EARTH SCIENCE	Data suppressed for respondent confidentiality
A9GRDSPE	A9 C10C GRAD DEG/SPECIAL ED	Data suppressed for respondent confidentiality
A9GRDOTH	A9 C10D GRAD DEG/OTHER ED MAJOR	Data suppressed for respondent confidentiality
A9GRDNON	A9 C10E GRAD DEG/NON ED MAJOR	Data suppressed for respondent confidentiality

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) kindergarten–fifth grade (K-5) public-use data file.

Exhibit B-4. ECLS-K:2011 masked variables, spring 2016 teacher-level mathematics/science teacher questionnaire

Variable name	Variable description	Comments
A9TXMUSZ	A9 A3E TIME FOR MUSIC	Data recoded for respondent confidentiality
A9TXARTZ	A9 A3F TIME FOR ART	Data recoded for respondent confidentiality
A9TXDANZ	A9 A3H TIME FOR DANCE	Data recoded for respondent confidentiality
A9TXTHTRZ	A9 A3I TIME FOR THEATER	Data recoded for respondent confidentiality
A9YRBORNZ	A9 C2 TEACHER'S YEAR OF BIRTH	Data recoded for respondent confidentiality
A9HISPZ	A9 C3 HISPANIC OR LATINO (ANY RACE)	Data suppressed for respondent confidentiality
A9AMINANZ	A9 C4 AMER IND/ALASKA NAT	Data suppressed for respondent confidentiality
A9ASIANZ	A9 C4 ASIAN	Data suppressed for respondent confidentiality
A9BLACKZ	A9 C4 BLACK/AFRICAN AMERICAN	Data suppressed for respondent confidentiality
A9HAWPIZ	A9 C4 NATIVE HAWAIIAN/PAC ISL	Data suppressed for respondent confidentiality
A9WHITEZ	A9 C4 WHITE	Data suppressed for respondent confidentiality
A9YRSPRKZ	A9 C5A YRS TAUGHT PRESCHL/KINDRGTN	Data suppressed for respondent confidentiality
A9YRSFSTZ	A9 C5B YRS TEACHER TAUGHT FIRST GRADE	Data suppressed for respondent confidentiality
A9YRS2NDZ	A9 C5C YRS TEACHER TAUGHT SECOND GRADE	Data suppressed for respondent confidentiality
A9YRS3RDZ	A9 C5D YRS TEACHER TAUGHT THIRD GRADE	Data suppressed for respondent confidentiality
A9YRS4THZ	A9 C5E YRS TEACHER TAUGHT FOURTH GRADE	Data suppressed for respondent confidentiality
A9YRS5THZ	A9 C5F YRS TEACHER TAUGHT FIFTH GRADE	Data suppressed for respondent confidentiality
A9YRS6PLZ	A9 C5G YRS TEACHER TAUGHT 6 GRADE OR UP	Data suppressed for respondent confidentiality
A9YRSEBDZ	A9 C5H YRS TAUGHT ESL/BILING/DUAL LANG	Data suppressed for respondent confidentiality
A9YRSSPEZ	A9 C5I YRS TEACHER TAUGHT SPECIAL ED	Data suppressed for respondent confidentiality
A9YRSGFTZ	A9 C5J YRS TEACHER TAUGHT GIFTED ED	Data suppressed for respondent confidentiality
A9YRSTCHZ	A9 C6 NUMBER YEARS BEEN SCHOOL TEACHER	Data recoded for respondent confidentiality
A9HGHSTDZ	A9 C8 HIGHEST ED LEVEL TEACHER ACHIEVED	Data recoded for respondent confidentiality
A9DEGERLZ	A9 C9A UNDER GRAD/EARLY CHILDHOOD ED	Data suppressed for respondent confidentiality
A9DEGELMZ	A9 C9B UNDER GRAD/ELEMENTARY ED	Data suppressed for respondent confidentiality
A9DEGENGZ	A9 C9C UNDER GRAD/ ENGLISH	Data suppressed for respondent confidentiality
A9DEGREDZ	A9 C9D UNDER GRAD/ READING/LANG ART	Data suppressed for respondent confidentiality
A9DEGCURZ	A9 C9E UNDER GRAD/ CURRICULUM INS	Data suppressed for respondent confidentiality
A9DEGMTEZ	A9 C9F UNDER GRAD/ MATH EDUCATION	Data suppressed for respondent confidentiality
A9DEGMTHZ	A9 C9G UNDER GRAD/ MATHEMATICS	Data suppressed for respondent confidentiality
A9DEGSCEZ	A9 C9H UNDER GRAD/ SCIENCE EDU	Data suppressed for respondent confidentiality
A9DEGLSCZ	A9 C9I UNDER GRAD/ LIFE SCIENCE	Data suppressed for respondent confidentiality
A9DEGPSCZ	A9 C9J UNDER GRAD/ PHYSICAL SCIENCE	Data suppressed for respondent confidentiality
A9DEGESCZ	A9 C9K UNDER GRAD/ EARTH SCIENCE	Data suppressed for respondent confidentiality
A9DEGSPEZ	A9 C9L UNDER GRAD/SPECIAL ED	Data suppressed for respondent confidentiality
A9DEGOTHZ	A9 C9M UNDER GRAD/OTHER ED MAJOR	Data suppressed for respondent confidentiality
A9DEGNONZ	A9 C9N UNDER GRAD/NON ED MAJOR	Data suppressed for respondent confidentiality
A9GRDERLZ	A9 C10A GRAD DEG/EARLY CHILDHOOD ED	Data suppressed for respondent confidentiality
A9GRDELMZ	A9 C10B GRAD DEG/ELEMENTARY ED	Data suppressed for respondent confidentiality
A9GRDENGZ	A9 C10C GRAD DEG/ ENGLISH	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-4. ECLS-K:2011 masked variables, spring 2016 teacher-level mathematics/science teacher questionnaire—Continued

Variable name	Variable description	Comments
A9GRDREDZ	A9 C10D GRAD DEG/ READING/LANG ART	Data suppressed for respondent confidentiality
A9GRDCURZ	A9 C10E GRAD DEG/ CURRICULUM INS	Data suppressed for respondent confidentiality
A9GRDMTEZ	A9 C10F GRAD DEG/ MATH EDUCATION	Data suppressed for respondent confidentiality
A9GRDMTHZ	A9 C10G GRAD DEG/ MATHEMATICS	Data suppressed for respondent confidentiality
A9GRDSCEZ	A9 C10H GRAD DEG/ SCIENCE EDU	Data suppressed for respondent confidentiality
A9GRDLSCZ	A9 C10I GRAD DEG/ LIFE SCIENCE	Data suppressed for respondent confidentiality
A9GRDPSCZ	A9 C10J GRAD DEG/ PHYSICAL SCIENCE	Data suppressed for respondent confidentiality
A9GRDESCZ	A9 C10K GRAD DEG/ EARTH SCIENCE	Data suppressed for respondent confidentiality
A9GRDSPEZ	A9 C10C GRAD DEG/SPECIAL ED	Data suppressed for respondent confidentiality
A9GRDOTHZ	A9 C10D GRAD DEG/OTHER ED MAJOR	Data suppressed for respondent confidentiality
A9GRDNONZ	A9 C10E GRAD DEG/NON ED MAJOR	Data suppressed for respondent confidentiality

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) kindergarten–fifth grade (K-5) public-use data file.

Exhibit B-5. ECLS-K:2011 masked variables, spring 2016 child-level teacher questionnaires

Variable name	Variable description	Comments
G9OFT2LN	G9 D8A DAYS REC LNG INS - 2 LANG	Data recoded for respondent confidentiality
G9OFTENG	G9 D8B DAYS REC LNG INS - ENG ONLY	Data recoded for respondent confidentiality
G9OFTOTH	G9 D8C DAYS REC LNG INS - OTHER	Data recoded for respondent confidentiality
G9TME2LN	G9 D9A TIME PER DAY LNG INS - 2 LANG	Data recoded for respondent confidentiality
G9TMEENG	G9 D9B TIME PER DAY LNG INS - ENG ONLY	Data recoded for respondent confidentiality
G9TMEOTH	G9 D9C TIME PER DAY LNG INS - OTHER	Data recoded for respondent confidentiality
G9ACCOM	G9 D13 SPECIAL TEST ACCOMMODATES	Data recoded for respondent confidentiality
G9CHRDGP	G9 D17 CHILDS PLACEMENT IN READING GRP	Data recoded for respondent confidentiality
M9CHMTGP	M9 A10 CHDS PLACEMENT IN MATHEMATICS GRP	Data recoded for respondent confidentiality

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) kindergarten–fifth grade (K-5) public-use data file.

Exhibit B-6. ECLS-K:2011 masked variables, spring 2016 school administrator questionnaire

Variable name	Variable description	Comments
S9NUMDAY	S9 A1 NUMBER OF INSTRUCTIONAL DAYS	Data recoded for respondent confidentiality
S9NUM5TH	S9 A2A # ENROLLED IN 5TH GRADE	Data recoded for respondent confidentiality
S9ANUMCH	S9 A2B # ENROLLED AROUND OCTOBER 1 2015	Data recoded for respondent confidentiality
S9BNUMCH	S9 A2C # ENROLLED SINCE OCTOBER 1 2015	Data recoded for respondent confidentiality
S9CNUMCH	S9 A2D # LEFT SINCE OCT 1 2015	Data recoded for respondent confidentiality
S9ADA	S9 A3A % AVERAGE DAILY ATTENDANCE FOR YR	Data recoded for respondent confidentiality
S9ADANUM	S9 A3B AVERAGE NUMBER ATTENDING DAILY	Data suppressed for respondent confidentiality
S9CHLDNM	S9 A4 # OF CHILDREN SITE ACCOMMODATES	Data recoded for respondent confidentiality
S9UNGRAD	S9 A5 GRADE LEVEL-UNGRADED	Data suppressed for respondent confidentiality
S9PRKNDR	S9 A5 GRADE LEVEL-PREKINDERGARTEN	Data suppressed for respondent confidentiality
S9TRANSK	S9 A5 GRADE LEVEL-TRANSITIONAL K	Data suppressed for respondent confidentiality
S9KINDER	S9 A5 GRADE LEVEL-KINDERGARTEN	Data suppressed for respondent confidentiality
S9PRE1	S9 A5 GRADE LEVEL-PREFIRST/TRANS 1ST	Data suppressed for respondent confidentiality
S9GRADE1	S9 A5 GRADE LEVEL-FIRST GRADE	Data suppressed for respondent confidentiality
S9SECOND	S9 A5 GRADE LEVEL-SECOND GRADE	Data suppressed for respondent confidentiality
S9THIRD	S9 A5 GRADE LEVEL-THIRD GRADE	Data suppressed for respondent confidentiality
S9FOURTH	S9 A5 GRADE LEVEL-FOURTH GRADE	Data suppressed for respondent confidentiality
S9FIFTH	S9 A5 GRADE LEVEL-FIFTH GRADE	Data suppressed for respondent confidentiality
S9SIXTH	S9 A5 GRADE LEVEL-SIXTH GRADE	Data suppressed for respondent confidentiality
S97TH	S9 A5 GRADE LEVEL-SEVENTH GRADE	Data suppressed for respondent confidentiality
S98TH	S9 A5 GRADE LEVEL-EIGHTH GRADE	Data suppressed for respondent confidentiality
S9NINTH	S9 A5 GRADE LEVEL-NINTH GRADE	Data suppressed for respondent confidentiality
S9TENTH	S9 A5 GRADE LEVEL-TENTH GRADE	Data suppressed for respondent confidentiality
S911TH	S9 A5 GRADE LEVEL-ELEVENTH GRADE	Data suppressed for respondent confidentiality
S912TH	S9 A5 GRADE LEVEL-TWELFTH GRADE	Data suppressed for respondent confidentiality
S9MAGSKL	S9 A6 PUBLIC MAGNET SCHOOL	Data suppressed for respondent confidentiality
S9CHRSKL	S9 A6 CHARTER SCHOOL	Data suppressed for respondent confidentiality
S9CATHOL	S9 A6 CATHOLIC SCHOOL	Data suppressed for respondent confidentiality
S9DIOCSK	S9 A6 CATHOLIC SCHOOL - DIOCESAN	Data suppressed for respondent confidentiality
S9PARSKL	S9 A6 CATHOLIC SCHOOL - PARISH	Data suppressed for respondent confidentiality
S9PRVORS	S9 A6 CATHOLIC SCHOOL - PRIVATE ORDER	Data suppressed for respondent confidentiality
S9OTHREL	S9 A6 PRIVATE SCHOOL RELIG - NOT CATH	Data suppressed for respondent confidentiality
S9OTNAIS	S9 A6 PRIVATE SCHOOL NAIS - NOT RELG	Data suppressed for respondent confidentiality
S9OTHRNO	S9 A6 OTHER PRVT, NO RELG OR NAIS	Data suppressed for respondent confidentiality
S9EARCHC	S9 A6 EARLY CHILDHOOD CENTER	Data suppressed for respondent confidentiality
S9SPDSCH	S9 A6 SPECIAL ED SCHOOL	Data suppressed for respondent confidentiality
S9YROUND	S9 A6 YEAR-ROUND SCHOOL	Data suppressed for respondent confidentiality
S9YCHART	S9 A7 YR BECAME CHARTER SCHOOL	Data suppressed for respondent confidentiality
S9CHARPN	S9 A8 IS CHARTER PROFIT OR NONPROF	Data suppressed for respondent confidentiality
S9HISPNM	S9 A9A # HISPANIC/LATINO	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-6. ECLS-K:2011 masked variables, spring 2016 school administrator questionnaire—Continued

Variable name	Variable description	Comments
S9AIANNM	S9 A9B # AMER IND/ALASKA NAT	Data suppressed for respondent confidentiality
S9AIANPT	S9 A9B % AMER IND/ALASKA NAT	Data recoded for respondent confidentiality
S9ASIANM	S9 A9C # ASIAN	Data suppressed for respondent confidentiality
S9ASIAPT	S9 A9C % ASIAN	Data recoded for respondent confidentiality
S9BLACNM	S9 A9D # BLACK/AFRICAN AMERICAN	Data suppressed for respondent confidentiality
S9BLACPT	S9 A9D % BLACK/AFRICAN AMERICAN	Data recoded for respondent confidentiality
S9HAWPNM	S9 A9E # HAWAIIAN/PAC ISL	Data suppressed for respondent confidentiality
S9HAWPPT	S9 A9E % HAWAIIAN/PAC ISL	Data recoded for respondent confidentiality
S9WHITNM	S9 A9F # WHITE	Data suppressed for respondent confidentiality
S9MULTNM	S9 A9G # TWO OR MORE RACE	Data suppressed for respondent confidentiality
S9MULTPT	S9 A9G % TWO OR MORE RACE	Data recoded for respondent confidentiality
S9TOTENR	S9 A9H RPTD TOTAL SCHOOL ENROLLMENT	Data recoded for respondent confidentiality
S9OTNEED	S9 A11A PERCENT SENT W/SPECIAL NEED	Data recoded for respondent confidentiality
S9PTRAYP	S9 A11B PCT PREV SCH NOT MEET AYP	Data recoded for respondent confidentiality
S9PUBCHO	S9 A11C PCT ATTEND UNDER PUB SCH CHOICE	Data recoded for respondent confidentiality
S9NGHBOR	S9 A12 PERCENT FROM NEIGHBORHOOD	Data recoded for respondent confidentiality
S9PCTFLN_I	S9 A13 PERCENT ELG FOR FREE/RED LUNCH	Data recoded for respondent confidentiality
S9RPTCRD	S9 B3B FREQ OF REPORT CARDS	Data recoded for respondent confidentiality
S9PTCONF	S9 B3D FREQ OF PARENT-TCHR CONFERENCE	Data recoded for respondent confidentiality
S9INVITE	S9 B3E FREQ OF PERFORMANCES FOR PARENTS	Data recoded for respondent confidentiality
S9DETECT	S9 B10C SCHOOL METAL DETECTORS	Data suppressed for respondent confidentiality
S9NMRET4	S9 C2 NUMBER RETAINED GRADE4	Data recoded for respondent confidentiality
S9NMRET5	S9 C3 NUMBER RETAINED GRADE5	Data recoded for respondent confidentiality
S9TOTELL	S9 D2 PCT OF STUDENTS WHO ARE ELL	Data recoded for respondent confidentiality
S9TOFITH	S9 D3 PCT OF 5TH GRADERS WHO ARE ELL	Data recoded for respondent confidentiality
S9NEIEPY	S9 D5 NEW EVAL FOR IEP THIS YEAR	Data recoded for respondent confidentiality
S9NEEIEP	S9 D6 NEW EVAL ELIGIBLE FOR IEP	Data recoded for respondent confidentiality
S9SPDPCT	S9 D8A % STUDENTS IN SPECIAL ED 5TH GR	Data recoded for respondent confidentiality
S9504STU	S9 D8B % STUDENTS W/ 504 PLAN 5TH GRADE	Data recoded for respondent confidentiality
S9RDIPCT	S9 D8C % STUDNT GETTING INSTRUCTION RDG	Data recoded for respondent confidentiality
S9MTIPCT	S9 D8D % STUDNT GETTING INSTRUCTION MTH	Data recoded for respondent confidentiality
S9GIFPCT	S9 D8E % STUDENTS IN G/T PROGRAM 5TH GR	Data recoded for respondent confidentiality
S9RGTCHF	S9 F1A # REG CLASSROOM TCHR-FULL	Data recoded for respondent confidentiality
S9RGTCHP	S9 F1A # REG CLASSROOM TCHR-PART	Data recoded for respondent confidentiality
S9ESLF	S9 F1B # ESL/BILINGUAL TCHR-FULL	Data recoded for respondent confidentiality
S9ESLP	S9 F1B # ESL/BILINGUAL TCHR-PART	Data recoded for respondent confidentiality
S9ARTSTF	S9 F1C # DRAMA MUSIC ART TCHR-FULL	Data recoded for respondent confidentiality
S9ARTSTP	S9 F1C # DRAMA MUSIC ART TCHR-PART	Data recoded for respondent confidentiality
S9GYMTF	S9 F1D # GYM/HEALTH TEACHER-FULL	Data recoded for respondent confidentiality

See note at end of exhibit.

Exhibit B-6. ECLS-K:2011 masked variables, spring 2016 school administrator questionnaire—Continued

Variable name	Variable description	Comments
S9GYMTP	S9 F1D # GYM/HEALTH TEACHER-PART	Data recoded for respondent confidentiality
S9SPEDF	S9 F1E # SPECIAL ED TCHR-FULL	Data recoded for respondent confidentiality
S9SPEDP	S9 F1E # SPECIAL ED TCHR-PART	Data recoded for respondent confidentiality
S9PARAF	S9 F1F # PARAPROFESSIONALS-FULL	Data recoded for respondent confidentiality
S9PARAP	S9 F1F # PARAPROFESSIONALS-PART	Data recoded for respondent confidentiality
S9TEBEGN	S9 F4A # NEW TEACHER SINCE OCT 1 2015	Data recoded for respondent confidentiality
S9TELEFT	S9 F4B # TEACHERS LEFT SINCE OCT 1 2015	Data recoded for respondent confidentiality
S9HISPN2	S9 F5A # HISPANIC/LAT TCHRS (ANY RACE)	Data suppressed for respondent confidentiality
S9HISPP2	S9 F5A % HISPANIC/LAT TCHRS (ANY RACE)	Data suppressed for respondent confidentiality
S9AIANN2	S9 F5B # AMER IND/ALASKA NAT TEACHERS	Data suppressed for respondent confidentiality
S9AIANP2	S9 F5B % AMER IND/ALASKA NAT TEACHERS	Data suppressed for respondent confidentiality
S9ASIAN2	S9 F5C # ASIAN TEACHERS	Data suppressed for respondent confidentiality
S9ASIAP2	S9 F5C % ASIAN TEACHERS	Data suppressed for respondent confidentiality
S9BLACN2	S9 F5D # BLACK TEACHERS	Data suppressed for respondent confidentiality
S9BLACP2	S9 F5D % BLACK TEACHERS	Data suppressed for respondent confidentiality
S9HAWPN2	S9 F5E # HAWAIIAN TEACHERS	Data suppressed for respondent confidentiality
S9HAWPP2	S9 F5E % HAWAIIAN TEACHERS	Data suppressed for respondent confidentiality
S9WHITN2	S9 F5F # WHITE TEACHERS	Data suppressed for respondent confidentiality
S9WHITP2	S9 F5F % WHITE TEACHERS	Data suppressed for respondent confidentiality
S9MULTN2	S9 F5G # 2+ RACE TEACHERS	Data suppressed for respondent confidentiality
S9MULTP2	S9 F5G % 2+ RACE TEACHERS	Data suppressed for respondent confidentiality
S9NUMTOT	S9 F5H TOTAL # OF TEACHERS	Data suppressed for respondent confidentiality
S9RYYEMP	S9 F9 # OF YRS RESPONDENT AT SCHOOL	Data suppressed for respondent confidentiality
S9RMMEMP	S9 F9 # OF MNTHS RESP AT SCHOOL	Data suppressed for respondent confidentiality
S9GENDER	S9 G1 GENDER OF SCHOOL ADMINISTRATOR	Data suppressed for respondent confidentiality
S9BRTHYR	S9 G2 YEAR SCHL ADMIN WAS BORN	Data recoded for respondent confidentiality
S9HISP	S9 G3 SCHL ADMIN IS HISP/LAT (ANY RACE)	Data suppressed for respondent confidentiality
S9AMINAN	S9 G4 SCHL ADMIN IS AMER IND/ALASKA NAT	Data suppressed for respondent confidentiality
S9ASIAN	S9 G4 SCHL ADMIN IS ASIAN	Data suppressed for respondent confidentiality
S9BLACK	S9 G4 SCHL ADMIN IS BLACK/AFRICAN AMER	Data suppressed for respondent confidentiality
S9HAWPI	S9 G4 SCL ADMIN IS NAT HAWAIIAN/PAC ISL	Data suppressed for respondent confidentiality
S9WHITE	S9 G4 SCHL ADMIN IS WHITE	Data suppressed for respondent confidentiality
S9YSTCH	S9 G5A NUMBER OF YRS TEACHING	Data recoded for respondent confidentiality
S9TOTPRI	S9 G5B NUMBER OF YRS AS SCHL ADMIN	Data recoded for respondent confidentiality
S9PRINHR	S9 G5C NUMBER YRS A SCHL ADMIN HERE	Data suppressed for respondent confidentiality
S9UNIVER	S9 G6A TRAIN AT TRADITNL UNIV/CERT PROG	Data suppressed for respondent confidentiality
S9DISTPR	S9 G6B DISTRICT-BASED TRAINING PROG	Data suppressed for respondent confidentiality
S9CITYPR	S9 G6C CITY-BASED TRAINING PROG	Data suppressed for respondent confidentiality
S9STPROG	S9 G6D STATE-BASED TRAINING PROG	Data suppressed for respondent confidentiality

See note at end of exhibit.

Exhibit B-6. ECLS-K:2011 masked variables, spring 2016 school administrator questionnaire—Continued

Variable name	Variable description	Comments
S9NATNON	S9 G6E NATIONAL NON-PROFIT TRAINING	Data suppressed for respondent confidentiality
S9OTHSCH	S9 G6F ANOTHER SCHOOL ADMIN PROG	Data suppressed for respondent confidentiality
S9EDLVL	S9 G7 HIGHEST LEVEL OF EDUCATION	Data recoded for respondent confidentiality
S9BSERED	S9 G8A FIELD OF STUDY-EARLY CHILD ED	Data suppressed for respondent confidentiality
S9BSELEM	S9 G8B FIELD OF STUDY-ELEMENTARY ED	Data suppressed for respondent confidentiality
S9BSEDAD	S9 G8C FIELD OF STUDY-ED ADMIN/MANAGE	Data suppressed for respondent confidentiality
S9BSSPED	S9 G8D FIELD OF STUDY-SPECIAL ED	Data suppressed for respondent confidentiality
S9BSOTHR	S9 G8E FIELD OF STUDY-OTHER ED MAJOR	Data suppressed for respondent confidentiality
S9BSNOED	S9 G8F FIELD OF STUDY-NON-ED MAJOR	Data suppressed for respondent confidentiality
S9SOVTNM	S9 G13 OTHER LANGUAGE -VIETNAMESE	Data suppressed for respondent confidentiality
S9SOJAPN	S9 G13 OTHER LANGUAGE -JAPANESE	Data suppressed for respondent confidentiality
S9SOKORN	S9 G13 OTHER LANGUAGE -KOREAN	Data suppressed for respondent confidentiality
S9SOFILP	S9 G13 OTHER LANGUAGE -FILIPINO	Data suppressed for respondent confidentiality
S9SOARAB	S9 G13 OTHER LANGUAGE -ARABIC	Data suppressed for respondent confidentiality

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) kindergarten–fifth grade (K-5) public-use data file.

Exhibit B-7. ECLS-K:2011 masked variables, spring 2016 composite variables

Variable name	Variable description	Comments
X9ASMTDD	X9 CHILD ASSESSMENT DAY OF THE MONTH	Data suppressed for respondent confidentiality
X9EXDIS	X9 CHILD NOT ASSESSED - DISAB EXCLUSION	Data suppressed for respondent confidentiality
X9HEIGHT	X9 CHILD COMPOSITE HGT (INCHES)	Data recoded for respondent confidentiality
X9WEIGHT	X9 CHILD COMPOSITE WGT (POUNDS)	Data recoded for respondent confidentiality
X9GRDLVL	X9 CHILD GRADE LEVEL	Data recoded for respondent confidentiality
X9LOCALE	X9 LOCATION TYPE OF SCHOOL	Data recoded for respondent confidentiality
X9REGION	X9 CENSUS REGION OF SCHOOL	Data suppressed for respondent confidentiality
X9PAR1ED_I	X9 PARENT 1 EDUCATION LEVEL (IMPUTED)	Data recoded for respondent confidentiality
X9PAR2ED_I	X9 PARENT 2 EDUCATION LEVEL (IMPUTED)	Data recoded for respondent confidentiality
X9YRRND	X9 YEAR ROUND SCHOOL	Data suppressed for respondent confidentiality
X9LOWGRD	X9 LOWEST GRADE AT THE SCHOOL	Data recoded for respondent confidentiality
X9HIGGRD	X9 HIGHEST GRADE AT THE SCHOOL	Data recoded for respondent confidentiality
X9RCETH	X9 PERCENT NONWHITE STUDENTS IN SCHOOL	Data recoded for respondent confidentiality
X9FRMEAL_I	X9 PCT FREE RED MEAL ELIG STUDENTS (IMP)	Data recoded for respondent confidentiality
X9SCHBDD	X9 SCHOOL YEAR BEGINNING DATE DAY	Data suppressed for respondent confidentiality
X9SCHEDD	X9 SCHOOL YEAR ENDING DATE DAY	Data suppressed for respondent confidentiality
X9ASMTST	X9 ASSESSMENT STATUS SPRING 2016	Data recoded for respondent confidentiality

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) kindergarten–fifth grade (K-5) public-use data file.

Exhibit B-8. ECLS-K:2011 masked variables, spring 2016 field management system and identification variables

Variable name	Variable description	Comments
T9R_ID	SPRING 2016 READING TEACHER IDENTIFICATION NUMBER	Data suppressed for respondent confidentiality
T9M_ID	SPRING 2016 MATH TEACHER IDENTIFICATION NUMBER	Data suppressed for respondent confidentiality
T9S_ID	SPRING 2016 SCIENCE TEACHER IDENTIFICATION NUMBER	Data suppressed for respondent confidentiality
IFX9FRMEAL	X9 IMPUTATION FLAG FOR X9FRMEAL_I	Data recoded for respondent confidentiality
F9CADISP	F9 CHILD ASSESSMENT DISPOSITION CODE	Data suppressed for respondent confidentiality
F9PIDISP	F9 PARENT INTERVIEW DISPOSITION CODE	Data suppressed for respondent confidentiality
F9CLASS2	F9 CHILD CLASS TYPE FROM FMS SPRING 2016	Data recoded for respondent confidentiality
F9CCDLEA	F9 CCD LEA/SCHOOL DIST ID (PUBLIC)	Data suppressed for respondent confidentiality
F9CCDSID	F9 CCD SCHOOL ID (PUBLIC)	Data suppressed for respondent confidentiality
F9FIPSCT	F9 SCHOOL FIPS COUNTY CODE	Data suppressed for respondent confidentiality
F9FIPSST	F9 SCHOOL FIPS STATE CODE	Data suppressed for respondent confidentiality
F9SCHPIN	F9 SCHOOL PIN (PRIVATE/PSS)	Data suppressed for respondent confidentiality
F9SCHZIP	F9 SCHOOL ZIP CODE	Data suppressed for respondent confidentiality
F9CENTRC	F9 SCHOOL CENSUS TRACT CODE	Data suppressed for respondent confidentiality
IFS9PCTFLN	S9 IMPUTATION FLAG FOR S9PCTFLN	Data recoded for respondent confidentiality

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011) kindergarten–fifth grade (K-5) public-use data file.