PROGRESS IN INTERNATIONAL READING LITERACY STUDY

PIRLS

IEA PIRLS 2021

PIRLS 2021 International Results in Reading

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Contents

About PIRLS 2021 1

Overview of PIRLS 1

Transitioning to Digital Assessment in PIRLS 2021 1

Exhibit 1: PIRLS 2021 Countries and Benchmarking Participants 3

The PIRLS 2021 Reading Assessment Framework 4

Implementing the Group Adaptive Design in PIRLS 2021 4

Exhibit 2: PIRLS 2021 Group Adaptive Assessment Design 6

PIRLS 2021 Data Collection Successful Despite Disruptions by the COVID-19 Pandemic 7

School Operations 8

Exhibit 3: Weeks of Normal Primary School Operations Affected by the COVID-19 Pandemic 9

Parents' Perceptions 11

Exhibit 4: Parents' Perceptions of Their Child's Learning Progress During the COVID-19 Pandemic 12

Exhibit 5: PIRLS 2021 Countries by Chronological Order of Data Collection 15

Numbers of Students Assessed 16

Summary of Scaling the PIRLS 2021 Data 16

Reporting the PIRLS 2021 Achievement Results 17

Reporting the PIRLS 2021 Context Questionnaire Data 18

Quality Assurance 19

SECTION 1

Countries' Reading Achievement 20

Impacts of Modifying the Assessment Schedule on Students' Achievement 21

Average Reading Achievement and Scale Score Distributions 22

Exhibit 1.1: Average Reading Achievement and Scale Score Distributions – Assessed Fourth Grade Students at the End of the School Year 23

Exhibit 1.2: Significance of Differences Between Countries' Average Reading Achievement – Assessed Fourth Grade Students at the End of the School Year 25

Exhibit 1.3: Average Reading Achievement and Scale Score Distributions – Includes Countries with Delayed Assessment 28

Average Achievement by Gender 29

Exhibit 1.4: Average Reading Achievement by Gender – Assessed Fourth Grade Students at the End of the School Year 30

Exhibit 1.5: Average Reading Achievement by Gender – Includes Countries with Delayed Assessment 31

SECTION 2

Trends in Reading Achievement 32

Trends in Average Reading Achievement 32

Exhibit 2.1.1: Trend Plots of Average Reading Achievement – Assessed Fourth Grade Students at the End of the School Year 34

Exhibit 2.1.2: Differences in Average Reading Achievement Across Assessment Years – Assessed Fourth Grade Students at the End of the School Year 39

Exhibit 2.2.1: Trend Plots of Average Reading Achievement – Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade 44
Exhibit 2.2.2: Differences in Average Reading Achievement Across Assessment Years – Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade 46
Trends in Average Achievement by Gender 48
Exhibit 2.3: Trend Plots of Average Reading Achievement by Gender – Assessed Fourth Grade Students at the End of the School Year 49
Exhibit 2.4: Trend Plots of Average Reading Achievement by Gender – Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade 55

SECTION 3
Relative Achievement in Reading Purposes and Comprehension Processes 57
Relative Achievement in Reading Purposes 58
Exhibit 3.1: Relative Achievement in Reading Purposes – Assessed Fourth Grade Students at the End of the School Year 59
Exhibit 3.2: Relative Achievement in Reading Purposes – Includes Countries with Delayed Assessment 60
Relative Achievement in Comprehension Processes 61
Exhibit 3.3: Relative Achievement in Comprehension Processes – Assessed Fourth Grade Students at the End of the School Year 63
Exhibit 3.4: Relative Achievement in Comprehension Processes – Includes Countries with Delayed Assessment 64

SECTION 4
Performance at International Benchmarks 65
Descriptions of the PIRLS 2021 Texts 65
Literary Texts 66
Informational Texts 66
Examples of the PIRLS 2021 Texts and Items 67
Descriptions of Reading Achievement at the PIRLS 2021 International Benchmarks 68
Percentages of Students Reaching the International Benchmarks 70
Exhibit 4.1: Percentages of Students Reaching the PIRLS International Benchmarks – Assessed Fourth Grade Students at the End of the School Year 71
Exhibit 4.2: Percentages of Students Reaching the PIRLS International Benchmarks – Includes Countries with Delayed Assessment 73
Trends in the Distributions of Achievement at the International Benchmarks 74
Exhibit 4.3: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks – Assessed Fourth Grade Students at the End of the School Year 75
Exhibit 4.4: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks – Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade 83

SECTION 5
Home Environment Support 85
Home Socioeconomic Status 85
Exhibit 5.1: Home Socioeconomic Status 87
Home Early Literacy Activities Before Primary School 89
Exhibit 5.2: Home Early Literacy Activities Before Primary School 90
Parents Like Reading 92

Exhibit 5.3: Parents Like Reading 93
Could Do Early Literacy Tasks When Beginning Primary School 95
Exhibit 5.4: Could Do Early Literacy Tasks When Beginning Primary School 96

SECTION 6
School Composition, Resources, and Climate 98
Socioeconomic Background of the Student Body 98
Exhibit 6.1: School Composition by Socioeconomic Background of the Student Body 100
Students Begin Primary Grades with Literacy Skills 102
Exhibit 6.2: Schools Where Students Begin the Primary Grades with Literacy Skills 103
Instruction Affected by Resource Shortages 105
Exhibit 6.3: Instruction Affected by Reading Resource Shortages – Principals' Reports 106
School Emphasis on Academic Success 108
Exhibit 6.4: School Emphasis on Academic Success – Principals' Reports 109
School Discipline 111
Exhibit 6.5: School Discipline – Principals' Reports 112

SECTION 7
Students' Reading Attitudes and Behaviors 114
Students Like Reading 115
Exhibit 7.1: Students Like Reading 116
Exhibit 7.2: Students Like Reading by Gender 119
Students Confident in Reading 121
Exhibit 7.3: Students Confident in Reading 122
Exhibit 7.4: Students Confident in Reading by Gender 125
Students Use Digital Devices to Find and Read Information 127
Exhibit 7.5: Students Use Digital Devices to Find and Read Information 128
Exhibit 7.6 Students Use Digital Devices to Find and Read Information by Gender 131

APPENDIX A
Population Coverage and Sample Participation Rates 133
Exhibit A.1: Information About the Students Assessed in PIRLS 2021 134
Exhibit A.2: Coverage of PIRLS 2021 Target Population 136
Exhibit A.3: School Sample Sizes 137
Exhibit A.4: Student Sample Sizes 138
Exhibit A.5: Participation Rates (Weighted) 139
Exhibit A.6: Trends in Student Populations 140

APPENDIX B
Percentiles and Standard Deviations of Reading Achievement 144
Exhibit B.1: Percentiles of Reading Achievement 145
Exhibit B.2: Standard Deviations of Reading Achievement of Reading Achievement 146

APPENDIX C
Organizations and Individuals Responsible for PIRLS 2021 147

About PIRLS 2021

Successfully conducted in 57 countries and eight benchmarking entities, PIRLS 2021 differs from previous PIRLS assessments in several ways. First, a substantial creative effort was focused on transitioning PIRLS 2021 to an innovative digital assessment with 23 colorful and engaging texts delivered to students using a new group adaptive design. Second, PIRLS 2021 data collection occurred over two years during the unprecedented COVID-19 pandemic. Although collecting data in schools faced many disruptions, most countries met the standards for high-quality data collection. This tremendous effort resulted in PIRLS 2021 providing the only internationally comparative fourth grade achievement results collected during the pandemic.

Overview of PIRLS

IEA's PIRLS (Progress in International Reading Literacy Study) is an ongoing international assessment program of students' reading achievement in their fourth year of schooling—an important transition point in their development as readers. By this time in their education, students typically have learned how to read and are now reading to learn. Conducted every five years since 2001, PIRLS is recognized as the global standard for assessing trends in reading achievement at the fourth grade. PIRLS 2021 was the fifth assessment cycle, providing 20 years of trend results.

PIRLS and TIMSS are directed by IEA's TIMSS & PIRLS International Study Center at Boston College in close cooperation with the IEA Amsterdam and IEA Hamburg offices. IEA is an independent international cooperative of national research institutions and government agencies that pioneered international assessments of student achievement in the 1960s to gain a deeper understanding of policy effects across countries' different education systems. IEA has been conducting international assessments of reading literacy and the factors associated with proficient reading comprehension in countries around the world for about 60 years.

Transitioning to Digital Assessment in PIRLS 2021

While ensuring a solid basis for trend comparisons over time, PIRLS continuously evolves with each cycle by capitalizing on advances in technology and measurement methodology to improve the assessments. Simultaneously, PIRLS pioneers new approaches to reading assessment as the internet's ever-increasing pace of

information growth constantly changes the nature of reading comprehension to encompass new online reading literacy skills.

PIRLS 2021 incorporated two major advances in international reading assessment at the fourth grade:

- Transitioned to digital assessment (discussed here)
- Implemented a group adaptive design (see later section Implementing the Group Adaptive Design in PIRLS 2021).

In a digital assessment, measurement can be improved through more engaging and interactive assessment materials and procedures. Aside from the advantages of a more interactive assessment, activities related to operational procedures (e.g., the digital equivalents of printing and sending materials to schools) can be accomplished with even greater consistency and efficiency once the move to digital assessments has been accomplished.

PIRLS 2021 developed a state-of-the-art user interface for the digital assessment where students can freely navigate through the texts and activate a panel that presents the items (see *The Amazing Octopus* and *The Empty Pot*). In addition to incorporating texts with interactive features, the digital assessment included innovative ePIRLS tasks (see *Oceans*) as a continuation of the groundbreaking work begun in 2016 to assess reading comprehension in a simulated online environment. The PIRLS 2021 digital assessment systems included capabilities for text and item translation and localization, test delivery (formerly printing), administration to students, and data delivery for scoring.

In PIRLS 2021, 26 countries and 7 benchmarking entities transitioned to digital assessment as their primary mode of data collection, while also administering the paper-based trend texts replicated from PIRLS 2016 to a "bridge" sample. The United States administered the PIRLS 2021 digital assessment and the PIRLS 2021 paper bridge assessment. The United States opted to report the paper bridge scores. The other 31 countries and 1 benchmarking entity continued to administer the full assessment using paper booklets.

Exhibit 1 provides a list of the PIRLS 2021 participants and indicates whether their results are based on digital or paper data. Altogether, there were 57 countries in PIRLS 2021, including some distinct education systems within countries that have always participated separately throughout IEA's long history (e.g., the French- and Dutch-speaking parts of Belgium as well as Hong Kong SAR). In addition, PIRLS 2021 included 8 benchmarking participants, mainly regions of countries that also participated in PIRLS.

Exhibit 1: PIRLS 2021 Countries and Benchmarking Participants

p Albania
p Australia
p Austria
p Azerbaijan
p Bahrain
d Belgium (Flemish)
p Belgium (French)
p Brazil
p Bulgaria
d Chinese Taipei
d Croatia
p Cyprus
d Czech Republic
d Denmark
p Egypt
p England
d Finland
p France
p Georgia
d Germany
p Hong Kong SAR
d Hungary
p Iran, Islamic Rep. of
p Ireland
d Israel
d Italy
p Jordan
d Kazakhstan
p Kosovo
p Latvia
d Lithuania
p Macao SAR
d Malta
p Montenegro
p Morocco
p Netherlands
d New Zealand
p North Macedonia
p Northern Ireland
d Norway (5)
p Oman
p Poland
d Portugal
d Qatar
d Russian Federation
d Saudi Arabia
p Serbia
d Singapore
d Slovak Republic
d Slovenia
p South Africa
d Spain
d Sweden
p Turkiye
d United Arab Emirates
b United States
p Uzbekistan

Benchmarking Participants

d Alberta, Canada
d British Columbia, Canada
d Newfoundland & Labrador, Canada
* Ontario, Canada
d Quebec, Canada
d Moscow City, Russian Federation
p South Africa (6)
d Abu Dhabi, UAE
d Dubai, UAE

d Digital data
p Paper data
b Paper bridge data
* Insufficient data to report results

The PIRLS 2021 Reading Assessment Framework

PIRLS 2021 assessed reading comprehension in accordance with the PIRLS 2021 Reading Assessment Framework (Chapter 1 in *PIRLS 2021 Assessment Frameworks*). The PIRLS reading assessment framework has been updated with each cycle to keep reading research and education developments at the forefront through reviews by the PIRLS Reading Development Group (RDG) and the National Research Coordinators (NRCs). This maintains PIRLS' relevance and importance for teaching practice and policy. However, PIRLS is a trend study and the framework's underlying organization has remained consistent across cycles.

The framework is organized around two overarching purposes for reading: reading for literary experience and reading to acquire and use information. The framework also includes four cross-cutting reading comprehension processes: focus on and retrieve explicitly stated information, make straightforward inferences, interpret and integrate ideas and information, and evaluate and critique content and textual elements.

The PIRLS 2021 Reading Assessment Framework provides information that emphasizes the growing importance of ePIRLS, the world leading assessment of online reading that was successfully launched in 14 countries in 2016 (see *ePIRLS 2016 International Results in Online Informational Reading*). In the ePIRLS tasks, a teacher avatar guides the students through several simulated multi-modal websites with multiple texts and interactive features to complete school-like assignments about social studies or science topics.

Implementing the Group Adaptive Design in PIRLS 2021

The PIRLS 2021 group adaptive design provides better measurement through better alignment across countries between the assessment difficulty and the students' levels of reading achievement. The group adaptive design is based on texts and items of three levels of difficulty—difficult, medium, and easy—that are combined into booklets of two difficulty levels (see Chapter 3 of the *PIRLS 2021 Assessment Frameworks*). The more difficult booklets include difficult and medium texts and items, and the less difficult booklets include easy and medium texts and items. All booklets are administered in each country, but countries whose students have higher reading achievement on average may give the more difficult booklets to a higher percentage of students (70%), and countries whose students have lower average reading achievement may give a higher percentage of their students the less difficult booklets.

Transitioning to the PIRLS 2021 group adaptive design from PIRLS 2016 was a great success because trend blocks could be categorized as easy, medium, or difficult blocks based on data from 2016. The PIRLS 2016 design linked PIRLS blocks of passages and items with less difficult PIRLS Literacy blocks through blocks common to both assessments (see Chapter 3 of *PIRLS 2016 Assessment Frameworks*). For 2021, PIRLS Literacy blocks contributed content at the "easy" level, the blocks common to both PIRLS and PIRLS Literacy contributed content at the "medium" level, and the PIRLS blocks contributed content at the "difficult" level. Including the newly developed blocks for 2021, the group adaptive design in PIRLS 2021 led to a lower item non-response rate and more precise achievement estimates than the non-adaptive design in PIRLS 2016 (see Chapter 9 in *Methods and Procedures: PIRLS 2021 Technical Report*).

Providing comprehensive coverage of the PIRLS 2021 Reading Assessment Framework and implementing the group adaptive design resulted in the most comprehensive and complex international reading assessment to date, consisting of 18 text and item sets as well as 5 ePIRLS tasks. Exhibit 2 shows the PIRLS 2021 group adaptive design for the 18 text and item sets, where 9 text and item sets assessed the literary reading purpose, and 9 text and item sets assessed the informational reading purpose. In accordance with the group adaptive design, within the 9 text and item sets for each purpose, 3 text and item sets were difficult, 3 were medium, and 3 were easy.

Exhibit 2: PIRLS 2021 Group Adaptive Assessment Design

Reading Purpose	Difficulty Level	Text Name*
Literary Experience	Difficult	Shiny Straw (06)
		Oliver and The Griffin (16)
		Ink Drinker (21)
	Medium	The Empty Pot (11)
		Pemba Sherpa (16)
		Ostrich and the Hat (21)
	Easy	The Summer My Father Was 10 (11)
		Library Mouse (16)
		Learning a New Language (21)
Acquire and Use Information	Difficult	Where's the Honey? (11)
		Icelandic Horses (16)
		World's Bank for Seeds (21)
	Medium	Sharks (06)
		How Did We Learn to Fly? (16)
		Marie Curie Prize-Winning Scientist (21)
	Easy	Training A Deaf Polar Bear (11)
		Hungry Plant (16)
		The Amazing Octopus (21)

* Number in parentheses indicates the assessment year in which the passage was first introduced.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Developing the new text and item sets for the PIRLS 2021 assessment was a considerable effort. Six new text and item sets were needed to complete the new group adaptive design requirements. To ensure all target levels were successfully met, twice as many—12 text and items sets—were developed for the field test. Also, two ePIRLS tasks were published on the PIRLS 2016 website, so two new tasks for PIRLS 2021 were developed to replace them.

The field test development took nearly two years, including two RDG meetings and three NRC meetings, with one of the NRC meetings specifically devoted to item development. At the NRC item development meeting hosted by Chinese Taipei, 126 representatives from 43 countries drafted more than 600 items.

Despite the initial emergence of COVID-19 in 2020 at the time scheduled for the field test, more than half the countries were able to collect field test data. Therefore, following the field test, the field test data were analyzed, PIRLS 2021 materials were selected, finalized, and assembled, and the countries continued preparations for the PIRLS 2021 main data collection.

PIRLS 2021 Data Collection Successful Despite Disruptions by the COVID-19 Pandemic

PIRLS 2021 is the only international assessment of educational achievement that successfully collected data during COVID-19's disruption in students' schooling. Consequently, the PIRLS 2021 International Database provides an extremely rich and valuable data source to research the impact of COVID-19 on teaching and learning reading.

Similar to previous PIRLS assessments, to prepare for PIRLS 2021, the TIMSS & PIRLS International Study Center, IEA Hamburg, and Statistics Canada worked to select a carefully designed random sample of schools within each country and trained countries in data collection procedures designed to yield high quality data. However, as it is well known, many schools around the world faced considerable disruptions to their operations due to COVID-19, with a good number shifting to remote learning or reduced classroom sizes. Even school buildings that remained open often adopted special procedures and often reduced access to prevent the spread of COVID-19.

PIRLS adapted rapidly to the situation and included context questionnaire items specifically targeted to collect information about the challenges faced by the PIRLS 2021 schools and students during COVID-19. The PIRLS 2021 Context Questionnaires can be accessed on the PIRLS 2021 website. Also, the *PIRLS 2021 Encyclopedia*, which includes a chapter authored by each country describing its

reading education, provides information from most countries about how COVID-19 interrupted teaching and learning.

School Operations

At the time of the PIRLS 2021 data collection, there was considerable variation across countries in how primary school operations were affected by the COVID-19 pandemic, with some countries still experiencing school closures and others modifying how they provided in-person instruction.

Exhibit 3 shows the percentages of students in the PIRLS 2021 countries by the number of weeks their principals reported that normal primary school operations were affected by the COVID-19 pandemic. Because principals in the countries with delayed assessments (see Exhibit 5) needed to recall what happened six months previously in the prior 2020-2021 school year to answer the question, the rows for those countries are colored pink. This color coding to distinguish the results based on delayed data collection is also used in subsequent exhibits.

On average, across countries, only 14 percent of the fourth grade students attended schools where normal operations were “not affected” by the COVID-19 pandemic during the 2020-2021 school year. In contrast, 47 percent attended schools where normal operations were affected by the COVID-19 pandemic for “more than 8 weeks” of instruction. The remaining students experienced more moderate disruptions; 10 percent of students attended schools where “less than 2 weeks” of instruction were affected by the COVID-19 pandemic, 15 percent where “2 to 4 weeks” of instruction were affected, and 13 percent where “5 to 8 weeks” of instruction were affected.

IEA PIRLS 2021

Exhibit 3: Weeks of Normal Primary School Operations Affected by the COVID-19 Pandemic

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Percent of Students by Number of Weeks Affected				
	School Operations Not Affected	Less than 2 Weeks of Instruction	2–4 Weeks of Instruction	5–8 Weeks of Instruction	More than 8 Weeks of Instruction
Albania	25 (3.8)	52 (4.3)	9 (2.8)	1 ~	13 (2.9)
Australia ⋈	8 (1.5)	22 (1.8)	12 (2.1)	10 (2.0)	48 (2.4)
Austria	0 ~	1 ~	6 (2.3)	24 (3.7)	69 (3.9)
Azerbaijan	17 (3.0)	11 (2.7)	10 (2.0)	6 (1.8)	55 (3.9)
Bahrain	52 (2.9)	13 (1.8)	9 (1.1)	5 (1.0)	23 (2.4)
Belgium (Flemish)	3 (1.9)	21 (4.0)	29 (4.4)	12 (2.6)	34 (4.3)
Belgium (French)	4 (1.9)	14 (3.0)	58 (3.7)	13 (2.7)	10 (2.5)
Brazil ⋈	19 (3.3)	6 (1.8)	6 (2.4)	3 (1.5)	65 (3.7)
Bulgaria	23 (3.6)	4 (1.8)	40 (4.5)	30 (3.9)	3 (1.3)
Chinese Taipei	77 (3.0)	19 (2.8)	3 (1.4)	1 ~	1 ~
Croatia	2 ~	5 (2.0)	26 (3.9)	33 (4.4)	35 (4.4)
Cyprus	2 ~	5 (1.6)	51 (3.8)	34 (4.2)	8 (2.4)
Czech Republic	0 ~	0 ~	0 ~	0 ~	100 (0.0)
Denmark	0 ~	1 ~	1 ~	8 (2.3)	91 (2.5)
Egypt	9 (1.9)	5 (1.9)	9 (2.5)	22 (3.4)	55 (3.7)
England ⋈ r	26 (4.2)	11 (2.6)	6 (2.0)	16 (2.8)	42 (4.5)
Finland	17 (2.7)	11 (2.5)	10 (2.4)	14 (3.4)	47 (3.6)
France	3 (1.4)	50 (3.9)	20 (3.2)	9 (2.5)	18 (3.1)
Georgia	14 (2.4)	17 (2.7)	15 (2.9)	16 (2.9)	38 (3.3)
Germany r	0 ~	1 ~	0 ~	8 (2.0)	91 (2.0)
Hong Kong SAR	5 (1.9)	8 (2.3)	17 (3.3)	13 (2.7)	57 (4.0)
Hungary	0 ~	0 ~	3 (1.5)	36 (4.1)	61 (4.1)
Iran, Islamic Rep. of ⋈	8 (2.2)	6 (1.7)	8 (1.8)	15 (3.4)	62 (4.0)
Ireland	0 ~	0 ~	0 ~	0 ~	100 (0.0)
Israel ⋈ r	6 (2.0)	5 (1.8)	14 (2.8)	34 (3.7)	41 (4.2)
Italy	6 (1.7)	6 (2.0)	44 (3.8)	21 (3.4)	23 (3.1)
Jordan	11 (2.7)	7 (1.9)	13 (3.1)	7 (2.0)	63 (4.1)
Kazakhstan	35 (3.3)	8 (2.2)	9 (2.0)	15 (2.8)	32 (3.6)
Kosovo	9 (2.3)	39 (4.0)	38 (4.1)	4 (1.8)	10 (2.7)
Latvia	1 ~	1 ~	3 (1.7)	1 ~	93 (2.0)
Lithuania s	2 ~	1 ~	1 ~	7 (2.3)	90 (2.7)
Macao SAR	36 (0.1)	3 (0.0)	3 (0.0)	11 (0.0)	46 (0.1)
Malta	8 (4.4)	14 (4.9)	61 (7.6)	9 (3.5)	8 (3.6)
Montenegro	2 ~	6 (0.9)	14 (0.3)	40 (0.7)	38 (0.5)
Morocco	22 (3.2)	6 (1.9)	5 (1.9)	5 (1.5)	62 (3.8)
Netherlands r	3 (1.7)	2 ~	7 (2.4)	35 (5.7)	53 (6.1)
New Zealand r	0 ~	0 ~	0 ~	0 ~	100 (0.0)
North Macedonia	34 (3.5)	9 (2.4)	28 (4.6)	3 (1.7)	26 (4.1)
Northern Ireland	1 ~	0 ~	0 ~	8 (2.5)	92 (2.6)
Norway (5)	12 (2.6)	11 (2.6)	13 (3.0)	13 (2.9)	51 (4.1)
Oman	15 (2.5)	13 (2.4)	24 (3.1)	15 (2.3)	34 (3.5)
Poland	1 ~	1 ~	0 ~	0 ~	98 (1.2)
Portugal	6 (1.8)	4 (1.5)	8 (2.0)	44 (3.8)	37 (3.7)
Qatar	24 (3.5)	13 (2.9)	14 (2.7)	7 (1.8)	41 (3.4)
Russian Federation	61 (3.8)	14 (2.3)	20 (3.1)	2 ~	3 (1.1)
Saudi Arabia	22 (3.7)	13 (3.1)	12 (2.8)	12 (2.6)	40 (4.6)
Serbia	29 (3.9)	4 (1.6)	19 (3.0)	15 (2.8)	33 (4.2)
Slovak Republic	0 ~	3 (1.3)	12 (2.7)	37 (3.5)	48 (4.1)
Slovenia r	3 (2.0)	4 (1.5)	2 ~	8 (2.5)	83 (3.4)
South Africa ⋈	16 (3.0)	15 (2.6)	28 (4.0)	14 (2.6)	28 (3.3)
Spain	34 (2.9)	18 (2.4)	18 (2.4)	13 (2.2)	17 (2.1)
Sweden r	34 (4.3)	12 (3.3)	10 (2.9)	10 (2.6)	34 (5.0)
Turkiye	3 (1.2)	3 (1.3)	3 (1.3)	8 (2.1)	83 (2.9)
United Arab Emirates s	45 (2.4)	15 (1.3)	8 (0.2)	6 (1.7)	26 (2.1)
United States	3 (1.9)	4 (2.1)	13 (3.8)	8 (3.2)	72 (5.6)
Uzbekistan	14 (3.2)	23 (3.9)	28 (3.3)	10 (2.2)	25 (3.7)
International Average	**14 (0.3)**	**10 (0.3)**	**15 (0.4)**	**13 (0.4)**	**47 (0.4)**
* Singapore	- -	- -	- -	- -	- -
Benchmarking Participants					
Alberta, Canada r	0 ~	14 (3.8)	37 (5.2)	13 (3.7)	37 (5.0)
British Columbia, Canada r	43 (4.7)	10 (2.8)	14 (3.3)	2 ~	31 (3.9)
Newfoundland & Labrador, Canada r	0 ~	1 ~	59 (7.7)	27 (5.5)	13 (6.0)
Quebec, Canada	14 (4.2)	24 (4.5)	23 (4.8)	21 (4.4)	18 (4.5)
Moscow City, Russian Federation	46 (3.5)	25 (3.2)	22 (3.1)	5 (1.8)	2 ~
South Africa (6) ⋈	21 (3.9)	13 (2.7)	25 (3.3)	14 (3.0)	28 (3.5)
Abu Dhabi, UAE r	49 (3.0)	12 (1.1)	7 (0.3)	3 (1.0)	29 (2.6)
Dubai, UAE s	38 (0.4)	15 (0.2)	13 (0.3)	6 (0.3)	28 (0.3)

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
An "r" indicates data are available for at least 70% but less than 85% of the students.
An "s" indicates data are available for at least 50% but less than 70% of the students.
A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.
* In Singapore, all primary schools were closed for a total of 4 weeks, during which all students shifted to full home-based learning, followed by fourth grade students alternating between home-based learning and returning to school for lessons on a weekly basis for 4 weeks. See *PIRLS 2021 Encyclopedia* for more details.

Exhibit 3: Weeks of Normal Primary School Operations Affected by the COVID-19 Pandemic

Students' Results based on Principals' Reports

About the Item

Please estimate the number of weeks during the current academic year where normal primary school operations have been affected by the COVID-19 pandemic.

- Normal primary school operations have not been affected by the COVID-19 pandemic ◯
- Less than two weeks of instruction ◯
- Two to four weeks of instruction ◯
- Five weeks to eight weeks of instruction ◯
- More than eight weeks of instruction ◯

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Parents' Perceptions

Exhibit 4 shows parents' reports of whether or not their child stayed home from school because of the COVID-19 pandemic and their perceptions of the pandemic's effect on their child's learning progress. Information was collected using two items in the PIRLS 2021 Home Questionnaire (see "About the Items"). If parents reported that their child did not stay home from school because of the COVID-19 pandemic, they were not asked to respond to the item about perceptions of their child's learning progress.

Internationally, parents of most students (86%) reported that their child stayed home from school because of the COVID-19 pandemic, with the rest reporting their child did not stay home due to the pandemic (14%) and consequently not being asked any further questions.

Across countries, on average, parents of two-thirds of the students (67%) reported that their child stayed home and that their child's learning progress was adversely affected by the pandemic—either "a lot" (22%) or "somewhat" (45%). Parents of 19 percent of the students reported that their child stayed home from school because of the COVID-19 pandemic, but their child's learning progress was "not at all" affected.

Exhibit 4: Parents' Perceptions of Their Child's Learning Progress During the COVID-19 Pandemic

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Student Stayed Home from School at Any Time Because of the COVID-19 Pandemic				Percent of Students Who Stayed Home by Parents' Perception of Learning Progress*					
	No		Yes		Not At All Adversely Affected		Somewhat Adversely Affected		Adversely Affected A Lot	
		Percent of Students		Percent of Students						
Albania		10 (1.0)		90 (1.0)		37 (1.7)		43 (1.7)		10 (1.2)
Austria		11 (0.5)		89 (0.5)		15 (0.9)		51 (1.0)		23 (1.0)
Azerbaijan		3 (0.6)		97 (0.6)		31 (1.3)		55 (1.3)		11 (0.7)
Bahrain		10 (0.7)		90 (0.7)		13 (0.6)		50 (1.0)		27 (1.0)
Belgium (Flemish)		0 ~		100 (0.0)		18 (0.6)		64 (0.8)		18 (0.8)
Belgium (French)	r	5 (0.5)		95 (0.5)	r	20 (1.0)		52 (1.2)		24 (1.0)
Brazil ⋈		3 (0.3)		97 (0.3)		11 (1.0)		49 (1.5)		37 (2.0)
Bulgaria		14 (1.2)		86 (1.2)		11 (0.7)		50 (1.2)		25 (1.1)
Chinese Taipei		92 (0.4)		8 (0.4)		3 (0.3)		4 (0.3)		1 ~
Croatia		0 ~		100 (0.0)		15 (0.8)		52 (1.3)		33 (1.2)
Cyprus		14 (0.7)		86 (0.7)		15 (0.7)		50 (0.8)		21 (0.7)
Czech Republic		0 ~		100 (0.0)	r	16 (0.8)		58 (0.9)		26 (0.8)
Denmark		3 (0.3)		97 (0.3)		46 (1.0)		45 (0.9)		5 (0.4)
Egypt		14 (1.0)		86 (1.0)		12 (0.8)		45 (1.6)		29 (1.6)
Finland		11 (0.5)		89 (0.5)		62 (0.8)		25 (0.8)		2 ~
France		1 ~		99 (0.2)		33 (0.9)		50 (0.7)		16 (0.8)
Georgia		12 (0.6)		88 (0.6)		4 (0.4)		44 (1.0)		40 (1.1)
Germany	s	14 (0.8)		86 (0.8)	s	12 (0.8)		47 (1.2)		27 (1.1)
Hong Kong SAR		11 (0.5)		89 (0.5)		5 (0.4)		51 (0.9)		33 (0.8)
Hungary	r	21 (1.0)		79 (1.0)	r	14 (0.8)		41 (1.0)		25 (0.9)
Iran, Islamic Rep. of ⋈		17 (1.4)		83 (1.4)		9 (0.6)		40 (1.1)		34 (1.4)
Ireland		0 ~		100 (0.0)		25 (1.0)		58 (1.0)		17 (0.6)
Israel ⋈	s	20 (0.8)		80 (0.8)	s	13 (0.6)		38 (0.9)		30 (1.1)
Italy		7 (0.5)		93 (0.5)		26 (0.8)		53 (0.8)		13 (0.6)
Jordan		4 (0.6)		96 (0.6)		6 (0.6)		31 (1.5)		58 (1.6)
Kazakhstan		26 (1.3)		74 (1.3)		10 (0.6)		46 (1.2)		17 (0.7)
Kosovo		3 (0.4)		97 (0.4)		27 (1.1)		53 (1.1)		16 (0.9)
Latvia		4 (0.4)		96 (0.4)		17 (0.8)		53 (1.3)		27 (1.1)
Macao SAR		22 (0.6)		78 (0.6)		9 (0.4)		57 (0.8)		13 (0.6)
Malta	r	29 (1.4)		71 (1.4)	r	17 (0.9)		43 (1.1)		10 (0.7)
Montenegro		17 (0.7)		83 (0.7)		5 (0.4)		40 (0.9)		38 (0.9)
Morocco		12 (0.9)		88 (0.9)	r	14 (1.0)		39 (1.7)		32 (1.9)
North Macedonia		15 (0.9)		85 (0.9)		19 (1.0)		49 (1.3)		17 (1.1)
Northern Ireland	s	4 (0.5)		96 (0.5)	s	11 (0.7)		54 (1.1)		31 (1.0)
Norway (5)		5 (0.4)		95 (0.4)		47 (1.3)		43 (1.1)		4 (0.4)
Oman		13 (0.6)		87 (0.6)		23 (0.9)		43 (0.9)		20 (0.9)
Poland		21 (0.7)		79 (0.7)		8 (0.6)		32 (0.9)		39 (1.2)
Portugal		15 (0.8)		85 (0.8)		16 (0.6)		55 (0.8)		14 (0.6)
Qatar	r	14 (0.9)		86 (0.9)	r	16 (0.9)		42 (1.2)		28 (1.2)
Russian Federation		11 (1.4)		89 (1.4)		16 (0.9)		48 (1.6)		25 (1.2)
Saudi Arabia	r	12 (0.6)		88 (0.6)	r	29 (1.0)		40 (1.1)		18 (0.9)
Serbia		17 (1.3)		83 (1.3)		12 (0.8)		49 (1.1)		22 (1.1)
Slovak Republic		11 (0.7)		89 (0.7)		19 (0.8)		53 (1.0)		17 (1.3)
Slovenia		0 ~		100 (0.0)	r	16 (0.7)		58 (0.9)		25 (0.9)
South Africa ⋈	r	32 (1.1)		68 (1.1)	r	12 (0.6)		22 (0.8)		34 (1.3)
Spain		6 (0.5)		94 (0.5)		14 (0.7)		56 (0.8)		24 (1.0)
Sweden	s	46 (1.6)		54 (1.6)	s	34 (1.1)		18 (1.1)		2 ~
Turkiye		25 (1.4)		75 (1.4)		14 (1.2)		29 (1.2)		33 (1.8)
United Arab Emirates	s	16 (0.4)		84 (0.4)	s	19 (0.4)		43 (0.5)		22 (0.4)
Uzbekistan		6 (0.5)		94 (0.5)		28 (1.4)		53 (1.5)		12 (0.8)
International Average		**14 (0.1)**		**86 (0.1)**		**19 (0.1)**		**45 (0.2)**		**22 (0.1)**
Netherlands	x	7 (0.7)		93 (0.7)	x	35 (1.3)		49 (1.4)		9 (0.7)
New Zealand	x	0 ~		100 (0.0)	x	49 (1.5)		40 (1.2)		10 (0.9)
Lithuania	y	- -		- -	y	- -		- -		- -
Australia ⋈		- -		- -		- -		- -		- -
England ⋈		- -		- -		- -		- -		- -
Singapore		- -		- -		- -		- -		- -
United States		- -		- -		- -		- -		- -
Benchmarking Participants										
Alberta, Canada	s	14 (1.2)		86 (1.2)	s	20 (1.2)		51 (2.0)		15 (1.3)
British Columbia, Canada	s	18 (1.2)		82 (1.2)	s	26 (1.2)		46 (1.3)		10 (0.8)
Newfoundland & Labrador, Canada	s	8 (0.8)		92 (0.8)	s	32 (1.3)		51 (1.4)		9 (1.0)
Quebec, Canada	r	7 (0.6)		93 (0.6)	s	26 (1.0)		50 (1.1)		16 (0.8)
Moscow City, Russian Federation		9 (0.6)		91 (0.6)		18 (0.6)		47 (0.7)		25 (0.7)
South Africa (6) ⋈		27 (1.2)		73 (1.2)	r	13 (0.8)		23 (1.0)		35 (1.2)
Abu Dhabi, UAE	s	17 (0.7)		83 (0.7)	s	17 (0.7)		42 (0.8)		24 (0.8)
Dubai, UAE	x	13 (0.7)		87 (0.7)	x	20 (1.0)		47 (1.0)		19 (0.8)

* If students' parents answered "No" that their child did not stay home from school at any time during the COVID-19 pandemic, the question about perceptions of their child's learning progress was considered "logically not applicable."

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit 4: Parents' Perceptions of Their Child's Learning Progress During the COVID-19 Pandemic

Students' Results based on Parents' Reports

About the Items

Did your child stay home at any time because of the COVID-19 pandemic?

Yes - - - - ◯
No - - - - ◯

(If No, thank you for completing this questionniare)

Do you think your child's learning progress has been adversely affected?

A lot - - - - ◯
Somewhat - - - - ◯
Not at all - - - - ◯

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Despite the many challenges of conducting a school-based assessment during the COVID-19 pandemic, countries remained committed to participating in PIRLS 2021. Due to the tremendous efforts from all involved, the PIRLS 2021 countries overcame a variety of obstacles to ensure that students could take the PIRLS 2021 assessment. In all, PIRLS 2021 assessed nearly 400,000 students.

As shown in Exhibit 5, most of the countries managed to collect data towards the end of students' fourth year of schooling according to the original PIRLS 2021 schedule, which was October to December 2020 for Southern Hemisphere countries and February to July 2021 for Northern Hemisphere countries. However, some Northern Hemisphere countries had to delay assessing the cohort of fourth grade students until the beginning of the fifth grade (September to December 2021) and some countries assessed their fourth grade students one year later than originally scheduled (August to December 2021 for the Southern Hemisphere and April to July 2022 for the Northern Hemisphere).

Across the data collection dates, most of the countries assessed fourth grade students toward the end of the school year. The exception is the 14 Northern Hemisphere countries that necessarily had to delay testing and assessed students at the beginning of the fifth grade. For the most part, the students were from the same schools that had been selected for PIRLS 2021, but because of the delay over the summer months the students were 6 months older on average than their PIRLS 2016 counterparts (see later section on Reporting the PIRLS 2021 Achievement Results).

Exhibit 5: PIRLS 2021 Countries by Chronological Order of Data Collection

According to Original Plan

Assessed Fourth Grade Students at the End of the School Year
Five year trend from PIRLS 2016

October–December 2020
Southern Hemisphere

New Zealand
Singapore

February–July 2021
Northern Hemisphere

Albania
Austria
Azerbaijan
Belgium (Flemish)
Belgium (French)
Bulgaria
Chinese Taipei
Cyprus
Czech Republic
Denmark
Egypt
Finland
France
Germany
Hong Kong SAR
Italy
Jordan
Kosovo
Macao SAR
Malta
Montenegro
Netherlands
North Macedonia
Norway (5)
Oman
Poland
Portugal
Russian Federation
Serbia
Slovak Republic
Slovenia
Spain
Sweden
Turkiye
Uzbekistan

Benchmarking Participants
Alberta, Canada
British Columbia, Canada
Newfoundland & Labrador, Canada
Moscow City, Russian Federation

Delayed Assessment

Assessed Fourth Grade Cohort at the Beginning of the Fifth Grade

September–December 2021
Northern Hemisphere

Bahrain
Croatia
Georgia
Hungary
Ireland
Kazakhstan
Latvia
Lithuania
Morocco
Northern Ireland
Qatar
Saudi Arabia
United Arab Emirates
United States

Benchmarking Participants
Quebec, Canada
Abu Dhabi, UAE
Dubai, UAE

Assessed One Year Later

Assessed Fourth Grade Students at the End of the School Year
Six year trend from PIRLS 2016

August–December 2021
Southern Hemisphere

Australia
Brazil
South Africa

Benchmarking Participant
South Africa (6)

April–July 2022
Northern Hemisphere

England
Iran, Islamic Rep. of
Israel

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Numbers of Students Assessed

Nationally representative random samples of approximately 4,000 students from 150 to 200 schools participated in PIRLS 2021. PIRLS 2021 collected data from about 400,000 students, 380,000 parents, 20,000 teachers, and 13,000 schools.

A rigorous sampling adjudication provided documentation that almost all the countries met all sampling standards. Of the 57 countries and 8 benchmarking participants, nearly all the countries met the guidelines for coverage of the target population and most met the standards for low exclusion rates (less than 5%). Almost all the countries met or exceeded the school and student participation rate requirements, with only 7 needing to rely on replacement schools to reach the requirement and 4 falling short of the requirements.

In summary, the PIRLS 2021 data are of high quality. It can be said that the pandemic affected almost all countries to some extent, and no assessment can provide data on how students would have performed without COVID-19 affecting schools. No assessment, including PIRLS 2021, can be designed to measure the effects of the COVID-19 pandemic on student achievement and to compare achievement with and without the pandemic. However, PIRLS 2021 provides a unique data source for studying students' reading achievement and learning experiences around the world during the pandemic.

Summary of Scaling the PIRLS 2021 Data

For more detailed information about scaling the PIRLS 2021 achievement data and links to other references about the methodology, see Chapter 10 (methodology) and Chapter 11 (implementation) in *Methods and Procedures: PIRLS 2021 Technical Report*.

PIRLS has used well-established psychometric scaling approaches to derive achievement distributions and transform the assessment results of each PIRLS data collection to the PIRLS trend scale. Among these methods, linear scale transformations and linking designs using randomly equivalent samples have been used extensively in past PIRLS cycles for analysis and reporting (described in Chapter 10 of *Methods and Procedures: PIRLS 2021 Technical Report*). With the transition to the digital environment in PIRLS 2021, it was necessary to adapt analytic procedures and data collection designs to accommodate the change from paper-and-pencil to digital assessment. Accordingly, countries that administered the PIRLS digital assessment implemented a data collection design that involved two student samples: the main sample of about 4,500 students and a second equivalent but smaller "bridge" sample (about 1,500 students). Students in the main sample took

the 2021 digital assessment, while the bridge sample was administered the PIRLS 2021 trend items in the PIRLS 2016 paper format. This resulted in equivalent samples of students in each country responding to the trend items in the paper and digital formats, which enabled bridging the trend scale from paper-based PIRLS 2016 to digitally-based PIRLS in 2021. Although the bridge samples were smaller than the digital samples, often the students were in the same schools as those who took the digital assessments. The bridge samples were adjudicated as part of the same process used for all PIRLS 2021 countries and were judged to be the same quality as their digital counterparts.

To ensure that the paper-based and digitally-based assessment results will be reported on the PIRLS trend scale, scaling the PIRLS 2021 data involved the following three steps. First, the usual concurrent calibration approach (described in Chapter 11 of *Methods and Procedures: PIRLS 2021 Technical Report*) was applied to the paper-based data from PIRLS 2016 and PIRLS 2021, ensuring that the PIRLS 2021 paper data was linked to the PIRLS trend scale. This procedure included all the data from trend countries that administered the paper-based PIRLS 2021 assessment as well as the paper-based bridge data from the digital countries. Second, the digital assessment data from the digital countries was linked to the PIRLS trend scale through population-based linking, which capitalizes on the availability of equivalent samples from the same populations between the digital and bridge samples. Finally, the data from the digital countries, including data from the ePIRLS items, were scaled together to link the ePIRLS data to the PIRLS achievement scale.

Reporting the PIRLS 2021 Achievement Results

Reading achievement results are included in *PIRLS 2021 International Results in Reading* for all 57 countries and 8 benchmarking entities that participated in PIRLS 2021. Concerns about the comparability of the data resulting from COVID-19 school disruptions and delayed testing complicated reporting the PIRLS 2021 results.

PIRLS and TIMSS have built a reputation for reporting high quality data, but not all data collected meet the expected guidelines. In such cases, PIRLS and TIMSS use annotations to identify results based on data that for some reason fell short of meeting the expected guidelines. The goal is to be clear about issues while still reporting countries' data. See discussion "Impacts of Modifying the Assessment Schedule on Students' Achievement" in Countries' Reading Achievement.

The achievement results for all countries that assessed fourth grade students at the end of the school year are presented according to average achievement in Exhibit 1.1, with the countries that assessed the fourth grade students one year later

annotated. Exhibit 1.1 is followed by Exhibit 1.2, which has guidelines for determining significant differences in average reading achievement between the Exhibit 1.1 countries. Exhibit 1.3 includes all the countries presented according to average achievement, with the delayed assessment countries that assessed the fourth grade cohort at the beginning of the fifth grade highlighted in pink.

While PIRLS cannot determine cause and effects, in general there are downward trends in PIRLS 2021 that likely are evidence of the assessment taking place during the COVID-19 pandemic. Because the pandemic was unprecedented in the history of PIRLS trend assessments, the trends between 2016 and 2021 are shown with dotted lines. This should alert researchers that ***care should be taken when interpreting the PIRLS 2021 results***. Similar to the approach used for the PIRLS 2021 achievement data, the trend results for the countries that assessed fourth grade students are in one exhibit, with the "one year later countries" clearly annotated as having a 6-year trend instead of a 5-year trend between 2016 and 2021. Trend results for the countries with delayed assessments at the fifth grade ***need to be interpreted with great care*** due to the age difference and are shown in a separate exhibit.

Reporting the PIRLS 2021 Context Questionnaire Data

The PIRLS 2021 Context Questionnaire Framework (see Chapter 2 of *PIRLS 2021 Assessment Frameworks*) describes the topics covered by the PIRLS 2021 Context Questionnaires. PIRLS 2021 collected extensive data about the contexts for teaching and learning reading through questionnaires administered to students, their parents, teachers, and school principals.

The impact of COVID-19 on the PIRLS 2021 Context Questionnaire data is challenging to evaluate, but PIRLS 2021 did collect a considerable amount of valuable information on multiple levels. The school questionnaire results were only slightly impacted in the countries that delayed assessment to the fifth grade, because most schools had both fourth and fifth grades and the principals were asked to keep the fourth grade and the prior school year (2020−2021) in mind. The delayed assessments had the most impact on the teacher questionnaire data at the fifth grade. However, most countries tried to contact the teachers of the students from the fourth grade and asked teachers to keep the prior school year (2020−2021) in mind when responding to the questionnaire.

The TIMSS & PIRLS International Study Center conducted a series of analyses to establish that there was little or no difference in the responses to the Context Questionnaires between the bulk of the PIRLS 2021 countries that assessed students

at the end of fourth grade and the countries with delayed testing of the fourth grade cohort at the beginning of fifth grade.

PIRLS 2021 International Results in Reading includes results for all countries for selected items in the school, home, and student questionnaires (countries with delayed assessments of students in the fifth grade are highlighted in pink). Although COVID-19 impacted data collection, resulting in less questionnaire data included here than in previous assessment cycles, all of the PIRLS 2021 Context Questionnaire data are included in the PIRLS 2021 International Database.

Quality Assurance

Despite the challenges that the COVID-19 pandemic introduced for schools and national research centers responsible for implementing PIRLS 2021, every effort was made to attend to the quality and comparability of the data through careful planning and documentation, cooperation among participating countries, standardized procedures, and rigorous attention to quality control throughout. The assessments were administered to nationally representative and well-documented probability samples of students in each country. Staff from Statistics Canada and IEA Hamburg worked with NRCs on all phases of sampling activities to ensure compliance with sampling and participation requirements, with a few exceptions from compliance annotated in the data exhibits.

IEA Amsterdam worked with the TIMSS & PIRLS International Study Center to manage an extensive series of verification checks to ensure the comparability of translations of the assessment items and questionnaires and to conduct the International Quality Assurance Program of school visits to monitor and report on the administration of the assessment. Together with the TIMSS & PIRLS International Study Center, IEA Hamburg staff worked closely with NRCs to organize data collection operations and to check all data for accuracy and consistency within and across countries.

The extensive efforts to maintain PIRLS' quality standards during the COVID-19 pandemic were largely successful. Complete documentation of the many technical activities required to conduct PIRLS 2021 is provided in the *Methods and Procedures: PIRLS 2021 Technical Report* documentation. The volume includes detailed information about the processes used to develop and implement the PIRLS 2021 assessments, including sampling, translation verification, data collection, scaling, linking, and data analysis.

SECTION 1

Countries' Reading Achievement

The PIRLS 2021 data about students' reading achievement provide an extremely valuable resource for continuing research about the impact of the COVID-19 pandemic on students' learning. PIRLS 2021 is the only large scale international assessment that successfully collected data during education's COVID-19 disruption. Further, the achievement data is accompanied by contextual information collected from several sources: principals' reports about school conditions, students' attitudes toward their reading instruction, and parents' perceptions regarding the impact of the pandemic on their children's learning (see later sections of the report on Home Environment Support; School Composition, Resources, and Climate; and Students' Reading Attitudes and Behaviors).

The About PIRLS 2021 Section

The first section, About PIRLS 2021, provides a considerable amount of information about the PIRLS 2021 international assessment of reading comprehension at fourth grade (e.g., the content of the assessment, the 57 countries and 8 benchmarking entities participating in PIRLS 2021, the transition to digital assessment, and the numbers of students assessed).

Despite coinciding with school disruptions due to the COVID-19 pandemic, the PIRLS 2021 data collection successfully included nearly 400,000 students in 57 countries worldwide. Although the pandemic necessitated changes in school operations, frequently leading to school closures (see Exhibit 3 in About PIRLS 2021), the countries were able to make various adjustments in their data collection schedules, ranging from minor changes to essentially heroic efforts.

Exhibit 5 in About PIRLS 2021 shows the chronology of the PIRLS 2021 data collection from October 2020 through July 2022. Fortunately, modifying the schedules had minimal impact on the quality of the PIRLS 2021 data. The thorough and well documented adjudications of the PIRLS 2021 sampling procedures and data collection outcomes found that the PIRLS guidelines to ensure high quality were met for the most part, while the few exceptions were annotated appropriately (see Appendix A). The International Quality Assurance Program also monitored and documented the data collection activities (see Chapter 6 in *Methods and Procedures: PIRLS 2021 Technical Report*).

Impacts of Modifying the Assessment Schedule on Students' Achievement

Consistently across assessment cycles, the PIRLS data collection procedures have included conducting the assessments at the end of the fourth grade school year so that as much of the curriculum has been covered as possible. In light of the data collection challenges in PIRLS 2021, 43 of the 57 countries managed to assess students at the end of the target school year, including conducting the assessment a year later than originally scheduled in a few countries (this is annotated in the exhibits with a bowtie after the countries' names). So far, no discernible achievement differences have been identified that are associated with assessing fourth grade students one year later than initially scheduled.

However, in the other 14 countries (all in the Northern Hemisphere), the necessary modifications to the data collection schedule delayed assessing students in the fourth grade cohort until the beginning of the fifth grade. In reviewing the PIRLS 2021 achievement results, it appeared that some of these countries had an achievement advantage in PIRLS 2021 that also was manifested in the relatively larger trend increases between 2016 and 2021 (see report section on Trends in Reading Achievement).

Of course, the reasons for any achievement differences are unknown. However, although there was variation, the average age of students in the 14 countries that delayed assessment until the beginning of the fifth grade was half a year older on average than the average age of students assessed at the end of fourth grade.

Average Ages of Students Assessed in PIRLS 2021 and PIRLS 2016 by Data Collection Period

PIRLS 2021 Data Collection Period	PIRLS 2021	PIRLS 2016	Difference
Assessed Fourth Grade Students at the End of the School Year	10.2	10.2	0.0
Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade	10.8	10.2	0.5

Because of rounding, some results may appear inconsistent.

Beyond finding that these students were comparatively older, unfortunately, without any information about the reading achievement of the students in the 14 countries at the end of the fourth grade or their activities over the summer months, the PIRLS 2021 data in and of itself cannot be used to disentangle the extent of the impact of the delayed assessment on students' reading achievement. Researchers may be able to use within country data and local insights to study this issue in the future.

For now, however, throughout the report pink highlighting has been used to identify the results of the 14 countries where delayed assessment until the beginning of the fifth grade resulted in collecting data from a sample of comparatively older students.

Average Reading Achievement and Scale Score Distributions

The overall achievement results for the 57 PIRLS 2021 participating countries and 8 benchmarking participants are presented in three exhibits.

- Exhibit 1.1 shows the average reading achievement and scale score distributions for the 43 countries and 5 benchmarking participants that collected their data at the end of the fourth grade.
- For the countries in Exhibit 1.1, Exhibit 1.2 provides significance tests for differences between country averages. Results flagged as significant have a 1 in 20 error level. There is a 5 percent chance of declaring the sample differences significant, even though the true difference is zero.
- Exhibit 1.3 includes the average reading achievement and scale score distribution for all 57 countries and 8 benchmarking entities, including the results for the students in the 14 countries and 3 benchmarking entities (half a year older) that delayed data collection until the beginning of the fifth grade (highlighted in pink).

For the 43 countries and 5 benchmarking entities that assessed fourth grade students at the end of the school year, Exhibit 1.1 includes each country's average scale score with its 95 percent confidence interval as well as the range in performance for the middle half of the students (25th to 75th percentile—interquartile range) and the extremes (5th and 95th percentiles). The 43 countries are presented according to their average achievement in descending order. Please note that the countries annotated with a bowtie (⋈) assessed their fourth grade students at the end of the fourth grade school year, but one calendar year later than initially planned. The benchmarking participants are in a separate section at the bottom of the exhibit for ease of comparison.

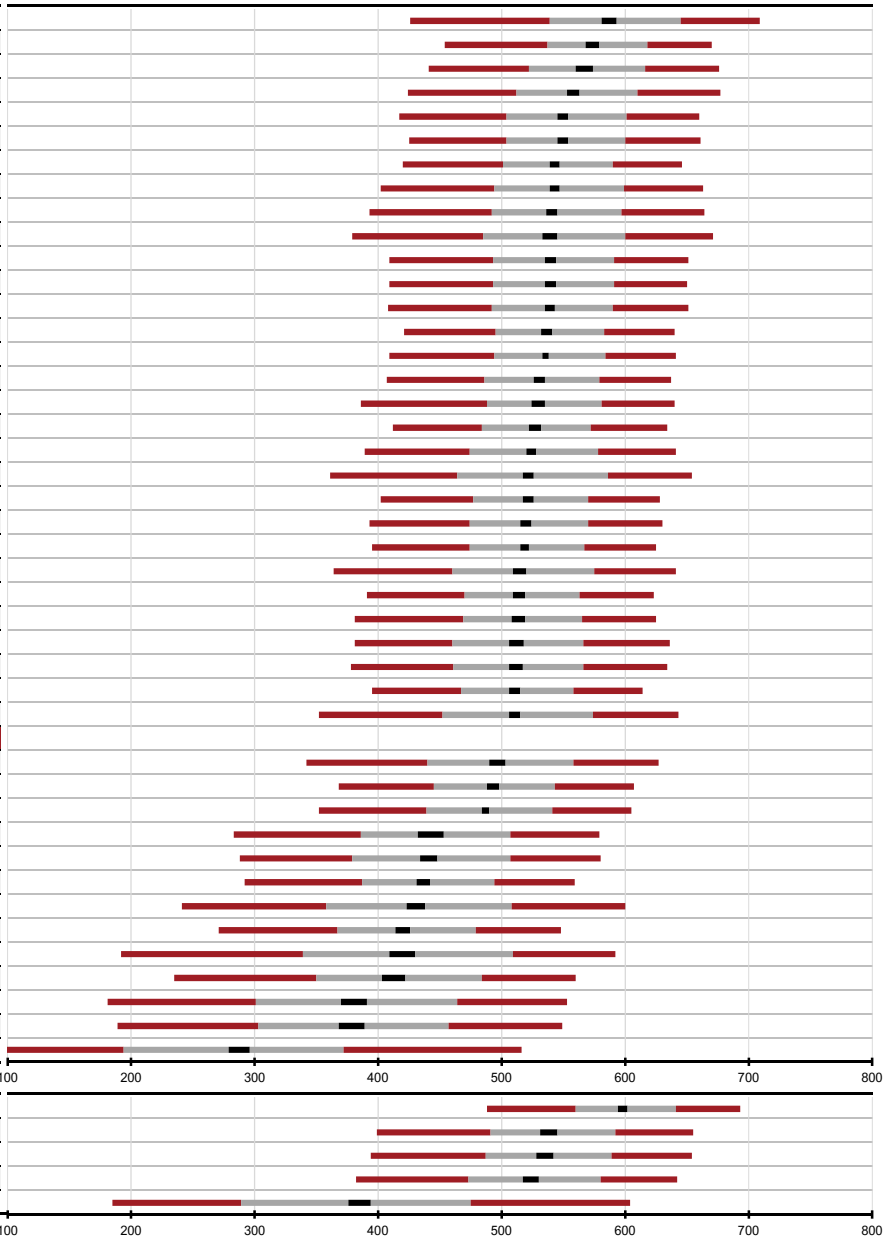
Exhibit 1.1: Average Reading Achievement and Scale Score Distributions

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Country	Average Scale Score	
[3] Singapore	587 (3.1)	▲
[2 †] Hong Kong SAR	573 (2.7)	▲
Russian Federation	567 (3.6)	▲
England ⋈	558 (2.5)	▲
Finland	549 (2.4)	▲
Poland	549 (2.2)	▲
Chinese Taipei	544 (2.2)	▲
[2] Sweden	544 (2.1)	▲
Australia ⋈	540 (2.2)	▲
Bulgaria	540 (3.0)	▲
Czech Republic	540 (2.3)	▲
[2 †] Denmark	539 (2.2)	▲
Norway (5)	539 (2.0)	▲
[2] Italy	537 (2.2)	▲
Macao SAR	536 (1.3)	▲
Austria	530 (2.2)	▲
† Slovak Republic	529 (2.7)	▲
≡ Netherlands	527 (2.5)	▲
Germany	524 (2.1)	▲
† New Zealand	521 (2.3)	▲
Spain	521 (2.2)	▲
[2] Portugal	520 (2.3)	▲
Slovenia	520 (1.9)	▲
Malta	515 (2.7)	▲
France	514 (2.5)	▲
[3] Serbia	514 (2.8)	▲
[2] Albania	513 (3.1)	▲
Cyprus	511 (2.9)	▲
Belgium (Flemish)	511 (2.3)	▲
[3] Israel ⋈	510 (2.2)	▲
PIRLS Scale Centerpoint	**500**	
[2] Turkiye	496 (3.4)	
[2] Belgium (French)	494 (2.7)	▼
[3] Montenegro	487 (1.6)	▼
North Macedonia	442 (5.3)	▼
Azerbaijan	440 (3.6)	▼
Uzbekistan	437 (2.9)	▼
Oman	429 (3.7)	▼
[2] Kosovo	421 (3.1)	▼
[2 †] Brazil ⋈	419 (5.3)	▼
Iran, Islamic Rep. of ⋈	413 (4.9)	▼
Jordan	381 (5.4)	▼
[2 Ψ] Egypt	378 (5.4)	▼
Ж South Africa ⋈	288 (4.4)	▼
Benchmarking Participants		
Moscow City, Russian Federation	598 (2.1)	▲
[3 ≡] Alberta, Canada	539 (3.6)	▲
[2] British Columbia, Canada	535 (3.5)	▲
[2] Newfoundland & Labrador, Canada	523 (3.2)	▲
South Africa (6) ⋈	384 (4.5)	▼

Reading Achievement Distribution



The PIRLS achievement scale was established in 2001 based on the combined achievement distribution of all countries that participated in PIRLS 2001. To provide a point of reference for country comparisons, the scale centerpoint of 500 was located at the mean of the combined achievement distribution. The units of the scale were chosen so that 100 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.

Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.

Issues identified in Albania's data quality led to reduced comparability and framework coverage.

South Africa continued investigating its PIRLS 2021 results at the time of publication and will deal with the findings through its national report.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021

Downloaded from https://pirls2021.org/results

The results indicate that these 43 countries had relatively high achievement in reading at the fourth grade as a group. The fourth grade students in almost three-fourths (30 out of the 43 countries) had higher achievement than the scale centerpoint of 500 (a point that is stable across assessment cycles, see "History of the PIRLS Reading Achievement Scale"). As in previous cycles, the results also reveal that although the differences from country to country in average achievement were often small (considerable overlapping of confidence intervals), there was a substantial range in performance of nearly 300 scale score points from the top-performing to the lower-performing countries.

History of the PIRLS Reading Achievement Scale

The PIRLS reading achievement scale was established in PIRLS 2001, based on the achievement across all participating countries, treating each country equally. Students' achievement is placed on the scale with the successive PIRLS cycles, most recently for PIRLS 2021. Reporting the achievement data from each successive PIRLS assessment on the PIRLS scale enables monitoring increases or decreases in achievement across assessment cycles. The scale has a typical range of achievement between 300 and 700. A centerpoint of 500 was set to correspond to the mean of overall achievement in 2001, with 100 points set to correspond to the standard deviation. PIRLS uses the scale centerpoint as a point of reference that remains constant from assessment to assessment.

The achievement distributions in Exhibit 1.1 show a large within-country range in many of PIRLS 2021 countries—about 200 points or even larger between lower- and higher-performing students. When considering average achievement, it is important to keep in mind the sizable variations within countries, and that every country has some very good readers as well as some struggling readers.

For the countries shown in Exhibit 1.1, Exhibit 1.2 provides significance tests for differences in average estimated reading achievement between one country and another country. Exhibit 1.2 is based on a traditional approach of testing for significance of differences and does not provide information about practical significance. Significance in the statistical sense means that the size of the difference is surprising compared to the standard error of the difference. In the exhibit, a 5 percent error rate was used to calculate whether a difference was flagged as significant or not. Differences should be triangulated with other data in order to come to meaningful interpretations of what the differences imply in terms of improving reading education in the countries (see Chapter 13 in *Methods and Procedures: PIRLS 2021 Technical Report*).

Exhibit 1.2: Significance of Differences Between Countries' Average Reading Achievement

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Read across the row for a country to compare performance with the countries listed along the top of the chart. If no statistically significant difference was found, no symbol is present. If the difference is significant ($p < 0.05$), a symbol indicates whether the estimated achievement of the country in the row is higher (▲) than that of the comparison country, or lower (▼).

Country	Average Scale Score	Singapore	Hong Kong SAR	Russian Federation	England ⋈	Finland	Poland	Chinese Taipei	Sweden	Australia ⋈	Bulgaria	Czech Republic	Denmark	Norway (5)	Italy	Macao SAR	Austria	Slovak Republic	Netherlands	Germany	New Zealand	Spain	Portugal	Slovenia	Malta	France	Serbia	Albania	Cyprus	Belgium (Flemish)	Israel ⋈	Turkiye	Belgium (French)	Montenegro	North Macedonia
Singapore	587 (3.1)		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Hong Kong SAR	573 (2.7)	▼			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Russian Federation	567 (3.6)	▼			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
England ⋈	558 (2.5)	▼	▼	▼		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Finland	549 (2.4)	▼	▼	▼	▼					▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Poland	549 (2.2)	▼	▼	▼	▼					▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Chinese Taipei	544 (2.2)	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Sweden	544 (2.1)	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Australia ⋈	540 (2.2)	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Bulgaria	540 (3.0)	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Czech Republic	540 (2.3)	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Denmark	539 (2.2)	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Norway (5)	539 (2.0)	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Italy	537 (2.2)	▼	▼	▼	▼	▼	▼	▼	▼								▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Macao SAR	536 (1.3)	▼	▼	▼	▼	▼	▼	▼	▼								▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Austria	530 (2.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼					▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Slovak Republic	529 (2.7)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼					▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Netherlands	527 (2.5)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼						▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Germany	524 (2.1)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼									▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
New Zealand	521 (2.3)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼								▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Spain	521 (2.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼								▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Portugal	520 (2.3)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲
Slovenia	520 (1.9)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲
Malta	515 (2.7)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼												▲	▲	▲	▲
France	514 (2.5)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲
Serbia	514 (2.8)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲
Albania	513 (3.1)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲
Cyprus	511 (2.9)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼								▲	▲	▲	▲
Belgium (Flemish)	511 (2.3)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼								▲	▲	▲	▲
Israel ⋈	510 (2.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼								▲	▲	▲	▲
Turkiye	496 (3.4)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼			▲	▲
Belgium (French)	494 (2.7)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼			▲	▲
Montenegro	487 (1.6)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼		▲
North Macedonia	442 (5.3)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	
Azerbaijan	440 (3.6)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	
Uzbekistan	437 (2.9)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	
Oman	429 (3.7)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	
Kosovo	421 (3.1)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Brazil ⋈	419 (5.3)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Iran, Islamic Rep. of ⋈	413 (4.9)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Jordan	381 (5.4)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Egypt	378 (5.4)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
South Africa ⋈	288 (4.4)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼
Benchmarking Participants																																			
Moscow City, Russian Federation	598 (2.1)	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Alberta, Canada	539 (3.6)	▼	▼	▼	▼	▼	▼										▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
British Columbia, Canada	535 (3.5)	▼	▼	▼	▼	▼	▼	▼	▼											▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Newfoundland & Labrador, Canada	523 (3.2)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼									▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
South Africa (6) ⋈	384 (4.5)	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼

▲ Average achievement significantly higher than comparison country

▼ Average achievement significantly lower than comparison country

Significance tests were not adjusted for multiple comparisons. Five percent of the comparisons would be statistically significant by chance alone.
( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Exhibit 1.2: Significance of Differences Between Countries' Average Reading Achievement

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

(Continued)

Country	Average Scale Score	Azerbaijan	Uzbekistan	Oman	Kosovo	Brazil ⋈	Iran, Islamic Rep. of ⋈	Jordan	Egypt	South Africa ⋈	**Benchmarking Participants**	Moscow City, Russian Federation	Alberta, Canada	British Columbia, Canada	Newfoundland & Labrador, Canada	South Africa (6) ⋈
Singapore	587 (3.1)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▲	▲	▲	▲
Hong Kong SAR	573 (2.7)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▲	▲	▲	▲
Russian Federation	567 (3.6)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▲	▲	▲	▲
England ⋈	558 (2.5)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▲	▲	▲	▲
Finland	549 (2.4)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▲	▲	▲	▲
Poland	549 (2.2)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▲	▲	▲	▲
Chinese Taipei	544 (2.2)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼		▲	▲	▲
Sweden	544 (2.1)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼		▲	▲	▲
Australia ⋈	540 (2.2)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼			▲	▲
Bulgaria	540 (3.0)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼			▲	▲
Czech Republic	540 (2.3)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼			▲	▲
Denmark	539 (2.2)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼			▲	▲
Norway (5)	539 (2.0)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼			▲	▲
Italy	537 (2.2)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼			▲	▲
Macao SAR	536 (1.3)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼			▲	▲
Austria	530 (2.2)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼			▲
Slovak Republic	529 (2.7)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼			▲
Netherlands	527 (2.5)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼			▲
Germany	524 (2.1)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼		▲
New Zealand	521 (2.3)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼		▲
Spain	521 (2.2)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼		▲
Portugal	520 (2.3)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼		▲
Slovenia	520 (1.9)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼		▲
Malta	515 (2.7)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
France	514 (2.5)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Serbia	514 (2.8)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Albania	513 (3.1)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Cyprus	511 (2.9)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Belgium (Flemish)	511 (2.3)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Israel ⋈	510 (2.2)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Turkiye	496 (3.4)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Belgium (French)	494 (2.7)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Montenegro	487 (1.6)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
North Macedonia	442 (5.3)				▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Azerbaijan	440 (3.6)			▲	▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Uzbekistan	437 (2.9)				▲	▲	▲	▲	▲	▲		▼	▼	▼	▼	▲
Oman	429 (3.7)	▼					▲	▲	▲	▲		▼	▼	▼	▼	▲
Kosovo	421 (3.1)	▼	▼					▲	▲	▲		▼	▼	▼	▼	▲
Brazil ⋈	419 (5.3)	▼	▼					▲	▲	▲		▼	▼	▼	▼	▲
Iran, Islamic Rep. of ⋈	413 (4.9)	▼	▼	▼				▲	▲	▲		▼	▼	▼	▼	▲
Jordan	381 (5.4)	▼	▼	▼	▼	▼	▼			▲		▼	▼	▼	▼	
Egypt	378 (5.4)	▼	▼	▼	▼	▼	▼			▲		▼	▼	▼	▼	
South Africa ⋈	288 (4.4)	▼	▼	▼	▼	▼	▼	▼	▼			▼	▼	▼	▼	▼
Benchmarking Participants																
Moscow City, Russian Federation	598 (2.1)	▲	▲	▲	▲	▲	▲	▲	▲	▲			▲	▲	▲	▲
Alberta, Canada	539 (3.6)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼			▲	▲
British Columbia, Canada	535 (3.5)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼			▲	▲
Newfoundland & Labrador, Canada	523 (3.2)	▲	▲	▲	▲	▲	▲	▲	▲	▲		▼	▼	▼		▲
South Africa (6) ⋈	384 (4.5)	▼	▼	▼	▼	▼	▼			▲		▼	▼	▼	▼	

▲ Average achievement significantly higher than comparison country

▼ Average achievement significantly lower than comparison country

Significance tests were not adjusted for multiple comparisons. Five percent of the comparisons would be statistically significant by chance alone.
( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

In Exhibit 1.2, reading across a country row provides a way to compare that country's average achievement to the average achievement of each of the other PIRLS 2021 countries shown across the top of the exhibit. Looking across the row for Singapore—the first country listed—shows an entire row of up arrows (▲), indicating that Singapore had higher average achievement (significant at $p < \alpha = 0.05$) than each one of the other countries.

Hong Kong SAR and the Russian Federation had the next highest average reading achievement. Although these two countries had lower average achievement (▼) than Singapore, each had higher estimated average achievement than the rest of the other countries in the exhibit. Going down the exhibit, looking across each row in turn, England (with its assessment conducted in 2022 as noted by the bowtie, ⋈) had lower average achievement than Singapore, Hong Kong SAR, and the Russian Federation but higher achievement than the rest of the other countries. Next, Finland, Poland, Chinese Taipei, and Sweden had lower average reading achievement than the top four countries, but these four countries did not have different average achievement from each other and both Finland and Poland had higher estimated average reading achievement than each of the other countries.

Exhibit 1.3 presents average reading achievement and scale score distributions for all 57 countries and 8 benchmarking entities that participated in PIRLS 2021. Once again, the countries are presented in order of average achievement from highest to lowest. The countries with delayed testing and older students are highlighted in pink. Comparing back to Exhibits 1.1 and 1.2 that indicated Singapore through Sweden as the eight countries with relatively higher achievement than most of each of the other participating countries, it can be seen that these eight countries have been joined by five of the 14 countries with older students.

Despite not being able to identify the impact of the delayed assessment, it is clear that the students in these five countries are very capable readers. Could this perhaps be a sign of recovery from the impact of COVID-19 in these countries? Unfortunately, PIRLS has no way of isolating the effects that delaying the assessment of the fourth grade cohort over the summer until the beginning of fifth grade may have had on the reading achievement of these students, so ***direct comparisons with countries that assessed students at the end of fourth grade need to be made with great care***.

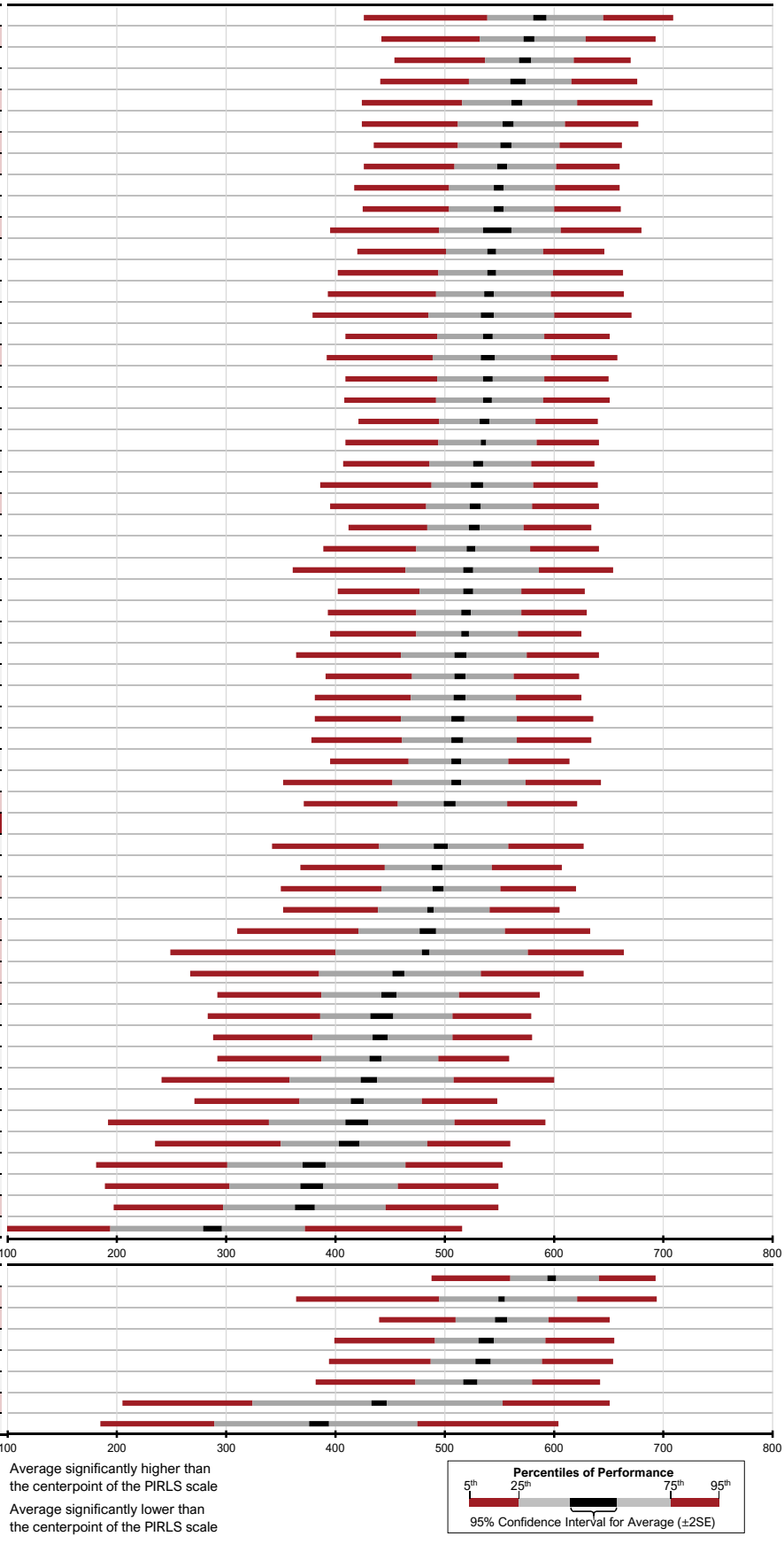
Exhibit 1.3: Average Reading Achievement and Scale Score Distributions

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Average Scale Score	
[3] Singapore	587 (3.1)	▲
Ireland	577 (2.5)	▲
[2 †] Hong Kong SAR	573 (2.7)	▲
Russian Federation	567 (3.6)	▲
[2 †] Northern Ireland	566 (2.5)	▲
England ⋈	558 (2.5)	▲
[†] Croatia	557 (2.5)	▲
Lithuania	552 (2.3)	▲
Finland	549 (2.4)	▲
Poland	549 (2.2)	▲
[2 ≡] United States	548 (6.8)	▲
Chinese Taipei	544 (2.2)	▲
[2] Sweden	544 (2.1)	▲
Australia ⋈	540 (2.2)	▲
Bulgaria	540 (3.0)	▲
Czech Republic	540 (2.3)	▲
Hungary	539 (3.4)	▲
[2 †] Denmark	539 (2.2)	▲
Norway (5)	539 (2.0)	▲
[2] Italy	537 (2.2)	▲
Macao SAR	536 (1.3)	▲
Austria	530 (2.2)	▲
[†] Slovak Republic	529 (2.7)	▲
Latvia	528 (2.6)	▲
[≡] Netherlands	527 (2.5)	▲
Germany	524 (2.1)	▲
[†] New Zealand	521 (2.3)	▲
Spain	521 (2.2)	▲
[2] Portugal	520 (2.3)	▲
Slovenia	520 (1.9)	▲
Malta	515 (2.7)	▲
France	514 (2.5)	▲
[3] Serbia	514 (2.8)	▲
[2] Albania	513 (3.1)	▲
Cyprus	511 (2.9)	▲
Belgium (Flemish)	511 (2.3)	▲
[3] Israel ⋈	510 (2.2)	▲
Kazakhstan	504 (2.7)	
PIRLS Scale Centerpoint	**500**	
[2] Turkiye	496 (3.4)	
[2] Belgium (French)	494 (2.7)	▼
[1] Georgia	494 (2.6)	▼
[3] Montenegro	487 (1.6)	▼
Qatar	485 (3.7)	▼
United Arab Emirates	483 (1.8)	▼
Bahrain	458 (2.9)	▼
[3] Saudi Arabia	449 (3.6)	▼
North Macedonia	442 (5.3)	▼
Azerbaijan	440 (3.6)	▼
Uzbekistan	437 (2.9)	▼
Oman	429 (3.7)	▼
[2] Kosovo	421 (3.1)	▼
[2 †] Brazil ⋈	419 (5.3)	▼
Iran, Islamic Rep. of ⋈	413 (4.9)	▼
Jordan	381 (5.4)	▼
[2 Ψ] Egypt	378 (5.4)	▼
Morocco	372 (4.5)	▼
[Ж] South Africa ⋈	288 (4.4)	▼
Benchmarking Participants		
Moscow City, Russian Federation	598 (2.1)	▲
[2] Dubai, UAE	552 (1.5)	▲
[≡] Quebec, Canada	551 (2.7)	▲
[3 ≡] Alberta, Canada	539 (3.6)	▲
[2] British Columbia, Canada	535 (3.5)	▲
[2] Newfoundland & Labrador, Canada	523 (3.2)	▲
Abu Dhabi, UAE	440 (3.5)	▼
South Africa (6) ⋈	384 (4.5)	▼



The PIRLS achievement scale was established in 2001 based on the combined achievement distribution of all countries that participated in PIRLS 2001. To provide a point of reference for country comparisons, the scale centerpoint of 500 was located at the mean of the combined achievement distribution. The units of the scale were chosen so that 100 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.

Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.

Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.

Issues identified in Albania's data quality led to reduced comparability and framework coverage.

South Africa continued investigating its PIRLS 2021 results at the time of publication and will deal with the findings through its national report.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021

Average Achievement by Gender

Exhibit 1.4 presents average reading achievement by gender in the 43 countries and 5 benchmarking entities where the fourth grade cohort was assessed at the end of the school year. Exhibit 1.5 presents the results for all 57 countries and 8 benchmarking entities, including the countries with delayed assessments at the fifth grade (highlighted in pink). In each exhibit, the countries are presented according to the size of the gender gap in average reading achievement from little or no difference between girls and boys to a rather large difference favoring girls.

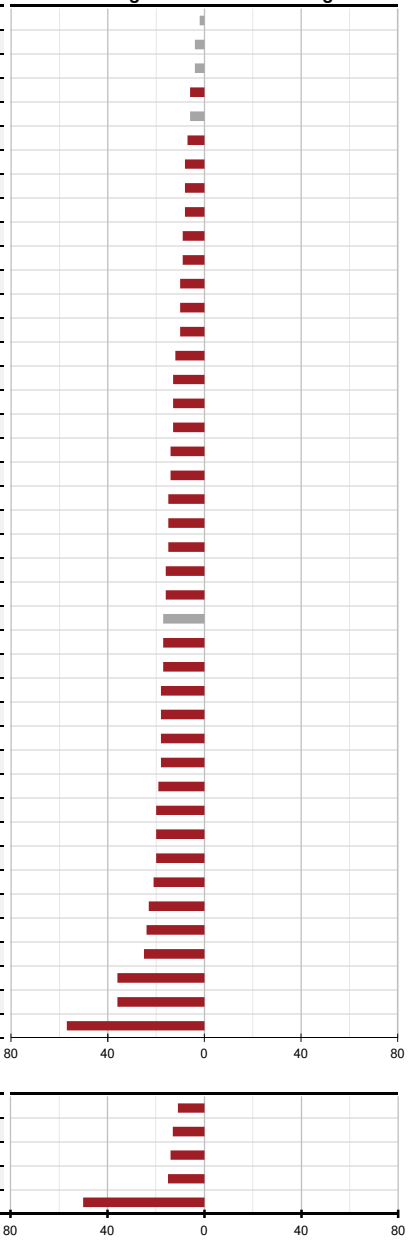
The results show a pervasive advantage in reading achievement at the fourth grade for girls compared to boys, and this was no different for the countries with delayed testing at the fifth grade. Fourth grade girls had higher average achievement than boys in almost all the countries, with an average advantage of 16 points across the 43 countries (Exhibit 1.4) and 18 points across the 57 countries (Exhibit 1.5). According to Exhibit 1.5, there was no significant difference in achievement between boys and girls in Spain, the Czech Republic, Israel, Malta, and Iran.

Exhibit 1.4: Average Reading Achievement by Gender

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Country	Girls		Boys		Difference	Gender Difference	
	Percent of Students	Average Scale Score	Percent of Students	Average Scale Score		Girls Scored Higher	Boys Scored Higher
Spain	47 (0.9)	522 (2.6)	53 (0.9)	520 (2.5)	2 (2.6)		
Czech Republic	49 (0.9)	541 (2.8)	51 (0.9)	538 (2.7)	4 (3.0)		
[3] Israel ⋈	50 (1.1)	512 (2.8)	50 (1.1)	508 (2.6)	4 (3.0)		
[2] Portugal	48 (0.7)	523 (2.3)	52 (0.7)	517 (2.7)	6 (2.0)		
Malta	46 (3.4)	518 (3.6)	54 (3.4)	512 (3.2)	6 (4.1)		
[2] Italy	49 (0.6)	541 (2.4)	51 (0.6)	534 (2.4)	7 (2.0)		
Belgium (Flemish)	49 (0.8)	515 (2.6)	51 (0.8)	507 (2.8)	8 (2.8)		
[2 †] Hong Kong SAR	51 (1.0)	577 (2.8)	49 (1.0)	569 (3.3)	8 (2.8)		
[†] Slovak Republic	52 (0.9)	533 (2.9)	48 (0.9)	525 (3.2)	8 (2.8)		
Cyprus	51 (0.7)	515 (3.2)	49 (0.7)	506 (3.1)	9 (2.7)		
[3] Serbia	49 (0.8)	518 (3.4)	51 (0.8)	509 (3.2)	9 (3.5)		
Macao SAR	50 (0.7)	540 (1.5)	50 (0.7)	531 (1.9)	10 (2.2)		
England ⋈	51 (0.9)	562 (3.1)	49 (0.9)	553 (3.1)	10 (3.7)		
[2] Belgium (French)	49 (0.8)	499 (3.2)	51 (0.8)	489 (2.9)	10 (3.2)		
[2 †] Denmark	52 (0.6)	545 (2.5)	48 (0.6)	533 (2.8)	12 (3.0)		
[≡] Netherlands	50 (0.8)	534 (2.9)	50 (0.8)	521 (2.8)	13 (2.6)		
Chinese Taipei	48 (0.5)	551 (2.5)	52 (0.5)	537 (2.4)	13 (2.3)		
Russian Federation	49 (0.7)	574 (3.4)	51 (0.7)	561 (4.5)	13 (3.7)		
France	50 (0.7)	521 (3.0)	50 (0.7)	507 (2.7)	14 (2.6)		
Austria	49 (0.9)	537 (2.6)	51 (0.9)	523 (2.6)	14 (2.7)		
[2] Sweden	50 (0.9)	551 (2.5)	50 (0.9)	536 (2.3)	15 (2.3)		
Bulgaria	48 (0.9)	548 (3.0)	52 (0.9)	533 (4.0)	15 (3.9)		
Germany	49 (0.8)	532 (2.5)	51 (0.8)	516 (2.5)	15 (2.6)		
[2 Ψ] Egypt	49 (1.5)	386 (5.7)	51 (1.5)	370 (6.4)	16 (5.6)		
Norway (5)	49 (0.7)	547 (2.3)	51 (0.7)	531 (2.4)	16 (2.4)		
Iran, Islamic Rep. of ⋈	46 (2.3)	422 (7.5)	54 (2.3)	405 (5.9)	17 (9.1)		
[2] Turkiye	49 (0.6)	505 (3.8)	51 (0.6)	488 (3.6)	17 (2.8)		
Australia ⋈	50 (0.7)	549 (2.5)	50 (0.7)	532 (2.8)	17 (3.0)		
Finland	50 (0.8)	558 (2.7)	50 (0.8)	541 (2.7)	18 (2.7)		
[3] Singapore	49 (0.6)	596 (3.0)	51 (0.6)	578 (3.7)	18 (2.7)		
Azerbaijan	47 (0.8)	450 (4.1)	53 (0.8)	432 (4.0)	18 (3.7)		
Slovenia	49 (0.7)	529 (2.1)	51 (0.7)	511 (2.3)	18 (2.3)		
[†] New Zealand	49 (0.7)	531 (2.9)	51 (0.7)	512 (2.7)	19 (3.2)		
[3] Montenegro	48 (0.6)	497 (2.0)	52 (0.6)	478 (2.2)	20 (2.6)		
Poland	47 (1.0)	560 (2.5)	53 (1.0)	540 (2.7)	20 (2.9)		
[2] Albania	49 (1.0)	523 (3.5)	51 (1.0)	503 (3.4)	20 (3.2)		
[2] Kosovo	51 (0.9)	431 (3.1)	49 (0.9)	410 (3.8)	21 (3.1)		
[2 †] Brazil ⋈	49 (1.1)	431 (6.0)	51 (1.1)	408 (6.1)	23 (6.0)		
Uzbekistan	48 (0.9)	449 (3.1)	52 (0.9)	425 (3.5)	24 (3.4)		
North Macedonia	51 (1.0)	454 (5.8)	49 (1.0)	429 (6.0)	25 (5.2)		
Oman	50 (0.6)	447 (4.2)	50 (0.6)	412 (4.1)	36 (3.8)		
Jordan	51 (2.6)	398 (6.8)	49 (2.6)	362 (7.9)	36 (10.3)		
[Ж] South Africa ⋈	49 (0.6)	317 (4.4)	51 (0.6)	260 (5.0)	57 (3.6)		
International Average	**49 (0.2)**	**509 (0.5)**	**51 (0.2)**	**493 (0.6)**			
Benchmarking Participants							
Moscow City, Russian Federation	49 (0.7)	604 (2.2)	51 (0.7)	593 (2.5)	11 (2.1)		
[2] British Columbia, Canada	49 (1.0)	542 (3.5)	51 (1.0)	529 (4.3)	13 (3.3)		
[2] Newfoundland & Labrador, Canada	50 (1.2)	530 (3.1)	50 (1.2)	516 (4.3)	14 (4.0)		
[3 ≡] Alberta, Canada	49 (1.5)	546 (4.1)	51 (1.5)	531 (4.2)	15 (4.3)		
South Africa (6) ⋈	52 (0.7)	408 (4.5)	48 (0.7)	359 (5.2)	50 (3.9)		



( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

Difference statistically significant
Difference not statistically significant

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

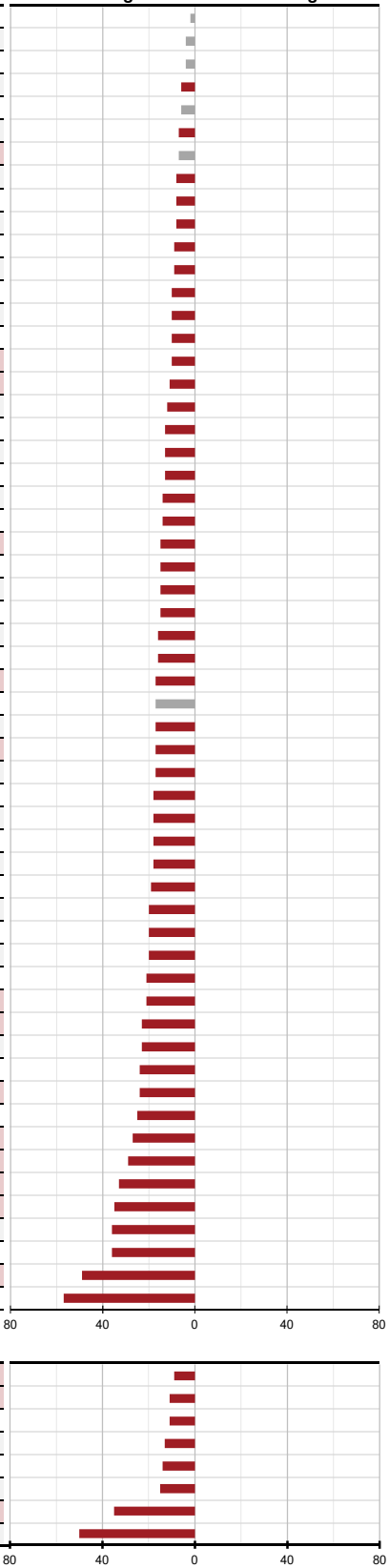
Exhibit 1.5: Average Reading Achievement by Gender

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Girls		Boys		Difference	Gender Difference	
	Percent of Students	Average Scale Score	Percent of Students	Average Scale Score		Girls Scored Higher	Boys Scored Higher
Spain	47 (0.9)	522 (2.6)	53 (0.9)	520 (2.5)	2 (2.6)		
Czech Republic	49 (0.9)	541 (2.8)	51 (0.9)	538 (2.7)	4 (3.0)		
[3] Israel ⋈	50 (1.1)	512 (2.8)	50 (1.1)	508 (2.6)	4 (3.0)		
[2] Portugal	48 (0.7)	523 (2.3)	52 (0.7)	517 (2.7)	6 (2.0)		
Malta	46 (3.4)	518 (3.6)	54 (3.4)	512 (3.2)	6 (4.1)		
[2] Italy	49 (0.6)	541 (2.4)	51 (0.6)	534 (2.4)	7 (2.0)		
[2 ≡] United States	50 (1.3)	551 (7.2)	50 (1.3)	544 (7.1)	7 (4.4)		
Belgium (Flemish)	49 (0.8)	515 (2.6)	51 (0.8)	507 (2.8)	8 (2.8)		
[2 †] Hong Kong SAR	51 (1.0)	577 (2.8)	49 (1.0)	569 (3.3)	8 (2.8)		
[†] Slovak Republic	52 (0.9)	533 (2.9)	48 (0.9)	525 (3.2)	8 (2.8)		
Cyprus	51 (0.7)	515 (3.2)	49 (0.7)	506 (3.1)	9 (2.7)		
[3] Serbia	49 (0.8)	518 (3.4)	51 (0.8)	509 (3.2)	9 (3.5)		
Macao SAR	50 (0.7)	540 (1.5)	50 (0.7)	531 (1.9)	10 (2.2)		
England ⋈	51 (0.9)	562 (3.1)	49 (0.9)	553 (3.1)	10 (3.7)		
[2] Belgium (French)	49 (0.8)	499 (3.2)	51 (0.8)	489 (2.9)	10 (3.2)		
[†] Croatia	48 (0.9)	562 (3.0)	52 (0.9)	551 (3.0)	10 (3.3)		
Ireland	49 (1.0)	583 (3.3)	51 (1.0)	572 (2.8)	11 (3.5)		
[2 †] Denmark	52 (0.6)	545 (2.5)	48 (0.6)	533 (2.8)	12 (3.0)		
[≡] Netherlands	50 (0.8)	534 (2.9)	50 (0.8)	521 (2.8)	13 (2.6)		
Chinese Taipei	48 (0.5)	551 (2.5)	52 (0.5)	537 (2.4)	13 (2.3)		
Russian Federation	49 (0.7)	574 (3.4)	51 (0.7)	561 (4.5)	13 (3.7)		
France	50 (0.7)	521 (3.0)	50 (0.7)	507 (2.7)	14 (2.6)		
Austria	49 (0.9)	537 (2.6)	51 (0.9)	523 (2.6)	14 (2.7)		
Hungary	50 (1.0)	547 (3.7)	50 (1.0)	532 (4.0)	15 (3.4)		
[2] Sweden	50 (0.9)	551 (2.5)	50 (0.9)	536 (2.3)	15 (2.3)		
Bulgaria	48 (0.9)	548 (3.0)	52 (0.9)	533 (4.0)	15 (3.9)		
Germany	49 (0.8)	532 (2.5)	51 (0.8)	516 (2.5)	15 (2.6)		
[2 Ψ] Egypt	49 (1.5)	386 (5.7)	51 (1.5)	370 (6.4)	16 (5.6)		
Norway (5)	49 (0.7)	547 (2.3)	51 (0.7)	531 (2.4)	16 (2.4)		
Qatar	51 (1.6)	493 (4.2)	49 (1.6)	476 (4.8)	17 (5.0)		
Iran, Islamic Rep. of ⋈	46 (2.3)	422 (7.5)	54 (2.3)	405 (5.9)	17 (9.1)		
[2] Turkiye	49 (0.6)	505 (3.8)	51 (0.6)	488 (3.6)	17 (2.8)		
Kazakhstan	50 (0.7)	512 (2.8)	50 (0.7)	495 (3.3)	17 (2.7)		
Australia ⋈	50 (0.7)	549 (2.5)	50 (0.7)	532 (2.8)	17 (3.0)		
Finland	50 (0.8)	558 (2.7)	50 (0.8)	541 (2.7)	18 (2.7)		
[3] Singapore	49 (0.6)	596 (3.0)	51 (0.6)	578 (3.7)	18 (2.7)		
Azerbaijan	47 (0.8)	450 (4.1)	53 (0.8)	432 (4.0)	18 (3.7)		
Slovenia	49 (0.7)	529 (2.1)	51 (0.7)	511 (2.3)	18 (2.3)		
[†] New Zealand	49 (0.7)	531 (2.9)	51 (0.7)	512 (2.7)	19 (3.2)		
[3] Montenegro	48 (0.6)	497 (2.0)	52 (0.6)	478 (2.2)	20 (2.6)		
Poland	47 (1.0)	560 (2.5)	53 (1.0)	540 (2.7)	20 (2.9)		
[2] Albania	49 (1.0)	523 (3.5)	51 (1.0)	503 (3.4)	20 (3.2)		
[2] Kosovo	51 (0.9)	431 (3.1)	49 (0.9)	410 (3.8)	21 (3.1)		
Lithuania	50 (0.8)	563 (2.5)	50 (0.8)	542 (2.7)	21 (2.8)		
[1] Georgia	49 (0.8)	506 (2.8)	51 (0.8)	483 (3.1)	23 (2.9)		
[2 †] Brazil ⋈	49 (1.1)	431 (6.0)	51 (1.1)	408 (6.1)	23 (6.0)		
Uzbekistan	48 (0.9)	449 (3.1)	52 (0.9)	425 (3.5)	24 (3.4)		
[2 †] Northern Ireland	52 (1.0)	578 (2.9)	48 (1.0)	553 (3.1)	24 (3.4)		
North Macedonia	51 (1.0)	454 (5.8)	49 (1.0)	429 (6.0)	25 (5.2)		
Latvia	49 (1.3)	542 (2.6)	51 (1.3)	514 (3.3)	27 (3.1)		
United Arab Emirates	51 (1.7)	497 (2.7)	49 (1.7)	468 (3.6)	29 (5.2)		
Morocco	48 (0.8)	390 (4.5)	52 (0.8)	356 (5.2)	33 (3.7)		
[3] Saudi Arabia	58 (1.5)	464 (5.0)	42 (1.5)	428 (4.9)	35 (6.8)		
Oman	50 (0.6)	447 (4.2)	50 (0.6)	412 (4.1)	36 (3.8)		
Jordan	51 (2.6)	398 (6.8)	49 (2.6)	362 (7.9)	36 (10.3)		
Bahrain	50 (1.1)	483 (3.9)	50 (1.1)	434 (3.2)	49 (4.5)		
[Ж] South Africa ⋈	49 (0.6)	317 (4.4)	51 (0.6)	260 (5.0)	57 (3.6)		
International Average	**50 (0.1)**	**512 (0.5)**	**50 (0.1)**	**494 (0.5)**			
Benchmarking Participants							
[2] Dubai, UAE	51 (2.6)	557 (2.7)	49 (2.6)	547 (2.5)	9 (4.3)		
[≡] Quebec, Canada	50 (0.9)	556 (3.3)	50 (0.9)	546 (2.9)	11 (3.0)		
Moscow City, Russian Federation	49 (0.7)	604 (2.2)	51 (0.7)	593 (2.5)	11 (2.1)		
[2] British Columbia, Canada	49 (1.0)	542 (3.5)	51 (1.0)	529 (4.3)	13 (3.3)		
[2] Newfoundland & Labrador, Canada	50 (1.2)	530 (3.1)	50 (1.2)	516 (4.3)	14 (4.0)		
[3 ≡] Alberta, Canada	49 (1.5)	546 (4.1)	51 (1.5)	531 (4.2)	15 (4.3)		
Abu Dhabi, UAE	51 (2.0)	457 (3.9)	49 (2.0)	422 (5.3)	35 (6.3)		
South Africa (6) ⋈	52 (0.7)	408 (4.5)	48 (0.7)	359 (5.2)	50 (3.9)		



( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

Difference statistically significant
Difference not statistically significant

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
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SECTION 2

Trends in Reading Achievement

Measuring trends in achievement of student populations from one assessment cycle to the next is always an extremely complicated endeavor. PIRLS 2021 is the fifth assessment of PIRLS since its inception in 2001, providing 20 years of trend data. With each new assessment cycle, PIRLS has taken the utmost care to keep the majority of the assessment the same from cycle to cycle, to evolve carefully, and to document any differences. For PIRLS 2021, however, onset of the COVID-19 pandemic disrupted school operations often through school closures (see Exhibit 3 in About PIRLS 2021), which necessitated adjustments in the data collection schedules (see Exhibit 5 in About PIRLS 2021).

Data collected across the PIRLS 2021 countries to examine the impact of COVID-19 on students' learning and their reading achievement at the end of fourth grade is somewhat limited. The situation in each country and how the pandemic was handled was monitored and documented to the extent possible, while ensuring that the PIRLS assessment remained largely unchanged. Among these efforts, PIRLS 2021 reports from school principals are valuable and describe the extent of school closures. Exhibit 3 in About PIRLS 2021 shows how closures varied from country to country as did the responses to school closures in terms of providing out-of-school learning opportunities. Parents' reports about the impact of the pandemic on their children's learning also varied across countries (Exhibit 4 in About PIRLS 2021), although parents reported that two-thirds of their children were negatively impacted in their learning to some degree.

Trends in Average Reading Achievement

Considering the PIRLS 2021 trend measures, it is well established that the COVID-19 pandemic, which happened after the 2016 cycle, made a major difference in school-based learning in many countries between 2016 and 2021. It also is well known that previous trend cycles were not affected by such a pandemic, so to represent this major difference for the most recent cycle in this report, the trends between 2016 and 2021 are shown with dotted lines. The dotted line is meant to call attention to the fact that the worldwide COVID-19 pandemic occurred after 2016, but the annotation does not indicate the size of the impact or even that there definitely was an impact in each country. The considerable variation in the extent and response to the pandemic

within and across countries makes it impossible to estimate the magnitude of a COVID-19 effect uniformly across countries or country by country at this time. It is more defensible to use ancillary national, regional, and local data to study the impact of the pandemic on student achievement within a country.

Analyzing trend results requires comparable cycle-to-cycle data of the estimates of average achievement that can be considered persistent rather than being the reflection of a particular circumstance. Country trend graphs are therefore generated only if there are comparable data points from at least one previous cycle and the current cycle. This leads to some attrition in the 57 countries and 8 benchmarking entities that participated in PIRLS 2021. As previously explained, 14 countries and 3 benchmarking entities delayed their PIRLS 2021 data collection so that they did not have comparable data in 2021. Next, 8 of the 43 countries that collected their PIRLS 2021 data at the end of the fourth grade school year had other reasons for not having comparable trend data from at least one previous cycle (e.g., 2021 was their first time participating in PIRLS, there was a major change in population definition, or they made numerous changes in translations of material reserved for trend).

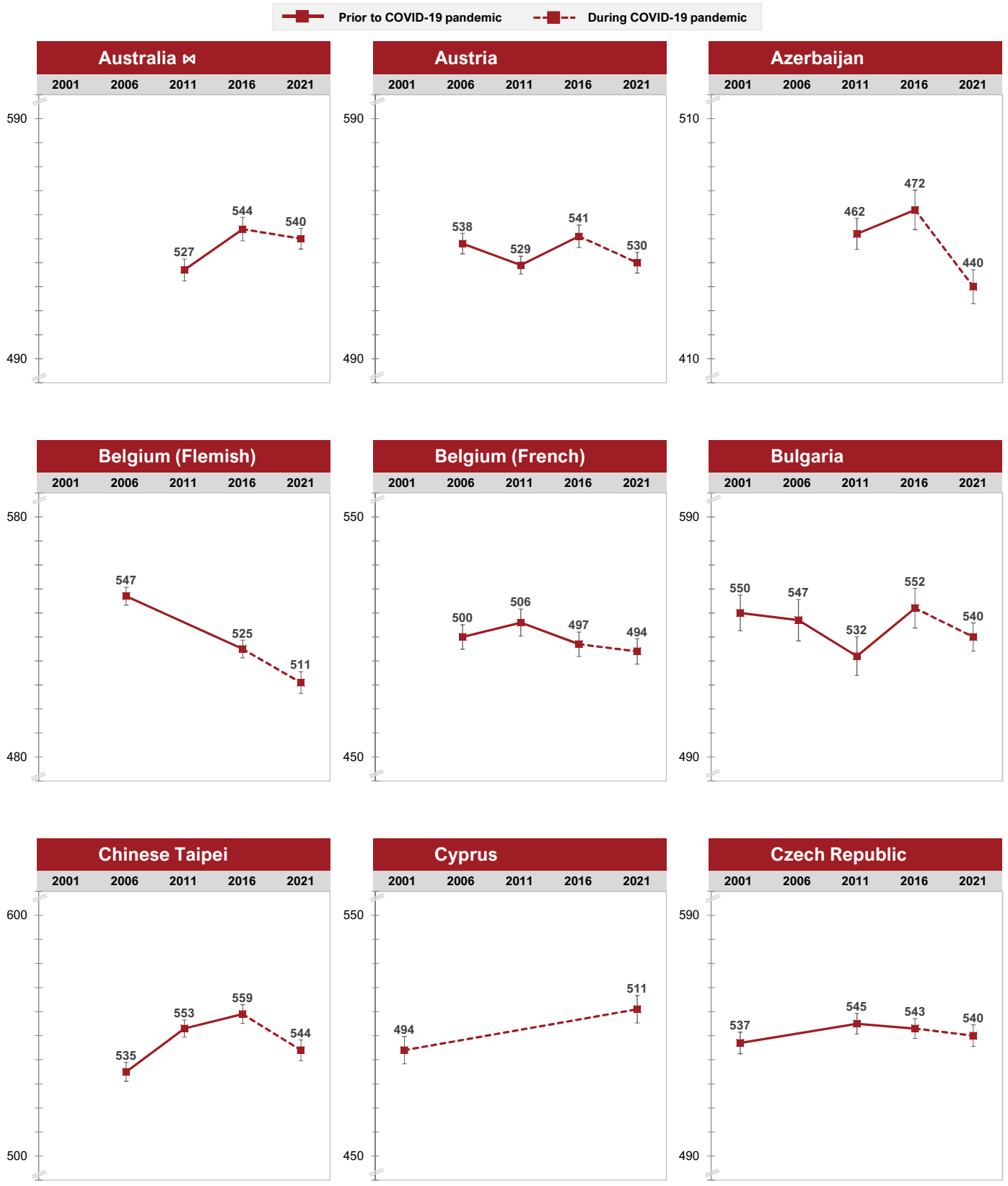
For the 35 countries and three benchmarking entities that met the requirement for comparable trend data across two cycles or more, the results are presented in Exhibits 2.1.1 and 2.1.2. Exhibit 2.1.1 presents graphical representations of the differences in average reading achievement between PIRLS assessments. The data in Exhibit 2.1.2 provides the details documenting the changes in average achievement between specific assessments.

Exhibit 2.1.1: Trend Plots of Average Reading Achievement

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

This exhibit displays changes in achievement for the countries and benchmarking participants that assessed fourth grade students at the end of the school year and have comparable data from previous PIRLS assessments. Exhibit 2.1.2 provides details, including statistical significance. See Appendix A for country participation in previous assessments.



See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
I The black bars represent the 95% confidence interval.

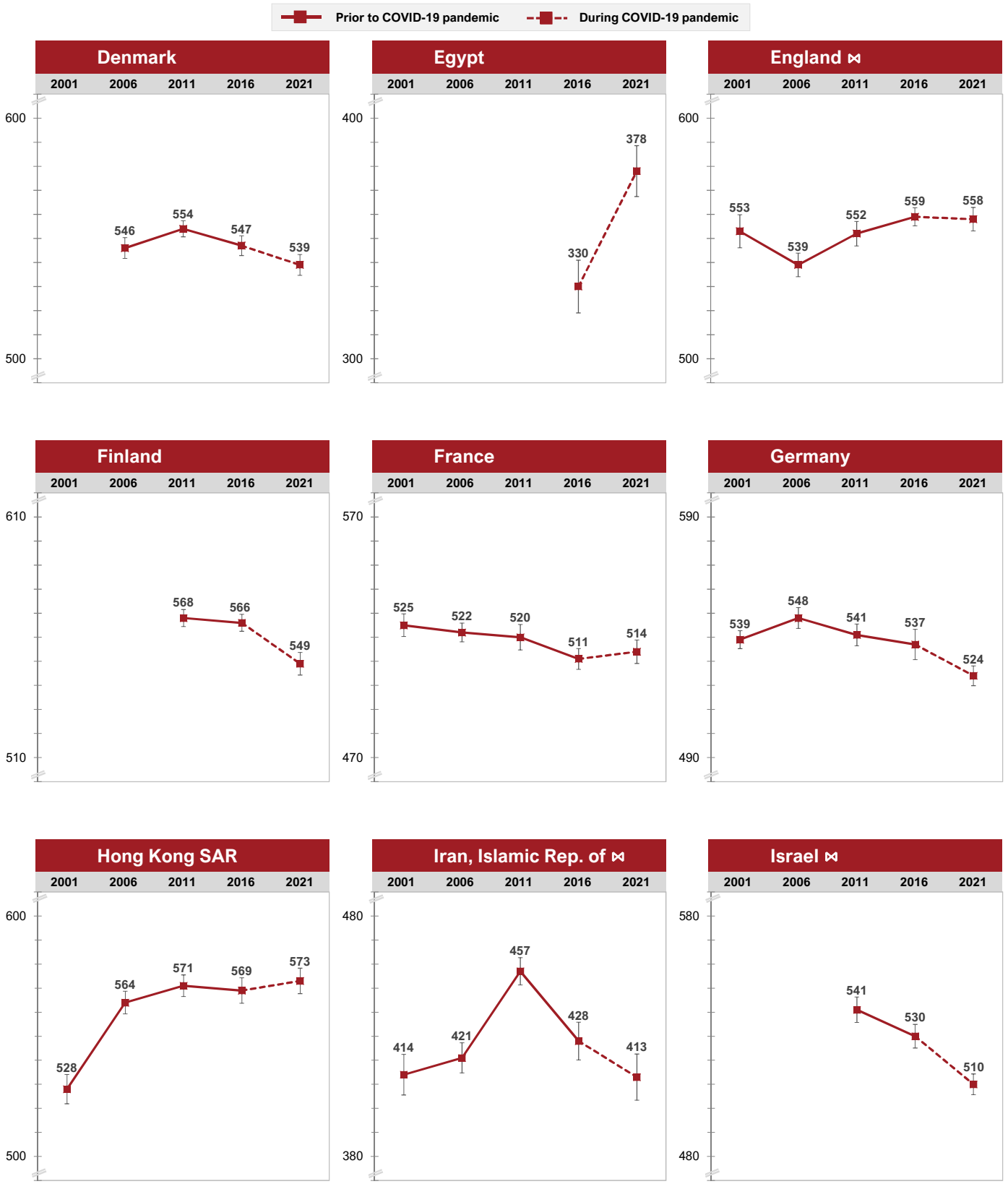
Exhibit 2.1.1: Trend Plots of Average Reading Achievement

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that assessed fourth grade students at the end of the school year and have comparable data from previous PIRLS assessments. Exhibit 2.1.2 provides details, including statistical significance. See Appendix A for country participation in previous assessments.



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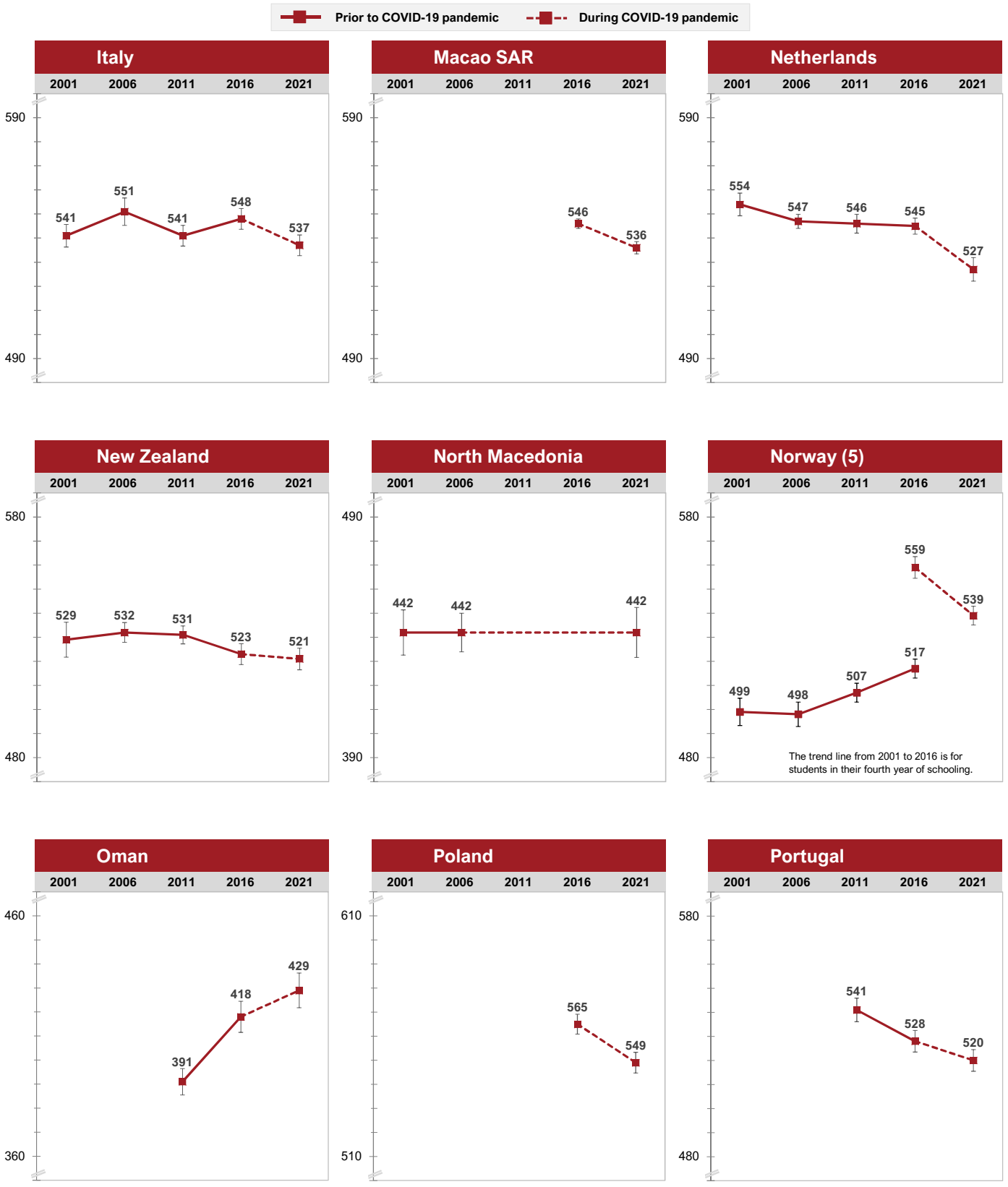
Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that assessed fourth grade students at the end of the school year and have comparable data from previous PIRLS assessments. Exhibit 2.1.2 provides details, including statistical significance. See Appendix A for country participation in previous assessments.



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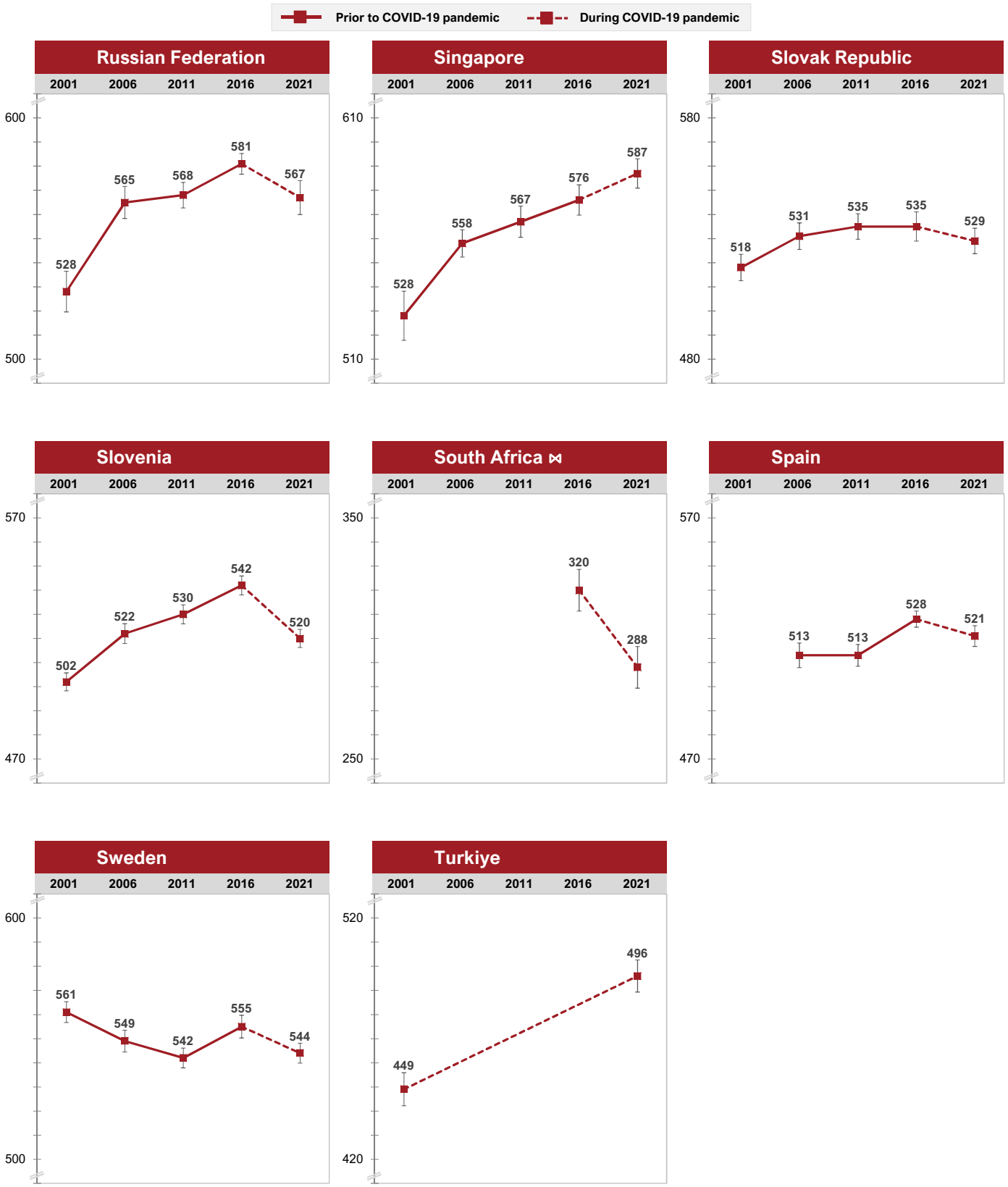
Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that assessed fourth grade students at the end of the school year and have comparable data from previous PIRLS assessments. Exhibit 2.1.2 provides details, including statistical significance. See Appendix A for country participation in previous assessments.



See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
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Exhibit 2.1.1: Trend Plots of Average Reading Achievement

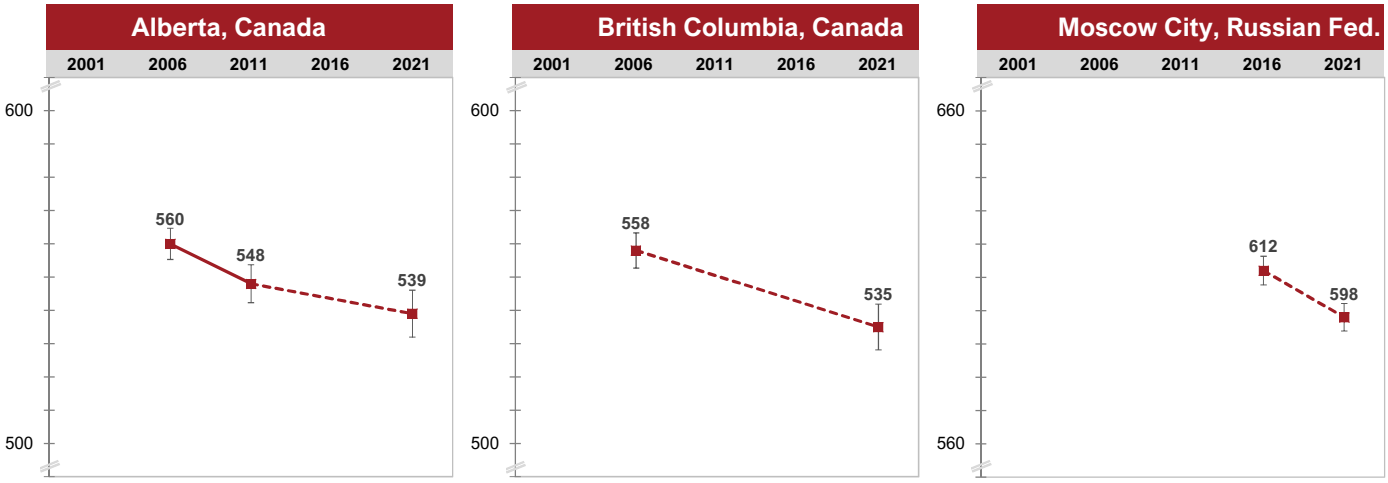
Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that assessed fourth grade students at the end of the school year and have comparable data from previous PIRLS assessments. Exhibit 2.1.2 provides details, including statistical significance. See Appendix A for country participation in previous assessments.

Benchmarking Participants



See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
I The black bars represent the 95% confidence interval.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
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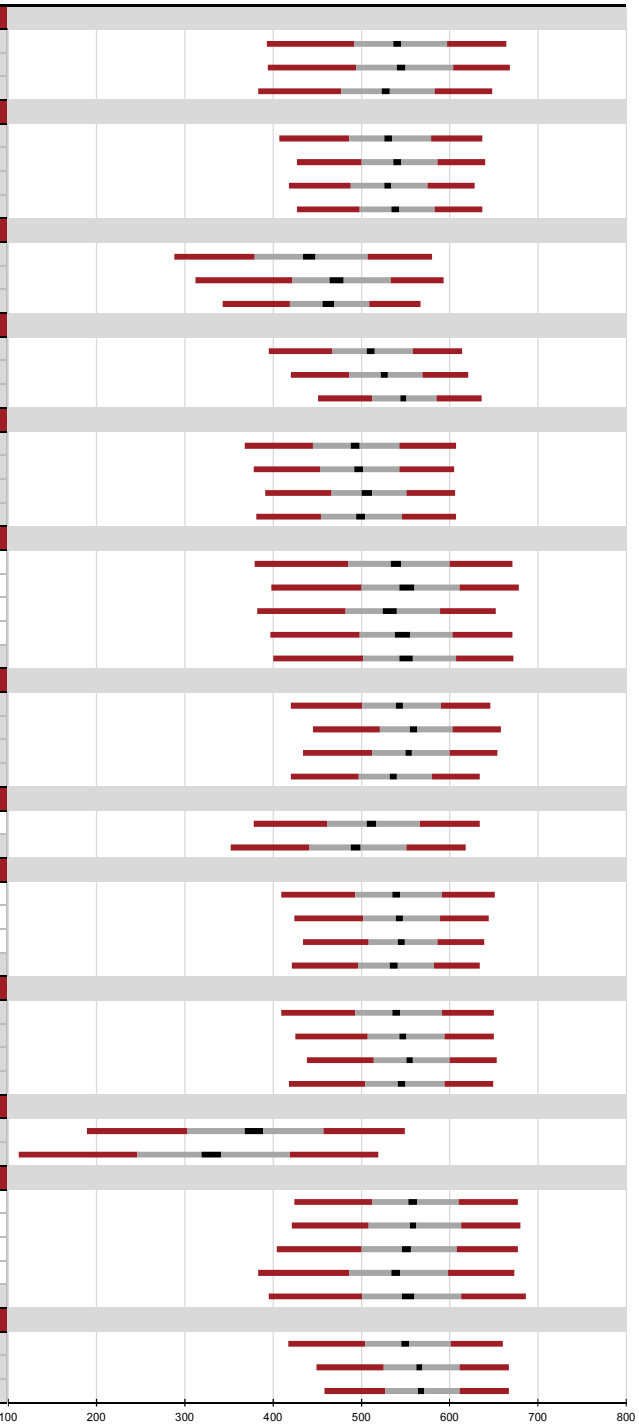
Exhibit 2.1.2: Differences in Average Reading Achievement Across Assessment Years

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

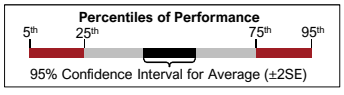
This exhibit reports differences in achievement across assessment years for the countries and benchmarking participants that assessed fourth grade students at the end of the school year and have comparable data from previous PIRLS assessments. Read across the row to determine if the difference in performance between years is statistically significant. Symbols indicate if the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year. See Appendix A for country participation in previous PIRLS assessments.

Country	Average Scale Score	Differences Between Years				Reading Achievement Distribution
		2016	2011	2006	2001	
Australia ⋈						
2021	540 (2.2)	-4	13 ▲			
2016	544 (2.5)		17 ▲			
2011	527 (2.3)					
Austria						
2021	530 (2.2)	-11 ▼	1	-9 ▼		
[2] 2016	541 (2.4)		12 ▲	2		
2011	529 (1.9)			-9 ▼		
2006	538 (2.2)					
Azerbaijan						
2021	440 (3.6)	-32 ▼	-22 ▼			
2016	472 (4.2)		10			
[2] 2011	462 (3.3)					
Belgium (Flemish)						
2021	511 (2.3)	-14 ▼		-36 ▼		
2016	525 (1.9)			-22 ▼		
[2 †] 2006	547 (1.9)					
Belgium (French)						
[2] 2021	494 (2.7)	-3	-12 ▼	-5		
[2] 2016	497 (2.6)		-9 ▼	-2		
[2 †] 2011	506 (2.9)			6		
2006	500 (2.6)					
Bulgaria						
2021	540 (3.0)	-12 ▼	8	-7	-11 ▼	
2016	552 (4.2)		20 ▲	5	1	
2011	532 (4.1)			-15 ▼	-19 ▼	
[2] 2006	547 (4.4)				-3	
2001	550 (3.8)					
Chinese Taipei						
2021	544 (2.2)	-15 ▼	-9 ▼	8 ▲		
2016	559 (2.0)		6 ▲	24 ▲		
2011	553 (1.8)			18 ▲		
2006	535 (2.0)					
Cyprus						
2021	511 (2.9)				17 ▲	
2001	494 (2.9)					
Czech Republic						
2021	540 (2.3)	-4	-6		3	
2016	543 (2.1)		-2		6 ▲	
2011	545 (2.2)				9 ▲	
2001	537 (2.3)					
Denmark						
[2 †] 2021	539 (2.2)	-8 ▼	-15 ▼	-7 ▼		
[2] 2016	547 (2.1)		-7 ▼	1		
[2] 2011	554 (1.7)			8 ▲		
[2] 2006	546 (2.2)					
Egypt						
[2 Ψ] 2021	378 (5.4)	48 ▲				
[+] 2016	330 (5.6)					
England ⋈						
2021	558 (2.5)	-1	6	18 ▲	5	
2016	559 (1.9)		7 ▲	19 ▲	6	
[†] 2011	552 (2.6)			12 ▲	-1	
2006	539 (2.5)				-13 ▼	
[2 †] 2001	553 (3.5)					
Finland						
2021	549 (2.4)	-17 ▼	-19 ▼			
2016	566 (1.8)		-2			
2011	568 (1.8)					



▲ Average from more recent year significantly higher

▼ Average from more recent year significantly lower



See Appendix A for country participation in previous PIRLS assessments.
( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
+ Participated in Literacy version of PIRLS 2016.
± Participated in both regular and Literacy versions of PIRLS 2016.

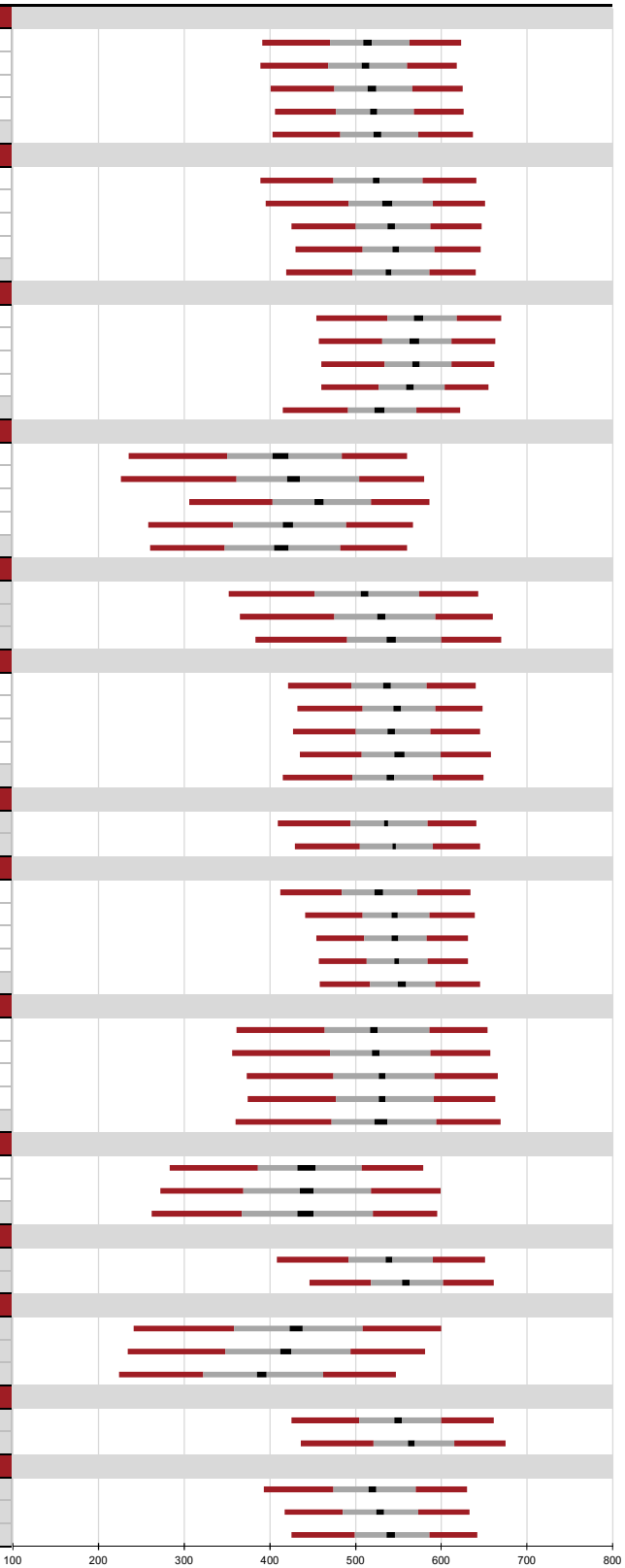
Exhibit 2.1.2: Differences in Average Reading Achievement Across Assessment Years

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

Country	Average Scale Score	Differences Between Years				Reading Achievement Distribution
		2016	2011	2006	2001	
France						
2021	514 (2.5)	2	-6	-8 ▼	-11 ▼	
2016	511 (2.2)		-9 ▼	-10 ▼	-14 ▼	
2011	520 (2.7)			-2	-5	
2006	522 (2.0)				-4	
2001	525 (2.4)					
Germany						
2021	524 (2.1)	-13 ▼	-17 ▼	-24 ▼	-15 ▼	
2016	537 (3.2)		-4	-10 ▼	-2	
2011	541 (2.3)			-7 ▼	2	
2006	548 (2.2)				9 ▲	
2001	539 (1.9)					
Hong Kong SAR						
[2] † 2021	573 (2.7)	4	2	9 ▲	45 ▲	
[2] † 2016	569 (2.7)		-2	5	41 ▲	
[3] 2011	571 (2.3)			7 ▲	43 ▲	
2006	564 (2.4)				36 ▲	
2001	528 (3.1)					
Iran, Islamic Rep. of ⋈						
2021	413 (4.9)	-15 ▼	-45 ▼	-8	-1	
± 2016	428 (4.0)		-29 ▼	7	14 ▲	
2011	457 (2.9)			36 ▲	44 ▲	
2006	421 (3.2)				7	
2001	414 (4.3)					
Israel ⋈						
[3] 2021	510 (2.2)	-20 ▼	-31 ▼			
[3] 2016	530 (2.5)		-11 ▼			
[3] 2011	541 (2.7)					
Italy						
[2] 2021	537 (2.2)	-11 ▼	-4	-14 ▼	-4	
2016	548 (2.2)		7 ▲	-3	7 ▲	
2011	541 (2.2)			-10 ▼	1	
2006	551 (2.9)				11 ▲	
2001	541 (2.4)					
Macao SAR						
2021	536 (1.3)	-10 ▼				
2016	546 (1.0)					
Netherlands						
≡ 2021	527 (2.5)	-18 ▼	-19 ▼	-20 ▼	-27 ▼	
† 2016	545 (1.7)		-1	-2	-9 ▼	
† 2011	546 (2.0)			-1	-8 ▼	
† 2006	547 (1.5)				-7 ▼	
† 2001	554 (2.4)					
New Zealand						
† 2021	521 (2.3)	-1	-10 ▼	-10 ▼	-7	
2016	523 (2.2)		-8 ▼	-9 ▼	-6	
2011	531 (1.9)			-1	2	
2006	532 (2.1)				3	
2001	529 (3.7)					
North Macedonia						
2021	442 (5.3)			0	1	
2006	442 (4.1)				1	
2001	442 (4.8)					
Norway (5)						
2021	539 (2.0)	-20 ▼				
2016	559 (2.3)					
Oman						
2021	429 (3.7)	11 ▲	39 ▲			
2016	418 (3.3)		28 ▲			
Ψ 2011	391 (2.8)					
Poland						
2021	549 (2.2)	-16 ▼				
2016	565 (2.1)					
Portugal						
[2] 2021	520 (2.3)	-8 ▼	-21 ▼			
[2] 2016	528 (2.3)		-13 ▼			
2011	541 (2.5)					



▲ Average from more recent year significantly higher

▼ Average from more recent year significantly lower

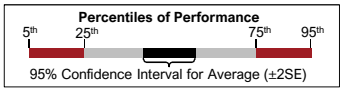


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Exhibit 2.1.2: Differences in Average Reading Achievement Across Assessment Years

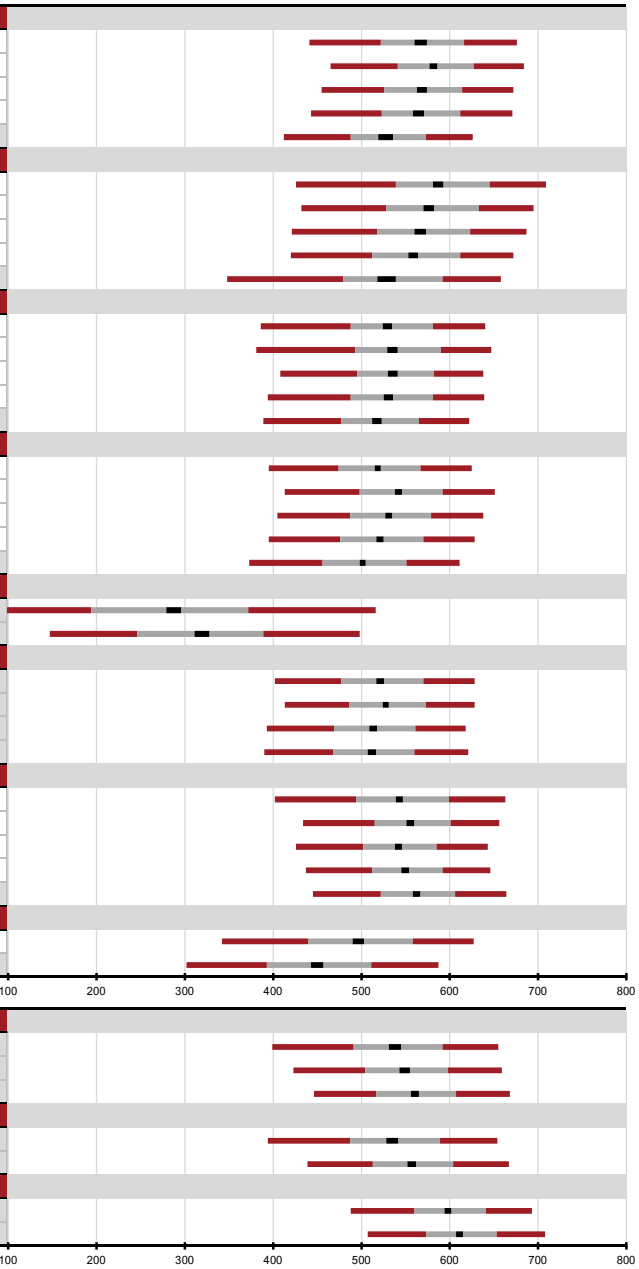
Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

Country	Average Scale Score	Differences Between Years 2016	2011	2006	2001
Russian Federation					
2021	567 (3.6)	-14 ▼	-1	2	39 ▲
2016	581 (2.2)		12 ▲	16 ▲	53 ▲
2011	568 (2.7)			4	40 ▲
[2] 2006	565 (3.4)				37 ▲
[2] 2001	528 (4.3)				
Singapore					
[3] 2021	587 (3.1)	11 ▲	20 ▲	29 ▲	59 ▲
[3] 2016	576 (3.2)		9	18 ▲	48 ▲
[2] 2011	567 (3.3)			9 ▲	39 ▲
2006	558 (2.9)				30 ▲
2001	528 (5.2)				
Slovak Republic					
† 2021	529 (2.7)	-6	-6	-2	11 ▲
2016	535 (3.1)		0	4	17 ▲
2011	535 (2.7)			4	17 ▲
2006	531 (2.8)				13 ▲
2001	518 (2.8)				
Slovenia					
2021	520 (1.9)	-23 ▼	-11 ▼	-2	18 ▲
2016	542 (2.0)		12 ▲	21 ▲	41 ▲
2011	530 (2.0)			9 ▲	29 ▲
2006	522 (2.1)				20 ▲
2001	502 (1.9)				
South Africa ⋈					
⁺ 2021	288 (4.4)	-31 ▼			
⁺ 2016	320 (4.4)				
Spain					
2021	521 (2.2)	-7 ▼	8 ▲	9 ▲	
2016	528 (1.7)		15 ▲	15 ▲	
2011	513 (2.3)			1	
2006	513 (2.6)				
Sweden					
[2] 2021	544 (2.1)	-12 ▼	2	-6	-17 ▼
2016	555 (2.4)		13 ▲	6	-6
2011	542 (2.1)			-8 ▼	-19 ▼
2006	549 (2.3)				-12 ▼
2001	561 (2.2)				
Turkiye					
[2] 2021	496 (3.4)				47 ▲
2001	449 (3.5)				
Benchmarking Participants					
Alberta, Canada					
[3] ≡ 2021	539 (3.6)		-9 ▼	-21 ▼	
[2] 2011	548 (2.9)			-12 ▼	
[2] 2006	560 (2.4)				
British Columbia, Canada					
[2] 2021	535 (3.5)			-23 ▼	
[2] 2006	558 (2.7)				
Moscow City, Russian Federation					
2021	598 (2.1)	-14 ▼			
2016	612 (2.2)				

Reading Achievement Distribution



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
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Because the COVID-19 pandemic could have impacted recent trends between PIRLS 2021 and PIRLS 2016, those trends are discussed first. Of the 32 countries and 1 benchmarking participant with data in both 2016 and 2021, 21 countries (and the 1 benchmarking entity) had lower average reading achievement in 2021 than in 2016, 8 had no or little change, and only 3 had higher average achievement. That two-thirds of the PIRLS 2021 countries had a decline in average reading achievement between 2016 and 2021 suggests at least some widespread negative impact from the pandemic on reading achievement at the fourth grade. Also, looking only at the 21 countries with lower achievement in 2021 compared to 2016, 8 showed an improvement in 2016 compared to 2011 and 3 had no change. That is, in a number of countries an upward or stable trend from 2011 to 2016 changed to a downward trend in 2021.

The prevalence of downward trends in 2021 compared to 2016 also influenced the trends between 2021 and the previous cycles, complicating the picture of long-term trends. Singapore was the only country that showed steady improvement with each of the five PIRLS assessments. Slovenia posted improvements across the first four consecutive assessments until the recent decline in 2021. However, in general, the 15 countries that have comparable data across four or five assessments since 2001 have had their "ups and downs."

Interestingly, despite the enormous challenge of maintaining educational improvement and the recent COVID-19 global pandemic, comparing just the 20-year trend results from start to finish between 2001 and 2021 for the 18 countries that participated in both assessments, there were 7 increases in average reading achievement, 6 with about the same achievement, and only 5 decreases in achievement. Also, considering this relative stability in achievement over the past 20 years and the enormous growth in the amount and variety of reading materials that today's fourth grade students encounter in their daily lives due to the internet, perhaps there are some positive notes in the PIRLS 2021 long-term trends. This means that while countries see some changes in their achievement over time on a grand scale, at least for the set of 18 countries from which we have long term data, there is long term stability in achievement over time.

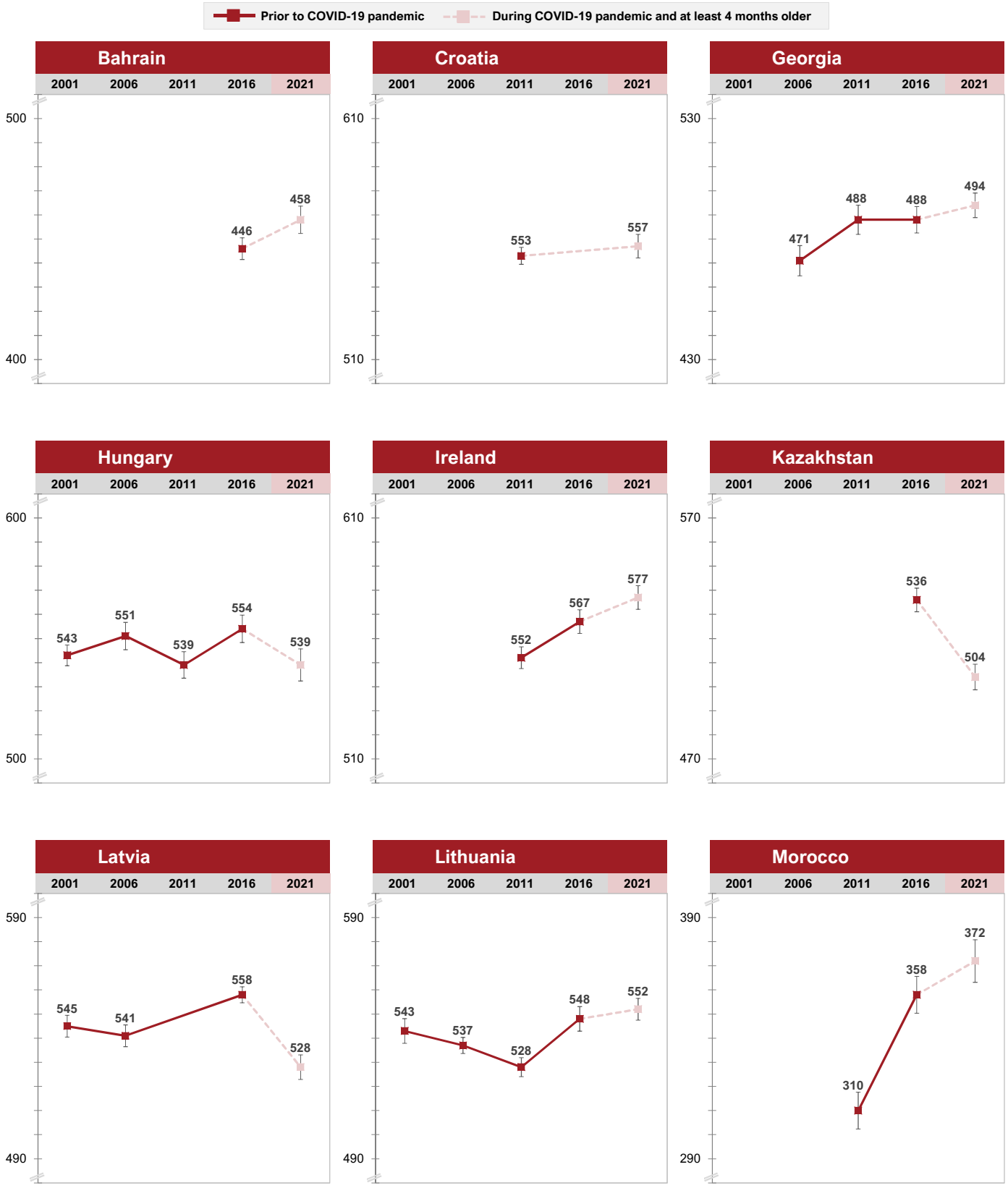
The trend results for the 14 countries that needed to delay the assessment of the fourth grade cohort until the beginning of the fifth grade are shown in Exhibit 2.2.1 (trend plots) and Exhibit 2.2.2 (differences in average achievement between the assessment cycles). The results show that 6 of the 13 countries with data from PIRLS 2016 had higher achievement in 2021 than in 2016. As explained previously (see earlier subsection: Impacts of Modifying the Assessment Schedule on Students' Achievement), the high level of achievement for these countries in PIRLS 2021 may be partly due to the advantage of collecting data on somewhat older students (half a

year older on average). The delay in the assessment for these PIRLS 2021 countries may have increased the size of the gains in achievement to an unknown degree. However, age alone cannot be made responsible or separated out. Precise comparisons cannot be made back to PIRLS 2016, and it is noteworthy that a number of these countries also had high levels of reading achievement in 2016.

Exhibit 2.2.1: Trend Plots of Average Reading Achievement

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

This exhibit displays changes in achievement for the countries and benchmarking participants that assessed the fourth grade cohort at the beginning of the fifth grade school year and have data from previous PIRLS assessments. Students in previous assessments were assessed at the end of the fourth year of schooling. Exhibit 2.2.2 provides details, including statistical significance. See Appendix A for country participation in previous assessments.



See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
I The black bars represent the 95% confidence interval.

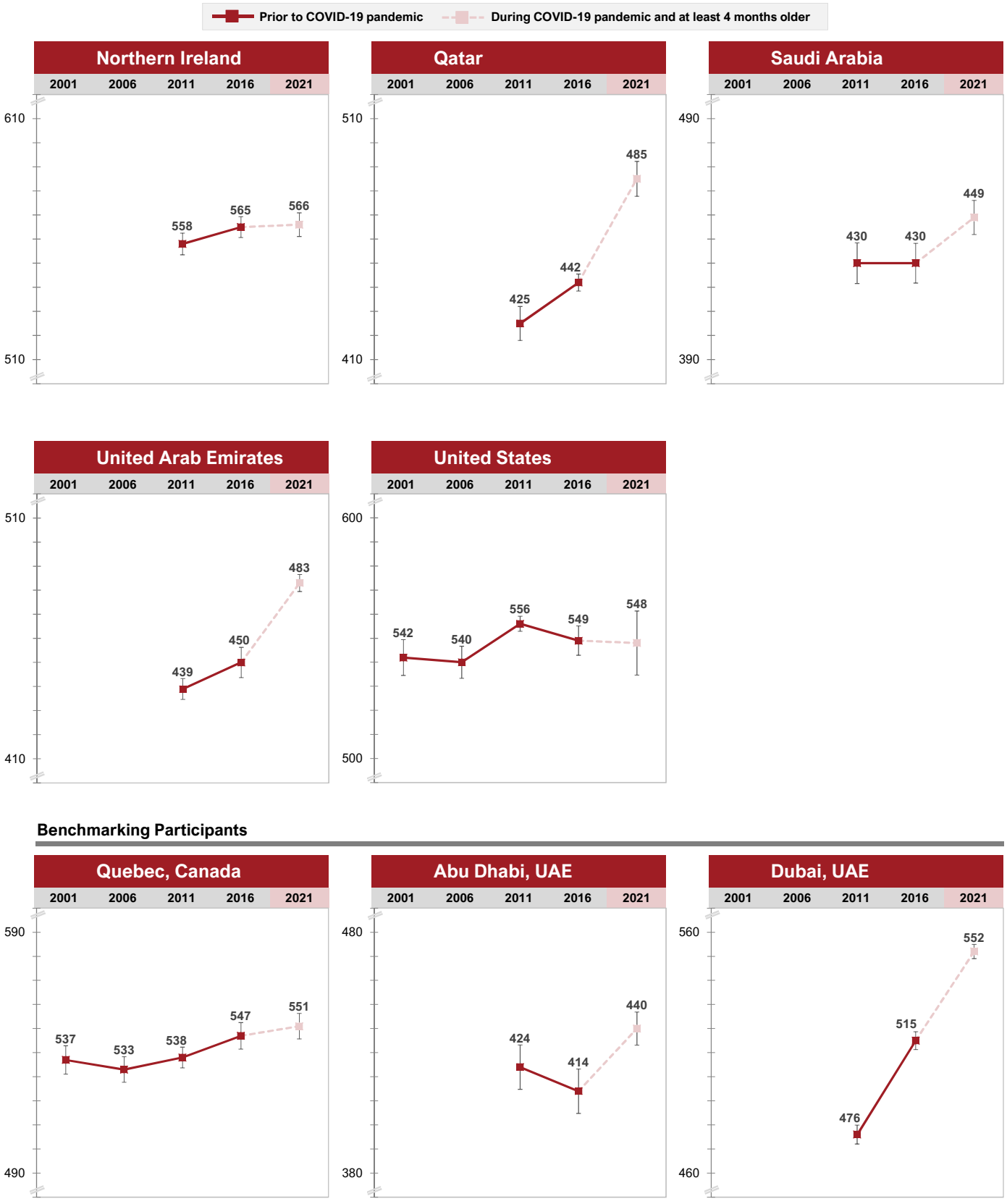
SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Exhibit 2.2.1: Trend Plots of Average Reading Achievement

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

This exhibit displays changes in achievement for the countries and benchmarking participants that assessed the fourth grade cohort at the beginning of the fifth grade school year and have data from previous PIRLS assessments. Students in previous assessments were assessed at the end of the fourth year of schooling. Exhibit 2.2.2 provides details, including statistical significance. See Appendix A for country participation in previous assessments.



See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.
I The black bars represent the 95% confidence interval.

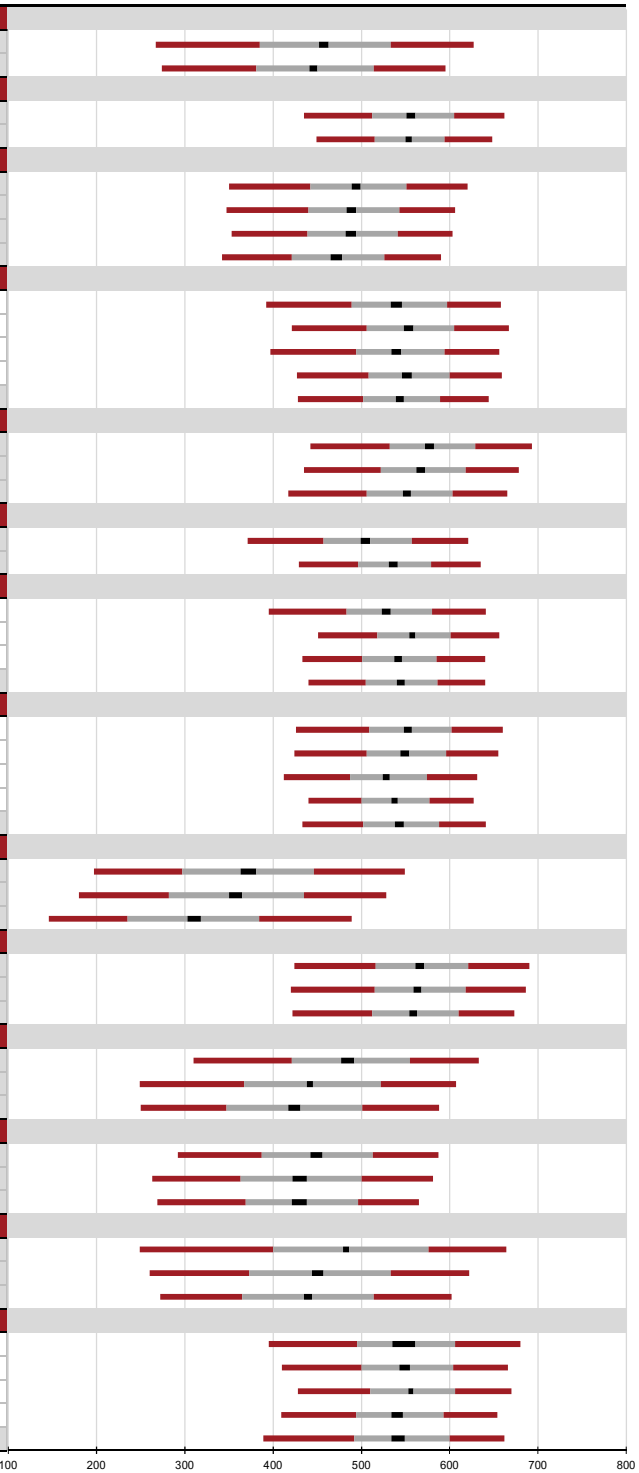
SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Exhibit 2.2.2: Differences in Average Reading Achievement Across Assessment Years

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

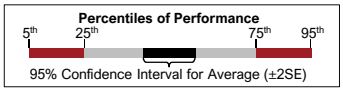
This exhibit reports differences in achievement across assessment years for the countries and benchmarking participants that assessed the fourth grade cohort at the beginning of the fifth grade school year and have data from previous PIRLS assessments. Read across the row to determine if the difference in performance between years is statistically significant. Symbols indicate if the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year. Students in previous assessments were assessed at the end of the fourth year of schooling. See Appendix A for country participation in previous PIRLS assessments.

Country	Average Scale Score	Differences Between Years				Reading Achievement Distribution
		2016	2011	2006	2001	
Bahrain						
2021	458 (2.9)	12 ▲				
2016	446 (2.3)					
Croatia						
† 2021	557 (2.5)		4			
2 2011	553 (1.8)					
Georgia						
1 2021	494 (2.6)	6	6	23 ▲		
1 2016	488 (2.8)		1	17 ▲		
1 2011	488 (3.1)			17 ▲		
1 2 2006	471 (3.2)					
Hungary						
2021	539 (3.4)	-15 ▼	0	-11 ▼	-4	
2016	554 (2.9)		15 ▲	3	11 ▲	
2011	539 (2.8)			-12 ▼	-4	
2006	551 (2.9)				8 ▲	
2001	543 (2.2)					
Ireland						
2021	577 (2.5)	11 ▲	26 ▲			
2016	567 (2.5)		15 ▲			
2011	552 (2.3)					
Kazakhstan						
2021	504 (2.7)	-32 ▼				
2016	536 (2.5)					
Latvia						
2021	528 (2.6)	-30 ▼		-13 ▼	-17 ▼	
2 2016	558 (1.7)			17 ▲	13 ▲	
2006	541 (2.3)				-4	
2001	545 (2.3)					
Lithuania						
2021	552 (2.3)	4	24 ▲	15 ▲	9 ▲	
2016	548 (2.6)		20 ▲	11 ▲	5	
1 2 2011	528 (2.0)			-9 ▼	-15 ▼	
1 2006	537 (1.7)				-6 ▼	
1 2001	543 (2.6)					
Morocco						
2021	372 (4.5)	15 ▲	62 ▲			
± 2016	358 (3.9)		47 ▲			
Ж 2011	310 (3.9)					
Northern Ireland						
2 † 2021	566 (2.5)	1	7 ▲			
2016	565 (2.2)		6			
† 2011	558 (2.3)					
Qatar						
2021	485 (3.7)	42 ▲	60 ▲			
2016	442 (1.8)		17 ▲			
2 2011	425 (3.6)					
Saudi Arabia						
3 2021	449 (3.6)	18 ▲	19 ▲			
2016	430 (4.2)		0			
2011	430 (4.3)					
United Arab Emirates						
2021	483 (1.8)	33 ▲	44 ▲			
2016	450 (3.2)		12 ▲			
2011	439 (2.2)					
United States						
2 ≡ 2021	548 (6.8)	-2	-9	8	5	
† 2016	549 (3.1)		-7 ▼	10 ▲	7	
2 2011	556 (1.6)			16 ▲	14 ▲	
2 † 2006	540 (3.4)				-2	
† 2001	542 (3.8)					



▲ Average from more recent year significantly higher

▼ Average from more recent year significantly lower



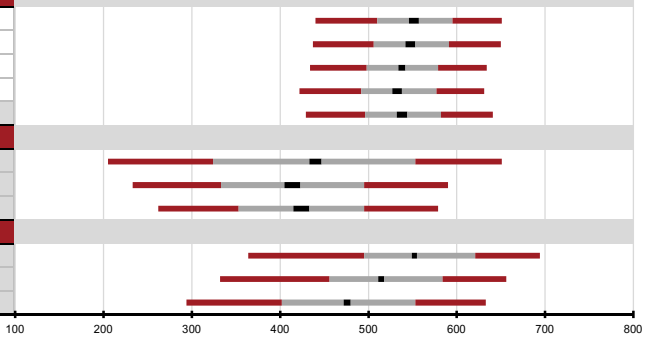
See Appendix A for country participation in previous PIRLS assessments.
( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
± Participated in both regular and Literacy versions of PIRLS 2016.

Exhibit 2.2.2: Differences in Average Reading Achievement Across Assessment Years

☐ *Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade*

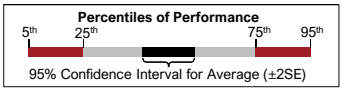
(Continued)

Country	Average Scale Score	Differences Between Years 2016	2011	2006	2001	Reading Achievement Distribution
Benchmarking Participants						
Quebec, Canada						
≡ 2021	551 (2.7)	4	13 ▲	18 ▲	14 ▲	
≡ 2016	547 (2.8)		10 ▲	15 ▲	10 ▲	
2011	538 (2.2)			5	0	
2006	533 (2.7)				-4	
2001	537 (3.0)					
Abu Dhabi, UAE						
2021	440 (3.5)	25 ▲	15 ▲			
2016	414 (4.7)		-10			
2011	424 (4.7)					
Dubai, UAE						
[2] 2021	552 (1.5)	37 ▲	76 ▲			
2016	515 (1.9)		39 ▲			
2011	476 (2.0)					



▲ Average from more recent year significantly higher

▼ Average from more recent year significantly lower



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Trends in Average Achievement by Gender

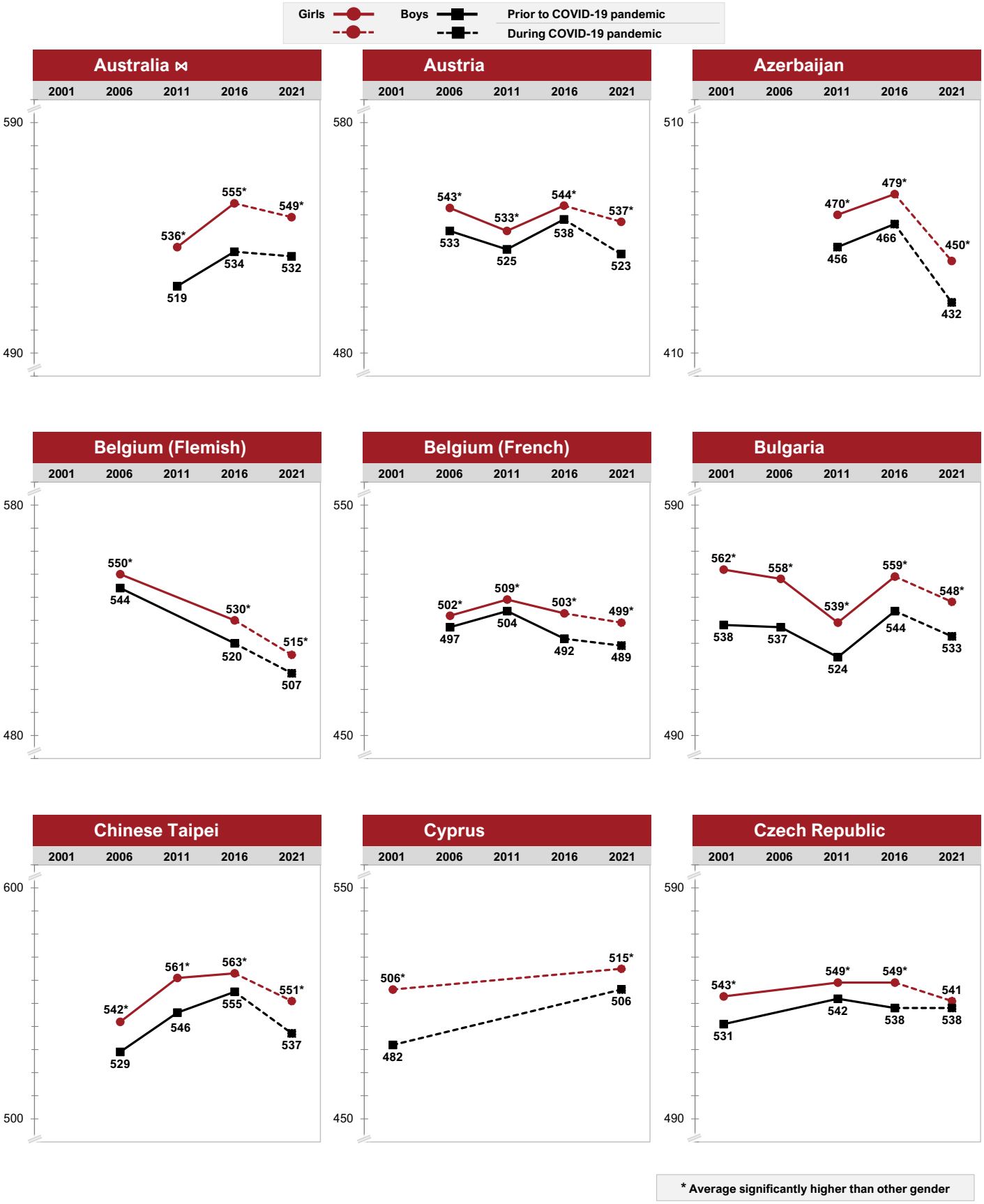
Exhibit 2.3 contains the trend results by gender for the 43 countries that assessed fourth grade students at the same time of year as in previous assessments. Although 21 countries had lower average achievement in 2021 than in 2016, for the most part the decreases in achievement were similar for girls and boys such that there was little narrowing (or widening) in the gender gap favoring girls. The Czech Republic, Iran, Israel, and Spain narrowed their gender gaps, while Macao SAR and Portugal showed a small gap in 2021.

Exhibit 2.3: Trend Plots of Average Reading Achievement by Gender

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

This exhibit displays changes in achievement for girls and boys in each country and benchmarking participant that assessed fourth grade students at the end of the school year and have comparable data from previous assessments. See Appendix A for country participation in previous assessments.



See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

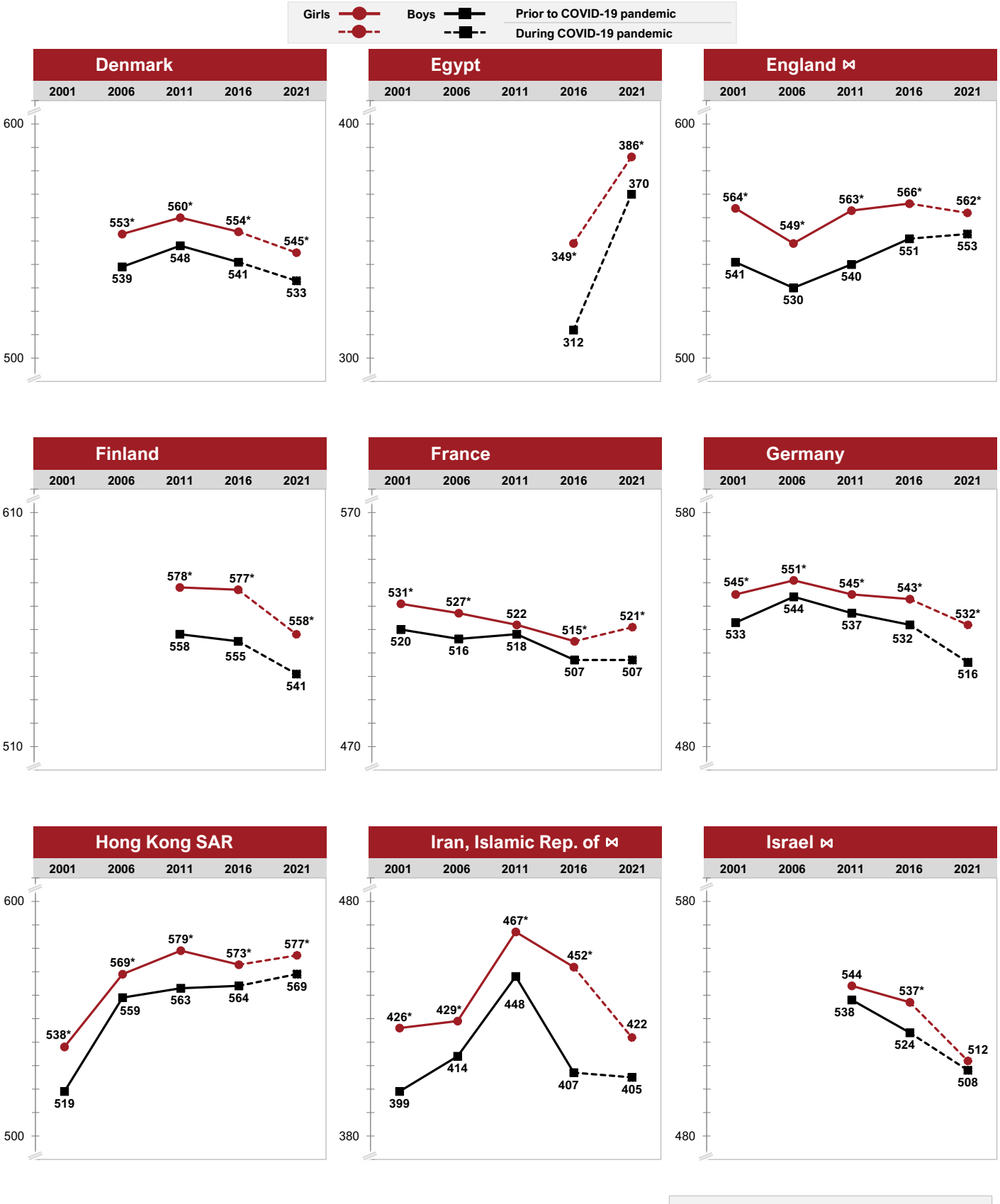
Exhibit 2.3: Trend Plots of Average Reading Achievement by Gender

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in achievement for girls and boys in each country and benchmarking participant that assessed fourth grade students at the end of the school year and have comparable data from previous assessments. See Appendix A for country participation in previous assessments.



* Average significantly higher than other gender

See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
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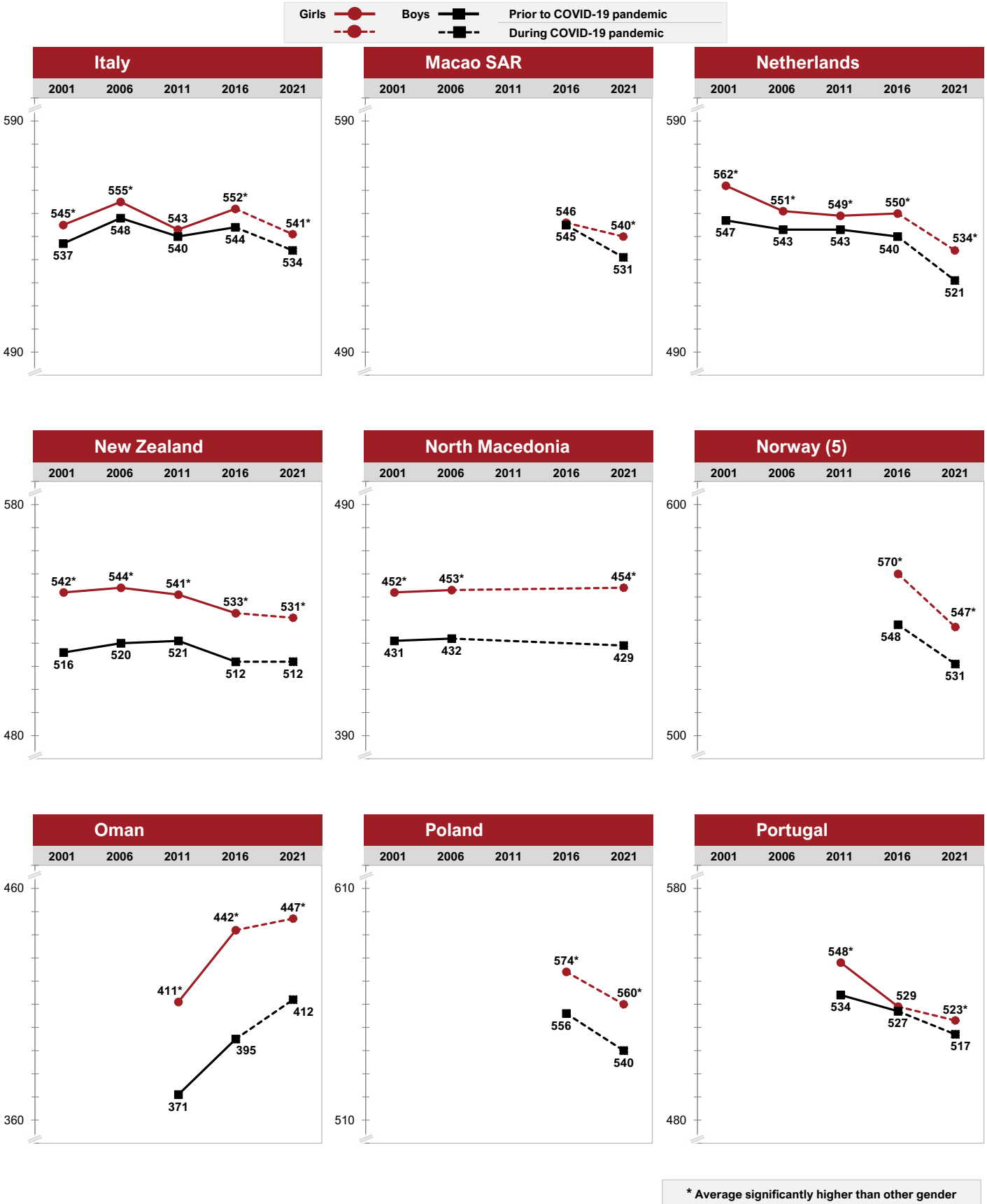
Exhibit 2.3: Trend Plots of Average Reading Achievement by Gender

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in achievement for girls and boys in each country and benchmarking participant that assessed fourth grade students at the end of the school year and have comparable data from previous assessments. See Appendix A for country participation in previous assessments.



* Average significantly higher than other gender

See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

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Downloaded from https://pirls2021.org/results

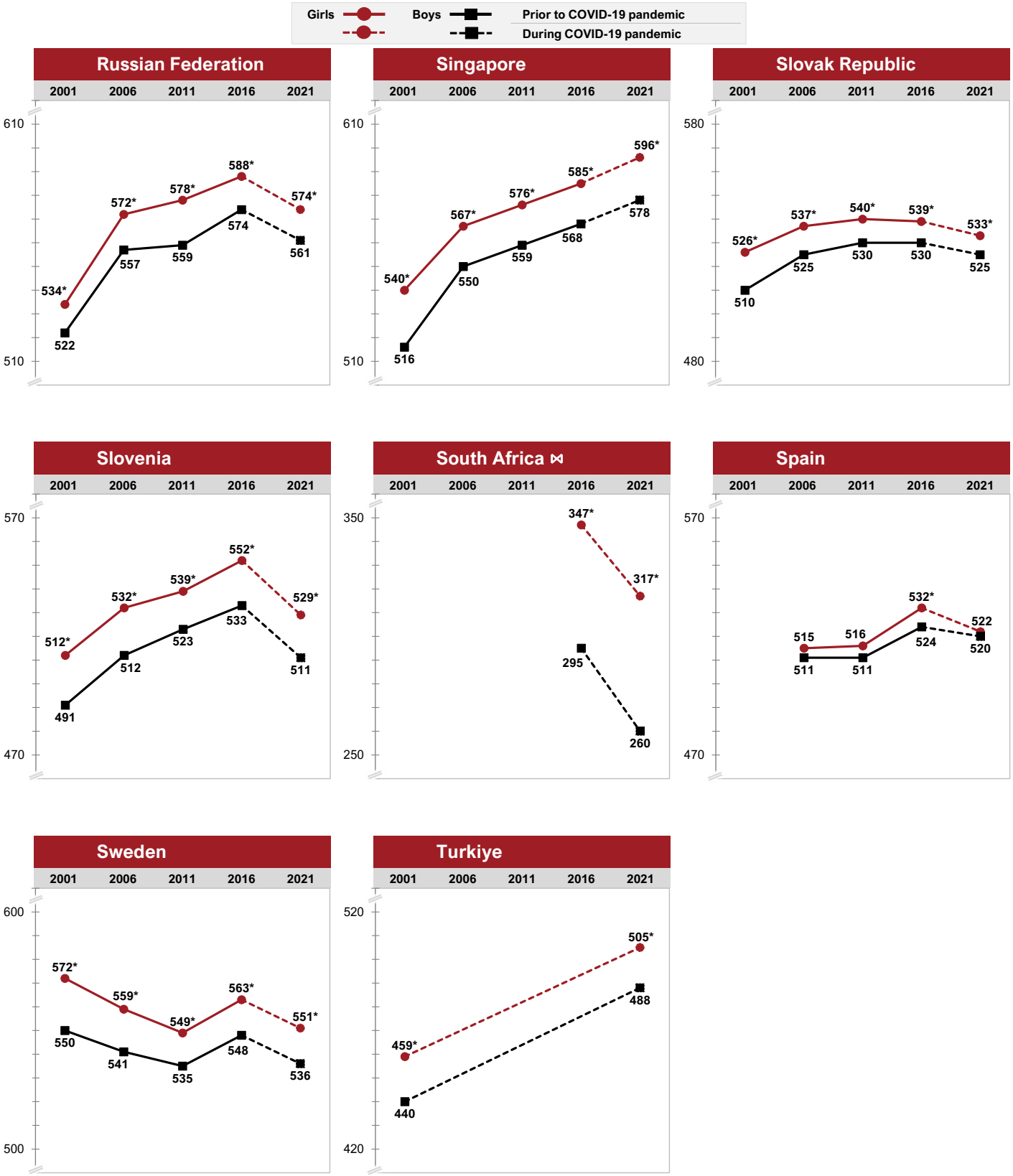
Exhibit 2.3: Trend Plots of Average Reading Achievement by Gender

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in achievement for girls and boys in each country and benchmarking participant that assessed fourth grade students at the end of the school year and have comparable data from previous assessments. See Appendix A for country participation in previous assessments.



*** Average significantly higher than other gender**

See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

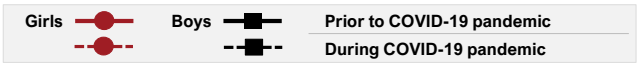
Exhibit 2.3: Trend Plots of Average Reading Achievement by Gender

Assessed Fourth Grade Students at the End of the School Year

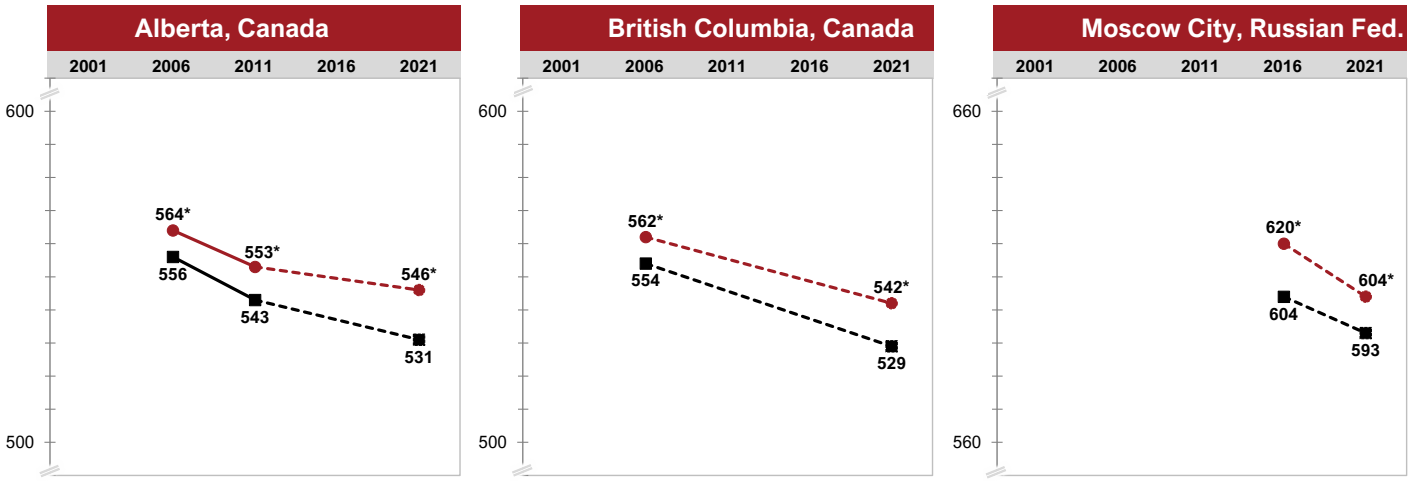
⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in achievement for girls and boys in each country and benchmarking participant that assessed fourth grade students at the end of the school year and have comparable data from previous assessments. See Appendix A for country participation in previous assessments.



Benchmarking Participants



* Average significantly higher than other gender

See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

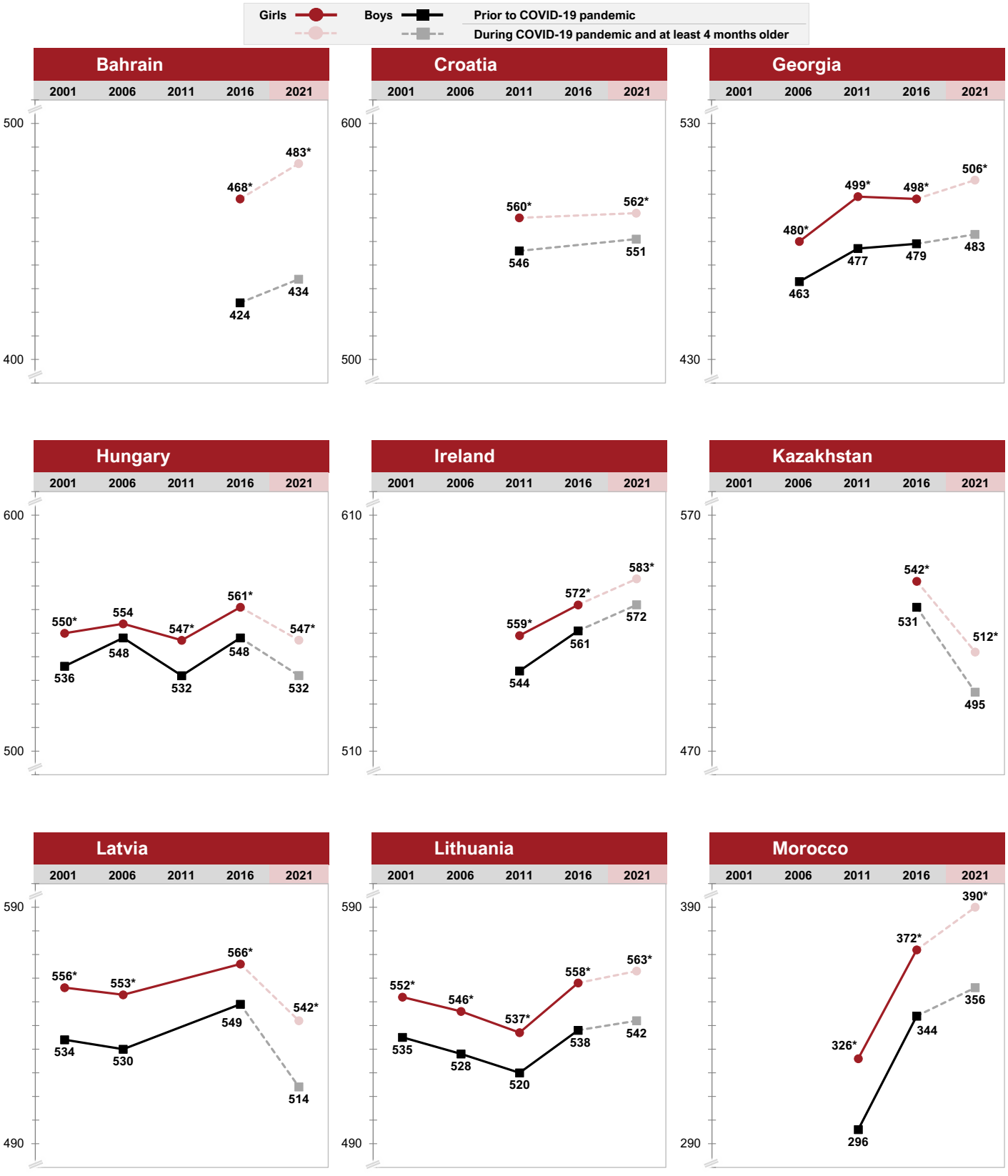
SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Exhibit 2.4 contains the trend results by gender for the 14 countries with delayed assessment of the fourth grade cohort at the beginning of the fifth grade. Although nearly half these countries (6 out of 13, see Exhibit 2.2.1) had increased average achievement overall between 2016 and 2021, the gender gaps favoring girls remained relatively stable. Considering the results in both Exhibits 2.3 and 2.4, it seems that little progress has been made in closing the reading achievement gender gap favoring girls.

Exhibit 2.4: Trend Plots of Average Reading Achievement by Gender

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

This exhibit displays changes in achievement for girls and boys in each country and benchmarking participant that assessed the fourth grade cohort at the beginning of the fifth grade school year and have data from previous PIRLS assessments. Students in previous assessments were assessed at the end of the fourth year of schooling. See Appendix A for country participation in previous assessments.



* Average significantly higher than other gender

See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

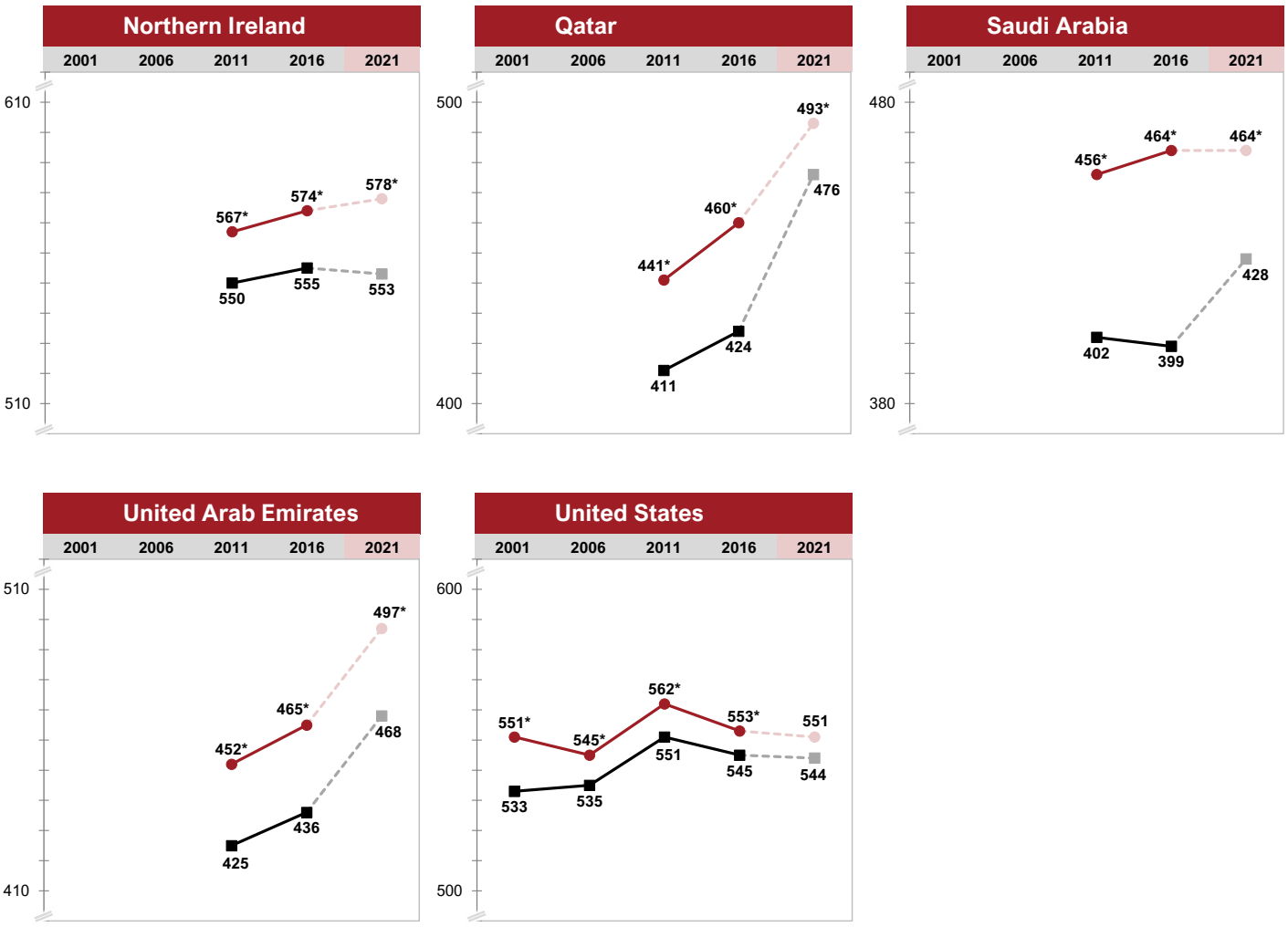
SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Exhibit 2.4: Trend Plots of Average Reading Achievement by Gender

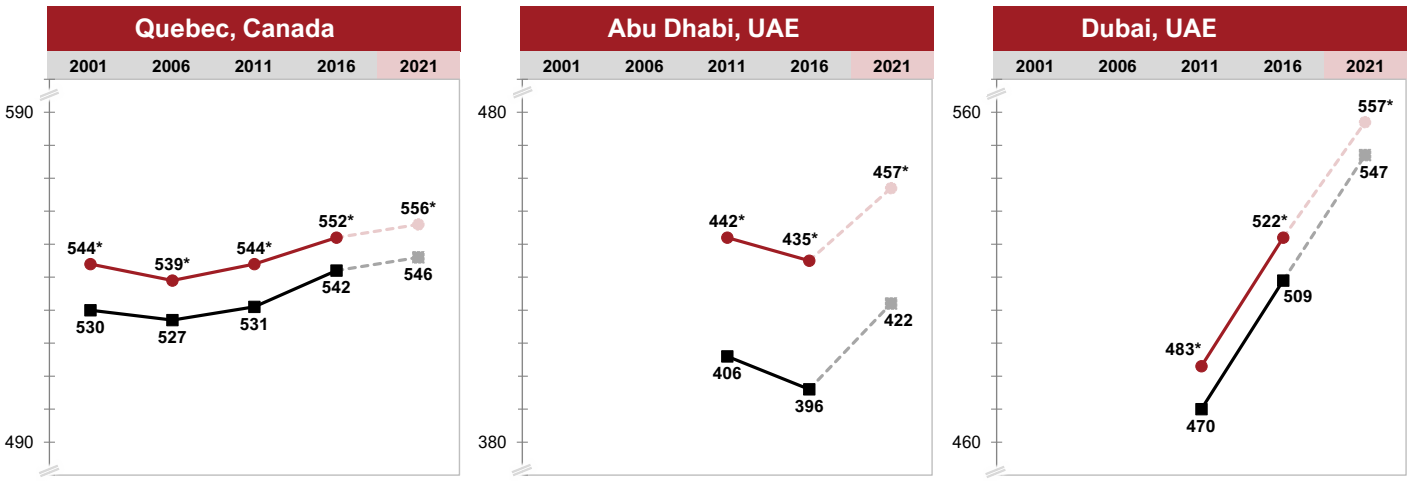
☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

(Continued)

This exhibit displays changes in achievement for girls and boys in each country and benchmarking participant that assessed the fourth grade cohort at the beginning of the fifth grade school year and have data from previous PIRLS assessments. Students in previous assessments were assessed at the end of the fourth year of schooling. See Appendix A for country participation in previous assessments.



Benchmarking Participants



* Average significantly higher than other gender

See Appendix A for country participation in previous PIRLS assessments.
The scale interval is 10 points for each country, but a different part of the scale is shown according to each country's average achievement.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
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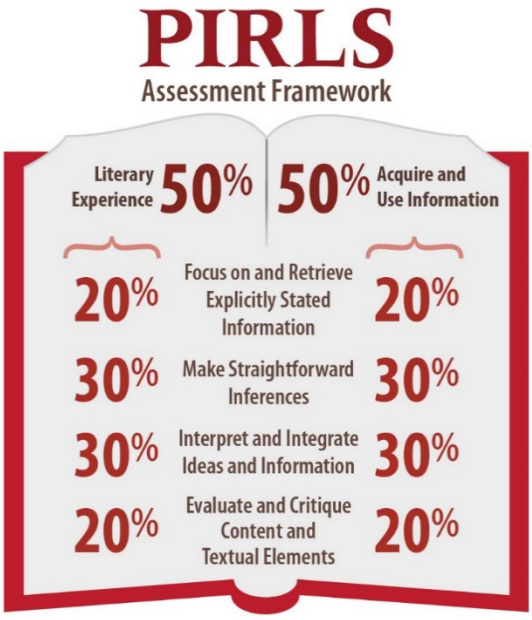
SECTION 3

Relative Achievement in Reading Purposes and Comprehension Processes

Published as Chapter 1 in the *PIRLS 2021 Assessment Frameworks*, the PIRLS 2021 Reading Assessment Framework provided the guidelines for developing the assessment content. Since the inception of PIRLS in 2001, the assessment framework has been organized according to two overarching purposes for reading:

- For literary experience
- To acquire and use information

As shown below, the framework also describes four cross-cutting reading comprehension processes: retrieving, straightforward inferencing, interpreting and integrating, and evaluating and critiquing. The illustration includes the targeted weights of coverage, showing that PIRLS should involve 50 percent literary texts and 50 percent informational texts as well as 20 percent, 30 percent, 30 percent, and 20 percent of the four cross-cutting reading comprehension processes.



From country to country, as a result of the curriculum or other factors, students might have relative strengths and weaknesses in reading literary compared to informational texts. The next part of this section of the report shows countries' relative achievement in reading literary texts compared to reading informational texts in PIRLS 2021. The second part of this section presents the relative achievement results for two broad comprehension processes—1) retrieving and straightforward inferencing and 2) interpreting, integrating, and evaluating.

For information about how the subscales for the reading purposes and comprehension processes were created, see Chapter 11 in *Methods and Procedures: PIRLS 2021 Technical Report*. The results in the purpose and process subscales are presented to provide a more nuanced view of overall reading achievement. The comparison between overall reading achievement and particular subscales may indicate countries' relative strengths and weaknesses within overall reading. However, the subscales are based on only half the assessment items, making them somewhat less robust than the overall reading achievement results based on the entire scale. The subscale trend results are not reported here because they are less stable than the overall trend results and could be even further influenced by COVID-19 to an unknown degree.

Relative Achievement in Reading Purposes

Young students read for a wide variety of reasons and encounter a wide variety of texts with different content and in different formats. However, whether their reasons for reading are for interest, entertainment, or learning, much of the reading done by young students both in and out of school can be broadly described as either reading stories (with a plot and characters often in a narrative structure) or reading materials that provide information. As young students develop their literacy skills and are increasingly required to read to learn across the curriculum, reading to acquire information could become more frequent.

The International Benchmarks section of the report includes a description of the texts used to assess the literary and informational purposes, as well as videos of example texts and items.

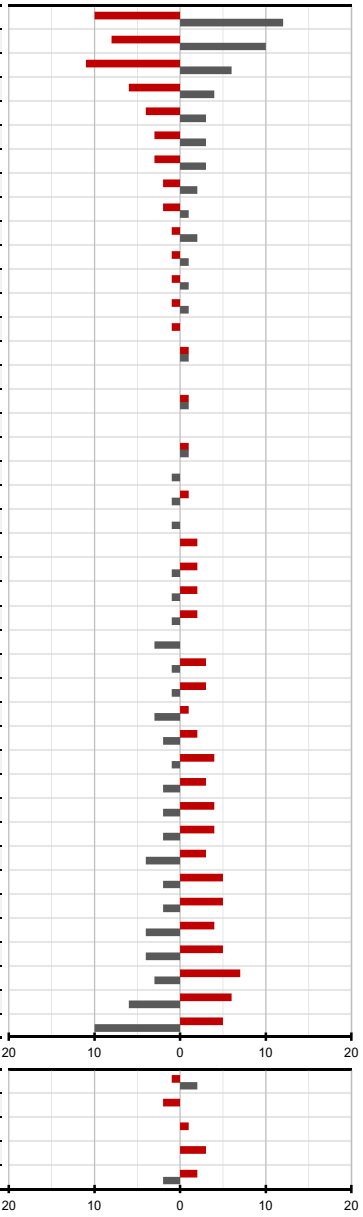
Exhibits 3.1 and 3.2 show relative average achievement in literary and informational purposes in comparison to average achievement overall. Starting at the top of the exhibits, the results are organized according to the extent that countries had relatively higher achievement in the informational purpose (and lower in literary) compared to their overall achievement, followed by countries with little difference in achievement between the two purposes in the middle of the exhibit, and countries with relatively higher achievement in the literary purpose (and lower in informational) compared to their overall achievement at the bottom.

Exhibit 3.1: Relative Average Achievement in Reading Purposes

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Country	Overall PIRLS Average Scale Score	Literary: Average Scale Score	Literary: Difference from Overall PIRLS Score	Informational: Average Scale Score	Informational: Difference from Overall PIRLS Score
Macao SAR	536 (1.3)	525 (1.3)	-10 (1.2) ▼	547 (1.5)	12 (0.7) ▲
[2] † Hong Kong SAR	573 (2.7)	564 (2.7)	-8 (0.9) ▼	582 (2.7)	10 (1.1) ▲
Chinese Taipei	544 (2.2)	533 (2.1)	-11 (0.8) ▼	549 (2.2)	6 (0.8) ▲
[2] Ψ Egypt	378 (5.4)	372 (5.1)	-6 (1.7) ▼	382 (5.4)	4 (1.5) ▲
Oman	429 (3.7)	425 (3.8)	-4 (1.7) ▼	432 (3.8)	3 (1.2) ▲
Jordan	381 (5.4)	378 (5.5)	-3 (1.2) ▼	384 (5.8)	3 (1.5) ▲
[2] Kosovo	421 (3.1)	418 (2.9)	-3 (1.5)	423 (3.1)	3 (1.3) ▲
[2] Turkiye	496 (3.4)	495 (3.6)	-2 (0.8) ▼	498 (3.4)	2 (0.8) ▲
Finland	549 (2.4)	547 (2.6)	-2 (0.8) ▼	550 (2.6)	1 (0.9)
[2] † Brazil ⋈	419 (5.3)	418 (5.2)	-1 (1.5)	421 (5.0)	2 (1.5)
Russian Federation	567 (3.6)	566 (3.6)	-1 (1.0)	568 (3.8)	1 (0.9)
Norway (5)	539 (2.0)	538 (2.0)	-1 (0.7)	540 (2.1)	1 (0.7) ▲
[2] Italy	537 (2.2)	536 (2.5)	-1 (1.5)	538 (2.1)	1 (0.9)
Spain	521 (2.2)	520 (2.2)	-1 (1.0)	522 (2.4)	0 (0.7)
England ⋈	558 (2.5)	558 (2.4)	1 (1.0)	559 (2.5)	1 (0.9)
[2] Portugal	520 (2.3)	520 (2.3)	0 (0.9)	520 (2.3)	0 (0.6)
≡ Netherlands	527 (2.5)	528 (2.8)	1 (1.6)	528 (2.9)	1 (1.4)
Czech Republic	540 (2.3)	540 (2.5)	0 (0.7)	540 (2.5)	0 (1.0)
† Slovak Republic	529 (2.7)	530 (2.6)	1 (1.6)	530 (2.6)	1 (1.4)
Iran, Islamic Rep. of ⋈	413 (4.9)	413 (5.0)	0 (1.1)	412 (4.8)	-1 (1.3)
Belgium (Flemish)	511 (2.3)	511 (2.7)	1 (1.0)	510 (2.3)	-1 (0.9)
Azerbaijan	440 (3.6)	441 (3.5)	0 (1.0)	439 (3.6)	-1 (1.4)
[2] Sweden	544 (2.1)	545 (2.5)	2 (1.5)	544 (2.1)	0 (0.9)
Malta	515 (2.7)	516 (2.8)	2 (1.3)	514 (2.8)	-1 (1.0)
† New Zealand	521 (2.3)	523 (2.4)	2 (1.2)	521 (2.5)	-1 (1.1)
Slovenia	520 (1.9)	522 (2.1)	2 (1.6)	519 (2.1)	-1 (0.8)
North Macedonia	442 (5.3)	442 (5.4)	0 (1.7)	439 (5.6)	-3 (1.1) ▼
Poland	549 (2.2)	552 (2.3)	3 (1.5)	548 (2.2)	-1 (1.2)
Australia ⋈	540 (2.2)	543 (2.4)	3 (1.2) ▲	539 (2.3)	-1 (1.0)
Uzbekistan	437 (2.9)	438 (3.0)	1 (1.3)	434 (2.9)	-3 (0.9) ▼
France	514 (2.5)	516 (2.4)	2 (1.3)	511 (2.6)	-2 (1.3)
[3] Singapore	587 (3.1)	591 (3.2)	4 (0.9) ▲	586 (3.1)	-1 (0.8)
Austria	530 (2.2)	533 (2.1)	3 (1.6)	527 (2.6)	-2 (1.0) ▼
Bulgaria	540 (3.0)	544 (3.3)	4 (1.3) ▲	538 (3.1)	-2 (1.1) ▼
[3] Serbia	514 (2.8)	518 (2.9)	4 (1.4) ▲	511 (2.5)	-2 (1.3)
[2] Albania	513 (3.1)	516 (3.3)	3 (1.3) ▲	509 (3.2)	-4 (1.8) ▼
[3] Israel ⋈	510 (2.2)	515 (2.8)	5 (1.4) ▲	508 (2.3)	-2 (0.9) ▼
Germany	524 (2.1)	529 (2.4)	5 (1.0) ▲	522 (2.1)	-2 (1.1) ▼
[3] Montenegro	487 (1.6)	491 (1.9)	4 (1.4) ▲	483 (1.9)	-4 (1.0) ▼
[2] Belgium (French)	494 (2.7)	499 (2.6)	5 (1.5) ▲	490 (2.4)	-4 (1.0) ▼
[2] † Denmark	539 (2.2)	546 (2.6)	7 (1.7) ▲	536 (2.1)	-3 (0.8) ▼
Cyprus	511 (2.9)	517 (2.8)	6 (0.8) ▲	505 (2.9)	-6 (0.6) ▼
Ж South Africa ⋈	288 (4.4)	293 (4.5)	5 (1.6) ▲	279 (4.6)	-10 (1.3) ▼
Benchmarking Participants					
Moscow City, Russian Federation	598 (2.1)	597 (1.9)	-1 (1.4)	600 (1.9)	2 (1.0)
South Africa (6) ⋈	384 (4.5)	382 (4.6)	-2 (1.2)	384 (4.7)	0 (1.1)
[2] British Columbia, Canada	535 (3.5)	537 (3.6)	1 (0.9)	535 (3.6)	0 (1.0)
[2] Newfoundland & Labrador, Canada	523 (3.2)	526 (3.4)	3 (1.3)	523 (3.1)	0 (1.1)
[3] ≡ Alberta, Canada	539 (3.6)	541 (3.4)	2 (1.1) ▲	537 (3.9)	-2 (1.1)



▲ Purpose score significantly higher than overall PIRLS score

▼ Purpose score significantly lower than overall PIRLS score

Literary Reading

Informational Reading

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021

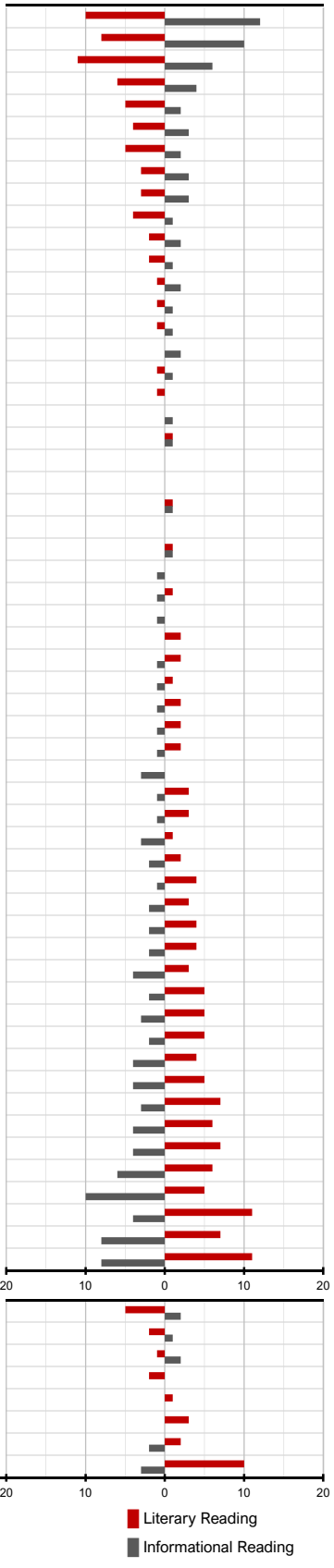
Exhibit 3.2: Relative Average Achievement in Reading Purposes

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Overall PIRLS Average Scale Score	Literary: Average Scale Score	Literary: Difference from Overall PIRLS Score		Informational: Average Scale Score	Informational: Difference from Overall PIRLS Score	
Macao SAR	536 (1.3)	525 (1.3)	-10 (1.2)	▼	547 (1.5)	12 (0.7)	▲
[2] † Hong Kong SAR	573 (2.7)	564 (2.7)	-8 (0.9)	▼	582 (2.7)	10 (1.1)	▲
Chinese Taipei	544 (2.2)	533 (2.1)	-11 (0.8)	▼	549 (2.2)	6 (0.8)	▲
[2] Ψ Egypt	378 (5.4)	372 (5.1)	-6 (1.7)	▼	382 (5.4)	4 (1.5)	▲
United Arab Emirates	483 (1.8)	478 (2.0)	-5 (0.8)	▼	485 (1.7)	2 (0.5)	▲
Oman	429 (3.7)	425 (3.8)	-4 (1.7)	▼	432 (3.8)	3 (1.2)	▲
[3] Saudi Arabia	449 (3.6)	444 (3.6)	-5 (2.0)	▼	451 (3.7)	2 (1.1)	
Jordan	381 (5.4)	378 (5.5)	-3 (1.2)	▼	384 (5.8)	3 (1.5)	▲
[2] Kosovo	421 (3.1)	418 (2.9)	-3 (1.5)		423 (3.1)	3 (1.3)	▲
Qatar	485 (3.7)	481 (3.9)	-4 (1.1)	▼	486 (3.7)	1 (1.0)	
[2] Turkiye	496 (3.4)	495 (3.6)	-2 (0.8)	▼	498 (3.4)	2 (0.8)	▲
Finland	549 (2.4)	547 (2.6)	-2 (0.8)	▼	550 (2.6)	1 (0.9)	
[2] † Brazil ⋈	419 (5.3)	418 (5.2)	-1 (1.5)		421 (5.0)	2 (1.5)	
Russian Federation	567 (3.6)	566 (3.6)	-1 (1.0)		568 (3.8)	1 (0.9)	
Norway (5)	539 (2.0)	538 (2.0)	-1 (0.7)		540 (2.1)	1 (0.7)	▲
Latvia	528 (2.6)	527 (3.0)	0 (1.0)		529 (2.7)	2 (1.0)	
[2] Italy	537 (2.2)	536 (2.5)	-1 (1.5)		538 (2.1)	1 (0.9)	
Spain	521 (2.2)	520 (2.2)	-1 (1.0)		522 (2.4)	0 (0.7)	
Morocco	372 (4.5)	372 (4.3)	0 (1.6)		373 (4.5)	1 (1.2)	
England ⋈	558 (2.5)	558 (2.4)	1 (1.0)		559 (2.5)	1 (0.9)	
[2] Portugal	520 (2.3)	520 (2.3)	0 (0.9)		520 (2.3)	0 (0.6)	
Lithuania	552 (2.3)	552 (2.7)	0 (1.8)		553 (2.5)	0 (1.2)	
≡ Netherlands	527 (2.5)	528 (2.8)	1 (1.6)		528 (2.9)	1 (1.4)	
Czech Republic	540 (2.3)	540 (2.5)	0 (0.7)		540 (2.5)	0 (1.0)	
† Slovak Republic	529 (2.7)	530 (2.6)	1 (1.6)		530 (2.6)	1 (1.4)	
Iran, Islamic Rep. of ⋈	413 (4.9)	413 (5.0)	0 (1.1)		412 (4.8)	-1 (1.3)	
Belgium (Flemish)	511 (2.3)	511 (2.7)	1 (1.0)		510 (2.3)	-1 (0.9)	
Azerbaijan	440 (3.6)	441 (3.5)	0 (1.0)		439 (3.6)	-1 (1.4)	
[2] Sweden	544 (2.1)	545 (2.5)	2 (1.5)		544 (2.1)	0 (0.9)	
Malta	515 (2.7)	516 (2.8)	2 (1.3)		514 (2.8)	-1 (1.0)	
Bahrain	458 (2.9)	460 (2.9)	1 (1.2)		457 (2.8)	-1 (1.1)	
Hungary	539 (3.4)	541 (3.3)	2 (1.4)		539 (3.4)	-1 (0.9)	
† New Zealand	521 (2.3)	523 (2.4)	2 (1.2)		521 (2.5)	-1 (1.1)	
Slovenia	520 (1.9)	522 (2.1)	2 (1.6)		519 (2.1)	-1 (0.8)	
North Macedonia	442 (5.3)	442 (5.4)	0 (1.7)		439 (5.6)	-3 (1.1)	▼
Poland	549 (2.2)	552 (2.3)	3 (1.5)		548 (2.2)	-1 (1.2)	
Australia ⋈	540 (2.2)	543 (2.4)	3 (1.2)	▲	539 (2.3)	-1 (1.0)	
Uzbekistan	437 (2.9)	438 (3.0)	1 (1.3)		434 (2.9)	-3 (0.9)	▼
France	514 (2.5)	516 (2.4)	2 (1.3)		511 (2.6)	-2 (1.3)	
[3] Singapore	587 (3.1)	591 (3.2)	4 (0.9)	▲	586 (3.1)	-1 (0.8)	
Austria	530 (2.2)	533 (2.1)	3 (1.6)		527 (2.6)	-2 (1.0)	▼
Bulgaria	540 (3.0)	544 (3.3)	4 (1.3)	▲	538 (3.1)	-2 (1.1)	▼
[3] Serbia	514 (2.8)	518 (2.9)	4 (1.4)	▲	511 (2.5)	-2 (1.3)	
[2] Albania	513 (3.1)	516 (3.3)	3 (1.3)	▲	509 (3.2)	-4 (1.8)	▼
[3] Israel ⋈	510 (2.2)	515 (2.8)	5 (1.4)	▲	508 (2.3)	-2 (0.9)	▼
Kazakhstan	504 (2.7)	508 (2.8)	5 (0.9)	▲	501 (2.6)	-3 (0.8)	▼
Germany	524 (2.1)	529 (2.4)	5 (1.0)	▲	522 (2.1)	-2 (1.1)	▼
[3] Montenegro	487 (1.6)	491 (1.9)	4 (1.4)	▲	483 (1.9)	-4 (1.0)	▼
[2] Belgium (French)	494 (2.7)	499 (2.6)	5 (1.5)	▲	490 (2.4)	-4 (1.0)	▼
[2] † Denmark	539 (2.2)	546 (2.6)	7 (1.7)	▲	536 (2.1)	-3 (0.8)	▼
Ireland	577 (2.5)	584 (2.5)	6 (1.1)	▲	574 (2.4)	-4 (1.0)	▼
[2] † Northern Ireland	566 (2.5)	573 (2.3)	7 (1.2)	▲	562 (2.3)	-4 (1.1)	▼
Cyprus	511 (2.9)	517 (2.8)	6 (0.8)	▲	505 (2.9)	-6 (0.6)	▼
Ж South Africa ⋈	288 (4.4)	293 (4.5)	5 (1.6)	▲	279 (4.6)	-10 (1.3)	▼
† Croatia	557 (2.5)	567 (2.8)	11 (1.4)	▲	553 (2.6)	-4 (1.1)	▼
[1] Georgia	494 (2.6)	501 (2.8)	7 (1.0)	▲	486 (2.8)	-8 (1.1)	▼
[2] ≡ United States	548 (6.8)	558 (7.2)	11 (2.0)	▲	540 (6.8)	-8 (1.9)	▼
Benchmarking Participants							
Abu Dhabi, UAE	440 (3.5)	434 (3.8)	-5 (1.0)	▼	442 (3.4)	2 (0.8)	▲
[2] Dubai, UAE	552 (1.5)	550 (1.6)	-2 (1.0)		553 (1.5)	1 (0.8)	
Moscow City, Russian Federation	598 (2.1)	597 (1.9)	-1 (1.4)		600 (1.9)	2 (1.0)	
South Africa (6) ⋈	384 (4.5)	382 (4.6)	-2 (1.2)		384 (4.7)	0 (1.1)	
[2] British Columbia, Canada	535 (3.5)	537 (3.6)	1 (0.9)		535 (3.6)	0 (1.0)	
[2] Newfoundland & Labrador, Canada	523 (3.2)	526 (3.4)	3 (1.3)		523 (3.1)	0 (1.1)	
[3] ≡ Alberta, Canada	539 (3.6)	541 (3.4)	2 (1.1)	▲	537 (3.9)	-2 (1.1)	
≡ Quebec, Canada	551 (2.7)	561 (2.9)	10 (1.2)	▲	548 (2.6)	-3 (1.2)	▼



( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Exhibit 3.1 shows only the results for the 43 countries and 5 benchmarking participants that assessed PIRLS 2021 at the end of the fourth grade school year. However, this discussion about relative strengths and weaknesses in reading literary texts compared to strengths in weaknesses in reading informational texts will be based on Exhibit 3.2 which presents the results for all 57 countries and 8 benchmarking entities that participated in PIRLS 2021, including the 14 countries and 3 benchmarking entities that needed to delay data collection until the beginning of the fifth grade and have comparably older students (half a year older on average, highlighted in pink).

Looking at the top of the exhibit under the informational column, the data show that 9 countries had higher relative achievement (at least 2 score points) based on the informational materials than on the PIRLS 2021 assessment as a whole. Although three East Asian countries, Macao SAR, Hong Kong SAR, and Chinese Taipei had differences from overall reading ranging from 6 to 12 scale score points, most of the differences were rather small (1 to 4 points).

The lower portion of the exhibit shows that 18 countries had a relative strength in the literary purpose, nearly double the number with a relative strength in the informational purpose. Also, by means of the differences being defined relative to the overall, a relative strength in the literary purpose will often be accompanied by a relative weakness in the informational purpose. Twenty-three of the 57 countries in Exhibit 3.2 had both a relative strength in one purpose and a relative weakness in the other, while 11 countries had only a relative strength or a weakness in one purpose.

Many countries (23) did not display a relative strength or weakness in reading achievement for either purpose. However, the prevalence of relative strength in the literary purpose is consistent with a reading curriculum that begins with stories in the early grades and then transitions to reading about science, history, and geography as students move to the upper grades.

Relative Achievement in Comprehension Processes

Exhibits 3.3 and 3.4 present relative achievement for two reading comprehension processes: 1) retrieving and straightforward inferencing and 2) interpreting, integrating, and evaluating. More specifically:

- **Retrieving and Straightforward Inferencing** (often related to a small portion of the text) is based on combining the items categorized as “focus on and retrieve explicitly stated information” and “make straightforward inferences” (50% of the items)

- **Interpreting, Integrating, and Evaluating** (often related to larger portions or the entire text) is based on combining the items categorized as "interpret and integrate ideas and information" and "evaluate and critique content and textual elements" (50% of the items)

Exhibits 3.3 and 3.4 show relative average achievement in the more straightforward processes and in the more integrative comprehension processes compared to average reading achievement overall. The results are organized according to the extent that countries had relatively higher achievement in the interpreting/integrating/evaluating comprehension processes than their average achievement overall (top of the exhibit) and to the extent that countries had relatively higher achievement in the retrieving/inferencing processes than in their overall achievement (bottom of the exhibit). Countries in the middle of the exhibit had little difference in average achievement between the more integrative and the more straightforward comprehension processes, with average achievement in both subdomains being very similar to average reading achievement overall.

Exhibit 3.3 presents the results for the 43 countries and 5 benchmarking entities that assessed their students at the end of the fourth grade school year. However, this discussion will be based on Exhibit 3.4 with the results for all 57 countries and 8 benchmarking entities that participated in PIRLS 2021, including the 14 countries and 3 benchmarking entities that delayed assessment until the fall of the fifth grade (shown in pink).

Looking at the top of the graph in Exhibit 3.4, the data show 15 countries with a relative strength in the interpreting/integrating/evaluating comprehension processes (3 to 8 scale score points) compared to their reading achievement overall. A few more countries (18) had a relative weakness in the retrieving/inferencing comprehension processes. These relative differences provide an interesting source for country-level analyses conducted by experts of their respective education systems. Such analyses could focus on curricular differences that may provide information about how these strengths and weaknesses can be explained.

The lower portion of the exhibit shows that 10 countries had a relative strength in the retrieving/straightforward inferencing processes compared to their overall achievement, with 16 having a relative weakness (at least 2 scale score points) in the interpreting/integrating/evaluating comprehension processes.

Exhibit 3.3: Relative Average Achievement in Comprehension Processes

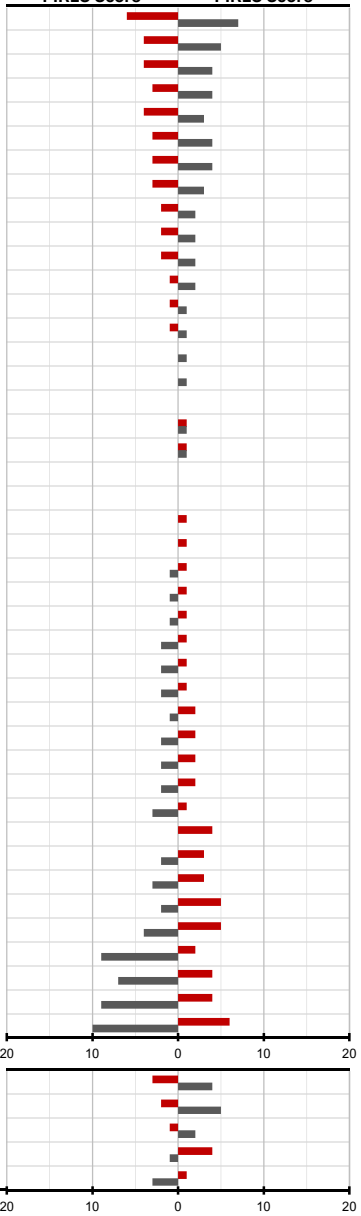
Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Country	Overall PIRLS Average Scale Score	Retrieving and Straightforward Inferencing: Average Scale Score	Retrieving and Straightforward Inferencing: Difference from Overall PIRLS Score	Interpreting, Integrating, and Evaluating: Average Scale Score	Interpreting, Integrating, and Evaluating: Difference from Overall PIRLS Score
Australia ⋈	540 (2.2)	534 (2.4)	-6 (1.1) ▼	547 (2.3)	7 (1.0) ▲
[2] Albania	513 (3.1)	508 (3.4)	-4 (2.2) ▼	518 (3.1)	5 (1.9) ▲
Oman	429 (3.7)	426 (3.6)	-4 (0.9) ▼	433 (3.9)	4 (1.6) ▲
[3] Singapore	587 (3.1)	584 (3.0)	-3 (0.7) ▼	591 (3.2)	4 (0.5) ▲
Poland	549 (2.2)	545 (2.2)	-4 (1.2) ▼	552 (2.0)	3 (1.1) ▲
[3] Montenegro	487 (1.6)	484 (1.9)	-3 (1.3) ▼	491 (2.4)	4 (1.8) ▲
England ⋈	558 (2.5)	554 (2.4)	-3 (0.9) ▼	561 (2.5)	4 (1.4) ▲
[3] Serbia	514 (2.8)	510 (3.0)	-3 (1.4) ▼	516 (2.7)	3 (1.4) ▲
[2 Ψ] Egypt	378 (5.4)	376 (5.4)	-2 (0.9) ▼	380 (5.1)	2 (1.4)
[3] Israel ⋈	510 (2.2)	508 (2.3)	-2 (0.9) ▼	512 (2.7)	2 (1.4)
Cyprus	511 (2.9)	509 (2.5)	-2 (1.1) ▼	512 (3.3)	2 (1.1)
[≡] Netherlands	527 (2.5)	527 (2.8)	-1 (1.6)	529 (2.6)	2 (1.0)
[2 †] Brazil ⋈	419 (5.3)	418 (5.2)	-1 (2.2)	420 (5.3)	1 (2.1)
[†] New Zealand	521 (2.3)	521 (2.3)	-1 (0.8)	522 (2.4)	1 (1.0)
[2] Italy	537 (2.2)	537 (2.4)	0 (1.2)	538 (2.2)	1 (0.7)
[2 †] Denmark	539 (2.2)	539 (2.1)	0 (1.0)	540 (2.2)	1 (1.1)
[2] Portugal	520 (2.3)	520 (2.3)	0 (0.8)	520 (2.1)	0 (0.8)
Russian Federation	567 (3.6)	568 (3.8)	1 (1.4)	568 (3.8)	1 (1.3)
Bulgaria	540 (3.0)	541 (3.1)	1 (1.5)	541 (3.1)	1 (1.6)
Slovenia	520 (1.9)	520 (1.9)	0 (0.7)	519 (1.8)	0 (0.9)
Belgium (Flemish)	511 (2.3)	511 (2.2)	0 (0.8)	510 (2.3)	0 (0.7)
Finland	549 (2.4)	550 (2.6)	1 (0.8)	549 (2.4)	0 (0.8)
[†] Slovak Republic	529 (2.7)	530 (2.6)	1 (1.3)	529 (2.6)	0 (1.1)
Spain	521 (2.2)	522 (2.3)	1 (0.9)	520 (2.2)	-1 (0.8)
Malta	515 (2.7)	515 (2.9)	1 (1.0)	513 (2.9)	-1 (1.2)
Norway (5)	539 (2.0)	540 (2.0)	1 (0.7)	538 (2.4)	-1 (1.2)
Germany	524 (2.1)	525 (2.1)	1 (0.7)	522 (2.0)	-2 (0.8) ▼
Jordan	381 (5.4)	381 (5.3)	1 (1.9)	379 (5.5)	-2 (1.6)
Iran, Islamic Rep. of ⋈	413 (4.9)	414 (4.7)	1 (1.4)	411 (4.7)	-2 (1.1) ▼
[2] Sweden	544 (2.1)	546 (2.3)	2 (1.2)	542 (2.2)	-1 (1.0)
Austria	530 (2.2)	532 (2.4)	2 (0.9) ▲	528 (2.2)	-2 (0.8) ▼
Chinese Taipei	544 (2.2)	546 (2.1)	2 (0.7) ▲	542 (2.2)	-2 (0.6) ▼
[2] Belgium (French)	494 (2.7)	497 (2.4)	2 (1.6)	492 (2.4)	-2 (1.6)
North Macedonia	442 (5.3)	443 (5.4)	1 (1.1)	439 (6.0)	-3 (1.3) ▼
[2 †] Hong Kong SAR	573 (2.7)	577 (2.9)	4 (1.4) ▲	572 (2.6)	0 (1.3)
[2] Turkiye	496 (3.4)	499 (3.6)	3 (1.4) ▲	494 (3.4)	-2 (1.2) ▼
Czech Republic	540 (2.3)	542 (2.5)	3 (0.9) ▲	537 (2.4)	-3 (0.7) ▼
Macao SAR	536 (1.3)	541 (1.0)	5 (1.3) ▲	534 (1.1)	-2 (1.1)
France	514 (2.5)	519 (2.8)	5 (1.4) ▲	510 (2.6)	-4 (1.1) ▼
[Ж] South Africa ⋈	288 (4.4)	290 (4.5)	2 (1.1)	279 (4.5)	-9 (1.0) ▼
Uzbekistan	437 (2.9)	441 (2.9)	4 (1.3) ▲	430 (3.2)	-7 (1.5) ▼
[2] Kosovo	421 (3.1)	424 (3.0)	4 (1.4) ▲	412 (3.1)	-9 (1.2) ▼
Azerbaijan	440 (3.6)	446 (3.7)	6 (1.1) ▲	431 (3.7)	-10 (1.2) ▼
Benchmarking Participants					
[2] British Columbia, Canada	535 (3.5)	532 (3.8)	-3 (1.2) ▼	540 (3.6)	4 (0.8) ▲
[3 ≡] Alberta, Canada	539 (3.6)	537 (3.6)	-2 (1.1)	543 (3.6)	5 (1.1) ▲
[2] Newfoundland & Labrador, Canada	523 (3.2)	522 (3.3)	-1 (2.0)	526 (3.3)	2 (2.0)
Moscow City, Russian Federation	598 (2.1)	602 (2.0)	4 (1.1) ▲	597 (1.9)	-1 (0.9)
South Africa (6) ⋈	384 (4.5)	386 (4.5)	1 (1.1)	381 (4.5)	-3 (1.5) ▼

Difference

Process Score Lower than Overall PIRLS Score | Process Score Higher than Overall PIRLS Score



▲ Process score significantly higher than overall PIRLS score

▼ Process score significantly lower than overall PIRLS score

Retrieving and Straightforward Inferencing

Interpreting, Integrating, and Evaluating

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

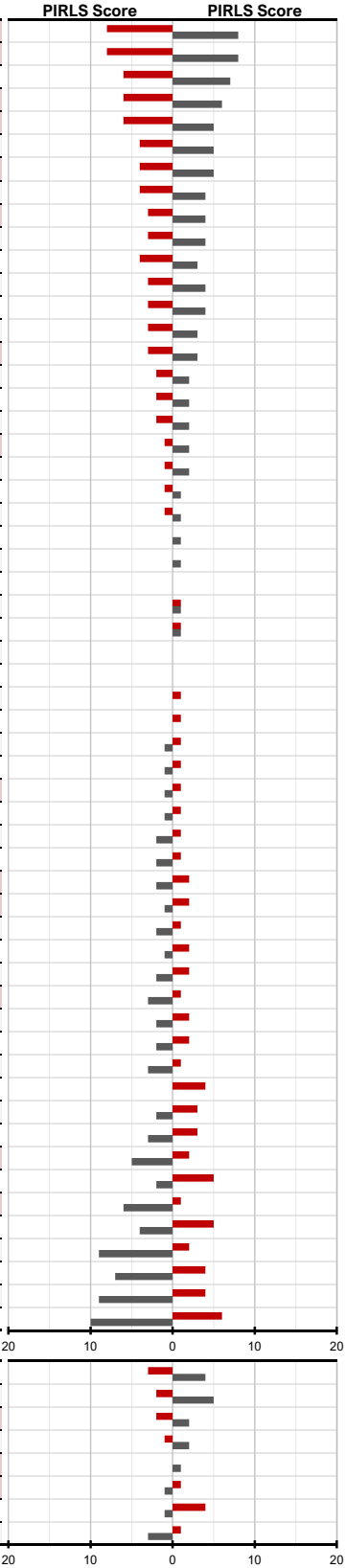
Exhibit 3.4: Relative Average Achievement in Comprehension Processes

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Overall PIRLS Average Scale Score	Retrieving and Straightforward Inferencing: Average Scale Score	Retrieving and Straightforward Inferencing: Difference from Overall PIRLS Score	Interpreting, Integrating, and Evaluating: Average Scale Score	Interpreting, Integrating, and Evaluating: Difference from Overall PIRLS Score
[2] ≡ United States	548 (6.8)	539 (6.1)	-8 (2.2) ▼	555 (7.1)	8 (2.6) ▲
[2] † Northern Ireland	566 (2.5)	558 (2.6)	-8 (1.5) ▼	573 (2.2)	8 (1.8) ▲
Australia ⋈	540 (2.2)	534 (2.4)	-6 (1.1) ▼	547 (2.3)	7 (1.0) ▲
[1] Georgia	494 (2.6)	489 (2.4)	-6 (1.2) ▼	500 (2.7)	6 (1.4) ▲
Ireland	577 (2.5)	571 (2.3)	-6 (0.9) ▼	582 (2.7)	5 (1.9) ▲
[2] Albania	513 (3.1)	508 (3.4)	-4 (2.2) ▼	518 (3.1)	5 (1.9) ▲
† Croatia	557 (2.5)	552 (2.6)	-4 (1.4) ▼	561 (2.7)	5 (1.2) ▲
Oman	429 (3.7)	426 (3.6)	-4 (0.9) ▼	433 (3.9)	4 (1.6) ▲
Latvia	528 (2.6)	525 (2.7)	-3 (1.0) ▼	532 (2.7)	4 (1.4) ▲
[3] Singapore	587 (3.1)	584 (3.0)	-3 (0.7) ▼	591 (3.2)	4 (0.5) ▲
Poland	549 (2.2)	545 (2.2)	-4 (1.2) ▼	552 (2.0)	3 (1.1) ▲
[3] Montenegro	487 (1.6)	484 (1.9)	-3 (1.3) ▼	491 (2.4)	4 (1.8) ▲
England ⋈	558 (2.5)	554 (2.4)	-3 (0.9) ▼	561 (2.5)	4 (1.4) ▲
[3] Serbia	514 (2.8)	510 (3.0)	-3 (1.4) ▼	516 (2.7)	3 (1.4) ▲
Bahrain	458 (2.9)	456 (2.9)	-3 (0.8) ▼	462 (3.0)	3 (0.9) ▲
[2] Ψ Egypt	378 (5.4)	376 (5.4)	-2 (0.9) ▼	380 (5.1)	2 (1.4)
[3] Israel ⋈	510 (2.2)	508 (2.3)	-2 (0.9) ▼	512 (2.7)	2 (1.4)
Cyprus	511 (2.9)	509 (2.5)	-2 (1.1) ▼	512 (3.3)	2 (1.1)
Hungary	539 (3.4)	538 (3.4)	-1 (1.4)	541 (3.3)	2 (1.2)
≡ Netherlands	527 (2.5)	527 (2.8)	-1 (1.6)	529 (2.6)	2 (1.0)
[2] † Brazil ⋈	419 (5.3)	418 (5.2)	-1 (2.2)	420 (5.3)	1 (2.1)
† New Zealand	521 (2.3)	521 (2.3)	-1 (0.8)	522 (2.4)	1 (1.0)
[2] Italy	537 (2.2)	537 (2.4)	0 (1.2)	538 (2.2)	1 (0.7)
[2] † Denmark	539 (2.2)	539 (2.1)	0 (1.0)	540 (2.2)	1 (1.1)
[2] Portugal	520 (2.3)	520 (2.3)	0 (0.8)	520 (2.1)	0 (0.8)
Russian Federation	567 (3.6)	568 (3.8)	1 (1.4)	568 (3.8)	1 (1.3)
Bulgaria	540 (3.0)	541 (3.1)	1 (1.5)	541 (3.1)	1 (1.6)
Slovenia	520 (1.9)	520 (1.9)	0 (0.7)	519 (1.8)	0 (0.9)
Belgium (Flemish)	511 (2.3)	511 (2.2)	0 (0.8)	510 (2.3)	0 (0.7)
Finland	549 (2.4)	550 (2.6)	1 (0.8)	549 (2.4)	0 (0.8)
† Slovak Republic	529 (2.7)	530 (2.6)	1 (1.3)	529 (2.6)	0 (1.1)
Spain	521 (2.2)	522 (2.3)	1 (0.9)	520 (2.2)	-1 (0.8)
Malta	515 (2.7)	515 (2.9)	1 (1.0)	513 (2.9)	-1 (1.2)
United Arab Emirates	483 (1.8)	484 (1.8)	1 (0.6)	482 (1.9)	-1 (0.6) ▼
Norway (5)	539 (2.0)	540 (2.0)	1 (0.7)	538 (2.4)	-1 (1.2)
Germany	524 (2.1)	525 (2.1)	1 (0.7)	522 (2.0)	-2 (0.8) ▼
Jordan	381 (5.4)	381 (5.3)	1 (1.9)	379 (5.5)	-2 (1.6)
Kazakhstan	504 (2.7)	505 (2.6)	2 (0.9)	502 (2.7)	-2 (0.7) ▼
Lithuania	552 (2.3)	554 (2.5)	2 (1.3)	551 (2.7)	-1 (1.3)
Iran, Islamic Rep. of ⋈	413 (4.9)	414 (4.7)	1 (1.4)	411 (4.7)	-2 (1.1) ▼
[2] Sweden	544 (2.1)	546 (2.3)	2 (1.2)	542 (2.2)	-1 (1.0)
Austria	530 (2.2)	532 (2.4)	2 (0.9) ▲	528 (2.2)	-2 (0.8) ▼
Qatar	485 (3.7)	486 (3.7)	1 (1.2)	482 (3.8)	-3 (1.1) ▼
Chinese Taipei	544 (2.2)	546 (2.1)	2 (0.7) ▲	542 (2.2)	-2 (0.6) ▼
[2] Belgium (French)	494 (2.7)	497 (2.4)	2 (1.6)	492 (2.4)	-2 (1.6)
North Macedonia	442 (5.3)	443 (5.4)	1 (1.1)	439 (6.0)	-3 (1.3) ▼
[2] † Hong Kong SAR	573 (2.7)	577 (2.9)	4 (1.4) ▲	572 (2.6)	0 (1.3)
[2] Turkiye	496 (3.4)	499 (3.6)	3 (1.4) ▲	494 (3.4)	-2 (1.2) ▼
Czech Republic	540 (2.3)	542 (2.5)	3 (0.9) ▲	537 (2.4)	-3 (0.7) ▼
[3] Saudi Arabia	449 (3.6)	450 (3.4)	2 (1.3)	443 (3.8)	-5 (1.6) ▼
Macao SAR	536 (1.3)	541 (1.0)	5 (1.3) ▲	534 (1.1)	-2 (1.1)
Morocco	372 (4.5)	374 (4.1)	1 (1.7)	366 (4.7)	-6 (1.7) ▼
France	514 (2.5)	519 (2.8)	5 (1.4) ▲	510 (2.6)	-4 (1.1) ▼
Ж South Africa ⋈	288 (4.4)	290 (4.5)	2 (1.1)	279 (4.5)	-9 (1.0) ▼
Uzbekistan	437 (2.9)	441 (2.9)	4 (1.3) ▲	430 (3.2)	-7 (1.5) ▼
[2] Kosovo	421 (3.1)	424 (3.0)	4 (1.4) ▲	412 (3.1)	-9 (1.2) ▼
Azerbaijan	440 (3.6)	446 (3.7)	6 (1.1) ▲	431 (3.7)	-10 (1.2) ▼
Benchmarking Participants					
[2] British Columbia, Canada	535 (3.5)	532 (3.8)	-3 (1.2) ▼	540 (3.6)	4 (0.8) ▲
[3] ≡ Alberta, Canada	539 (3.6)	537 (3.6)	-2 (1.1)	543 (3.6)	5 (1.1) ▲
[2] Dubai, UAE	552 (1.5)	550 (1.6)	-2 (1.0)	554 (1.8)	2 (0.8) ▲
[2] Newfoundland & Labrador, Canada	523 (3.2)	522 (3.3)	-1 (2.0)	526 (3.3)	2 (2.0)
≡ Quebec, Canada	551 (2.7)	551 (2.6)	0 (0.9)	552 (2.5)	1 (1.3)
Abu Dhabi, UAE	440 (3.5)	441 (3.6)	1 (1.0)	438 (3.8)	-1 (1.1)
Moscow City, Russian Federation	598 (2.1)	602 (2.0)	4 (1.1) ▲	597 (1.9)	-1 (0.9)
South Africa (6) ⋈	384 (4.5)	386 (4.5)	1 (1.1)	381 (4.5)	-3 (1.5) ▼



▲ Process score significantly higher than overall PIRLS score

▼ Process score significantly lower than overall PIRLS score

Retrieving and Straightforward Inferencing

Interpreting, Integrating, and Evaluating

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

SECTION 4

Performance at International Benchmarks

To implement meaningful policy and curriculum reform, it is important to understand the differences in students' reading competencies associated with higher or lower scores on the PIRLS reading achievement scale. For example, in terms of students' reading comprehension skills and strategies, what does it mean for a country to have an average achievement of 513 or 426? Looking at additional data analyses can help a country determine if its students have gained the reading comprehension skills covered in the reading curriculum.

To provide an interpretation of the PIRLS 2021 average results summarized on the PIRLS achievement scale for reading comprehension in the fourth grade, this section of the report describes achievement at four points along the scale as International Benchmarks: Advanced International Benchmark (625), High International Benchmark (550), Intermediate International Benchmark (475), and Low International Benchmark (400). To develop the descriptions of the reading comprehension skills and strategies demonstrated by fourth grade students reaching each International Benchmark, the TIMSS & PIRLS International Study Center conducted a scale anchoring exercise together with the PIRLS 2021 Reading Development Group (RDG). With the PIRLS 2021 transition to a digital assessment, the scale anchoring was based on digital data. Further detail about the scale anchoring methodology is provided in Chapter 14 of *Methods and Procedures: PIRLS 2021 Technical Report*.

Descriptions of the PIRLS 2021 Texts

To reflect the PIRLS 2021 Reading Assessment Framework (Chapter 1 in *PIRLS 2021 Assessment Frameworks*), the International Benchmark descriptions were developed separately for the two overall reading purposes—Literary and Informational. The texts for the two purposes are described below because the benchmark descriptions consider the difficulty of the texts the students are asked to read in PIRLS. Students use somewhat similar reading comprehension skills and strategies with each higher benchmark, but the complexity and difficulty of the texts increases. Average text difficulty has been estimated by the average percent correct across items based on digital data.

Literary Texts

The PIRLS 2021 literary assessment included nine texts presented in the PIRLS 2021 digital format. The texts were complete short stories or episodes accompanied by supportive illustrations. The texts included contemporary and traditional stories with one or two main characters, a plot with one or two central events, and an overall theme or message. Taken as a whole, the literary texts included a range of styles designed to encourage students to engage with the events, settings, actions, consequences, characters, atmosphere, feelings, and ideas in the stories.

In accordance with the group adaptive assessment design, the texts represented three levels of difficulty—easy, medium, and difficult. The easy texts (76% correct on associated items, on average) were relatively accessible, approximately 500 words in length, with a clear linear structure, explicit meanings, and simply described characters. The language featured everyday vocabulary and straightforward sentence structures. The difficult texts (56% correct on associated items, on average) were relatively complex, approximately 850 words in length, with scope for exploring layers of meaning, such as plot twists, development of complicated ambivalent characters, and abstract ideas. They included a range of vocabulary, imagery, and figurative language. The medium texts (66% correct on associated items, on average) were of intermediate complexity, approximately 700 words in length, with a narrative structure and a clear message.

Informational Texts

The PIRLS 2021 assessment of informational reading included nine texts presented in the PIRLS 2021 digital format. The informational texts included a variety of continuous as well as non-continuous texts with charts and graphs. The texts had presentational features such as diagrams, maps, illustrations, photographs, or tables. The range of material covered scientific, biographical, and historical information and ideas. Texts were structured in a number of ways, including by logic, argument, chronology, and topic. Several included organizational features such as subheadings or text boxes.

In accordance with the group adaptive assessment design, the nine texts represented three levels of difficulty—easy, medium, and difficult. The easy texts (74% correct on associated items, on average) were approximately 500 words in length with a clear structure, explicit meanings, and straightforward sentence structures. The difficult texts (51% correct on associated items, on average) were approximately 850 words in length and conceptually more demanding, based on abstract or technical ideas and with a substantial number of embedded details, some complex sentences, and topic-specific vocabulary. The medium texts (60% correct

on associated items, on average) were of intermediate complexity, approximately 700 words in length.

The PIRLS 2021 assessment also included five tasks specifically designed to assess online informational reading based on simulated websites about scientific and historical subject matter. Each task was structured as a class project or report, with an avatar teacher who introduced the questions and guided the students through the task. Each task involved students working across approximately three different websites with an average of 1,000 words of text per task and as many as 10 web pages. In addition to the text, the tasks included different kinds of visual information, such as photos, charts, and maps, as well as many navigational and dynamic features, such as animations, hyperlinks, tabs, and pop-up boxes. The five tasks were either difficult or medium (60% correct on associated items, on average).

Examples of the PIRLS 2021 Texts and Items

Video examples of one Literary text, *The Empty Pot*, and two Informational texts, *The Amazing Octopus* and *Oceans* (ePIRLS task), can be viewed below. The videos show each text in its entirety, together with its associated items.

Video Examples of the PIRLS 2021 Texts

THE EMPTY POT

Digital PIRLS Literary

THE AMAZING OCTOPUS

Digital PIRLS Informational

OCEANS

ePIRLS Online Informational

- *The Empty Pot* is a literary story with a message. The Emperor passes out seeds for a contest to see who will be the next Emperor. Jun is ridiculed when his seed does not grow and is ashamed to face the Emperor. However, Jun's empty pot indicates his honesty because the seeds were boiled.
- *The Amazing Octopus* is an informational article about the characteristics of octopuses and some behaviors they display when they are in aquariums. Newly developed in PIRLS 2021, it has some animation to indicate the direction possible in future assessments.

- *Oceans* is an ePIRLS task consisting of three simulated websites about 1) the benefits of oceans, 2) ocean habitats, and 3) the problem of plastic pollution. Across the colorful web pages, there are a variety of navigational features, pop-ups, links, a video, and advertisements.

Descriptions of Reading Achievement at the PIRLS 2021 International Benchmarks

The PIRLS 2021 International Benchmarks build on each other, representing increasingly demanding reading comprehension skills and strategies with each higher benchmark—Low, Intermediate, High, and Advanced. The students who reached a benchmark also reached all previous benchmark(s). For example, students who reached the Advanced Benchmark also reached the Low, Intermediate, and High Benchmarks. Consistent with the two reading purposes that provide the foundation of the PIRLS 2021 Reading Assessment Framework, the scale anchoring analysis was conducted separately for the literary and informational texts and items. Within each reading purpose, the progression in reading comprehension processes can be seen from the description of the different benchmarks.

Advanced International Benchmark (625)

Literary

When reading predominately difficult literary texts, students can:

- Interpret and integrate story events and character actions to describe reasons, motivations, feelings, and character development
- Evaluate the intended effect of the author's language, style, and composition choices

Informational

When reading predominately difficult informational texts or online tasks, students can:

- Make inferences about complex information across different web pages and parts of text to recognize the relevant information in a list and use evidence in the text to support ideas
- Interpret and integrate multiple pieces of different information across text and web pages to present an overview of ideas in the text and provide comparisons and explanations
- Evaluate textual, visual, and interactive elements to explain their purpose, and identify the writer's point of view and provide supporting evidence

High International Benchmark (550)

Literary

When reading medium and difficult literary texts, students can:

- Locate and identify significant actions and details embedded across the text
- Make inferences about relationships between intentions, actions, events, and feelings
- Interpret and integrate story events to give reasons for character actions and feelings
- Recognize the meaning of some figurative language (e.g., metaphor, imagery)

Informational

When reading informational texts or online tasks of medium or high difficulty, students can:

- Locate and identify relevant information in texts with a variety of features, such as diagrams and illustrations
- Make inferences to provide comparisons, descriptions, explanations, predictions, and choose a relevant website
- Interpret and integrate textual and visual information across texts and web pages to connect ideas, sequence events, identify characteristics, and provide explanations
- Evaluate the content to take and justify a position; describe how illustrations, diagrams, photographs, and maps convey and support content; and recognize the contribution of word choice in conveying the writer's point of view

Intermediate International Benchmark (475)

Literary

When reading literary texts of easy or medium difficulty, students can:

- Locate, recognize, and reproduce explicitly stated actions, events, and feelings
- Make straightforward inferences about events and characters' actions
- Interpret reasons for characters' feelings or actions and identify supporting evidence

Informational

When reading informational texts or online tasks of easy or medium difficulty, students can:

- Locate, recognize, and reproduce explicitly stated information across texts
- Make straightforward inferences to provide comparisons, descriptions, and explanations
- Interpret and integrate to provide information about central ideas and reasons for actions, events, and outcomes

Low International Benchmark (400)

Literary

When reading predominantly easy literary texts, students can:

- Locate, retrieve, and reproduce explicitly stated information, actions, or ideas
- Make simple, straightforward inferences about characters' actions

Informational

When reading predominantly easy informational texts, students can:

- Locate, retrieve, and reproduce explicitly stated information
- Make simple, straightforward inferences to provide a reason for an outcome

Percentages of Students Reaching the International Benchmarks

This section presents the PIRLS 2021 reading achievement results through the lens of the reading comprehension skills and strategies demonstrated by the students reaching each of the four International Benchmarks. The descriptions of students' reading competencies at the four benchmarks, together with the percentages of students reaching the successive benchmarks, provide a profile of reading achievement in each country.

Exhibit 4.1 presents the percentages of students reaching each of the PIRLS 2021 International Benchmarks of Reading Achievement for the 43 countries and 5 benchmarking entities that assessed their fourth grade students at the end of the school year. The countries are presented in descending order according to the percentage of students reaching the Advanced International Benchmark, with the results shown graphically and the percentage reaching each benchmark provided.

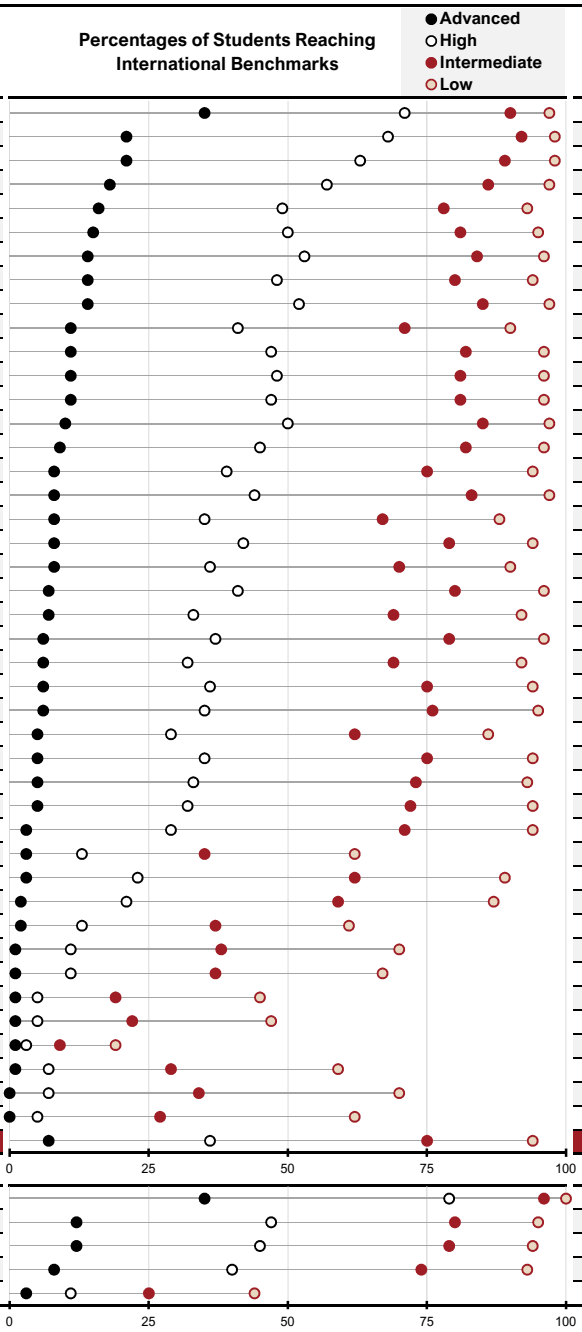
The Advanced International Benchmark is a very high target and, as has been shown in previous PIRLS assessments, only small percentages of students reach the advanced level. Remarkably, Singapore had more than one-third (35%) of its fourth grade students reaching the advanced level. Then, after a gap, Hong Kong SAR and the Russian Federation each had 21 percent followed by England (18%), Bulgaria (16%), and Sweden (15%). The median percent reaching the Advanced International Benchmark was 7, so of the countries that assessed students at the end of the fourth grade year, half had 7 percent or fewer students reaching the advanced level.

Exhibit 4.1: Percentages of Students Reaching the PIRLS International Benchmarks

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Country	Advanced Benchmark (625)	High Benchmark (550)	Intermediate Benchmark (475)	Low Benchmark (400)
[3] Singapore	35 (1.4)	71 (1.6)	90 (0.9)	97 (0.5)
[2 †] Hong Kong SAR	21 (1.4)	68 (1.8)	92 (1.0)	98 (0.4)
Russian Federation	21 (1.3)	63 (2.0)	89 (1.4)	98 (0.4)
England ⋈	18 (1.2)	57 (1.3)	86 (0.9)	97 (0.4)
Bulgaria	16 (0.8)	49 (1.4)	78 (1.4)	93 (0.9)
[2] Sweden	15 (0.9)	50 (1.2)	81 (0.9)	95 (0.6)
Finland	14 (1.0)	53 (1.4)	84 (1.0)	96 (0.5)
Australia ⋈	14 (0.7)	48 (1.3)	80 (1.0)	94 (0.5)
Poland	14 (0.8)	52 (1.5)	85 (1.0)	97 (0.5)
† New Zealand	11 (0.8)	41 (1.1)	71 (1.0)	90 (0.6)
Czech Republic	11 (0.8)	47 (1.3)	82 (1.0)	96 (0.5)
[2 †] Denmark	11 (0.8)	48 (1.3)	81 (0.9)	96 (0.6)
Norway (5)	11 (0.6)	47 (1.3)	81 (1.0)	96 (0.6)
Chinese Taipei	10 (0.6)	50 (1.4)	85 (1.0)	97 (0.4)
Macao SAR	9 (0.7)	45 (0.7)	82 (0.6)	96 (0.4)
Germany	8 (0.7)	39 (1.2)	75 (1.1)	94 (0.5)
[2] Italy	8 (0.6)	44 (1.5)	83 (1.0)	97 (0.3)
[3] Israel ⋈	8 (0.7)	35 (1.1)	67 (1.1)	88 (0.8)
† Slovak Republic	8 (0.8)	42 (1.7)	79 (1.2)	94 (0.8)
Malta	8 (0.6)	36 (1.3)	70 (1.4)	90 (0.9)
Austria	7 (0.7)	41 (1.6)	80 (1.2)	96 (0.4)
[2] Albania	7 (0.7)	33 (1.6)	69 (1.7)	92 (0.9)
≡ Netherlands	6 (0.7)	37 (1.4)	79 (1.3)	96 (0.7)
Cyprus	6 (0.6)	32 (1.4)	69 (1.5)	92 (0.7)
[2] Portugal	6 (0.6)	36 (1.4)	75 (1.0)	94 (0.6)
Spain	6 (0.6)	35 (1.3)	76 (1.2)	95 (0.6)
[2] Turkiye	5 (0.5)	29 (1.3)	62 (1.7)	86 (1.2)
Slovenia	5 (0.5)	35 (1.1)	75 (1.1)	94 (0.5)
[3] Serbia	5 (0.5)	33 (1.6)	73 (1.7)	93 (0.8)
France	5 (0.6)	32 (1.5)	72 (1.4)	94 (0.7)
Belgium (Flemish)	3 (0.5)	29 (1.5)	71 (1.4)	94 (0.5)
Oman	3 (0.4)	13 (1.0)	35 (1.4)	62 (1.4)
[2] Belgium (French)	3 (0.5)	23 (1.1)	62 (1.6)	89 (0.9)
[3] Montenegro	2 (0.3)	21 (0.8)	59 (1.2)	87 (0.7)
[2 †] Brazil ⋈	2 (0.3)	13 (1.0)	37 (1.6)	61 (1.9)
North Macedonia	1 (0.3)	11 (1.1)	38 (2.5)	70 (2.2)
Azerbaijan	1 (0.2)	11 (0.9)	37 (1.7)	67 (1.5)
[2 Ψ] Egypt	1 (0.2)	5 (0.7)	19 (1.4)	45 (2.0)
Jordan	1 (0.2)	5 (0.8)	22 (1.6)	47 (2.0)
Ж South Africa ⋈	1 (0.2)	3 (0.5)	9 (0.9)	19 (1.2)
Iran, Islamic Rep. of ⋈	1 (0.2)	7 (0.6)	29 (1.5)	59 (2.0)
Uzbekistan	0 (0.1)	7 (0.7)	34 (1.3)	70 (1.4)
[2] Kosovo	0 (0.1)	5 (0.7)	27 (1.3)	62 (1.5)
International Median	**7**	**36**	**75**	**94**
Benchmarking Participants				
Moscow City, Russian Federation	35 (1.6)	79 (1.1)	96 (0.4)	100 (0.1)
[3 ≡] Alberta, Canada	12 (1.1)	47 (1.9)	80 (1.5)	95 (0.8)
[2] British Columbia, Canada	12 (1.1)	45 (1.9)	79 (1.5)	94 (0.8)
[2] Newfoundland & Labrador, Canada	8 (1.0)	40 (1.8)	74 (1.6)	93 (0.7)
South Africa (6) ⋈	3 (0.5)	11 (1.0)	25 (1.3)	44 (1.5)



( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

The fourth grade students reaching the High International Benchmark are relatively competent readers, able to interpret, integrate, and evaluate a variety of text and visual elements in medium and difficult reading materials. The median cumulative percentage (including the percentage reaching the Advanced Benchmark) of students reaching the High Benchmark was 36 percent. However, the range was very large, from a high of 71 percent to a low of 5 percent. In 10 countries, fewer than 20 percent of the fourth grade students reached the High International Benchmark. Similarly, although at least three-fourths of the fourth grade students reached the Intermediate International Benchmark in half the countries (cumulative median percentage of 75), the results ranged from 92 to 9 percent.

On a very positive note, the median percentage of fourth grade students reaching the Low International Benchmark was 94 percent indicating close to universal basic literacy at the fourth grade in the majority of the PIRLS 2021 countries. In all but 10 of the countries, at least 85 percent of the fourth grade students reached the Low International Benchmark.

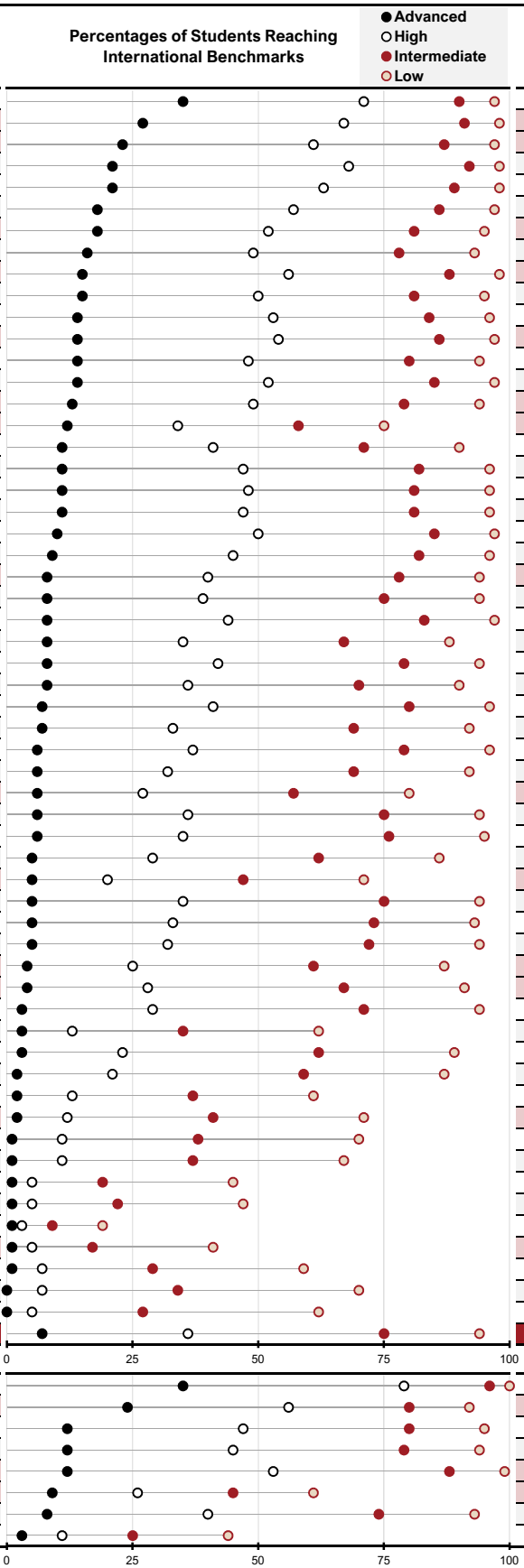
Exhibit 4.2 shows the percentages of students reaching the PIRLS 2021 International Benchmarks for all 57 countries and 8 benchmarking entities, including the 14 Northern Hemisphere countries that necessarily delayed assessing the fourth grade cohort of students until after the summer at the beginning of fifth grade (shown in pink). As described earlier, the students in these 14 countries were 6 months older on average than the students in the other countries, which may have contributed to higher average achievement (see previous subsection: Impacts of Modifying the Assessment Schedule on Students' Achievement). Exhibit 4.2 shows that, in addition to the 6 countries in Exhibit 4.1 that had 15 percent or more of their students reaching the Advanced International Benchmark, 4 of these 14 countries also had 15 percent or more of their students reaching the advanced level—Ireland (27%), Northern Ireland (23%), United States (18%), and Croatia (15%). Looking at the Low International Benchmark, 9 of the 14 countries had at least 85 percent of their students reaching this level of basic literacy.

Exhibit 4.2: Percentages of Students Reaching the PIRLS International Benchmarks

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade



Country	Advanced Benchmark (625)	High Benchmark (550)	Intermediate Benchmark (475)	Low Benchmark (400)
[3] Singapore	35 (1.4)	71 (1.6)	90 (0.9)	97 (0.5)
Ireland	27 (1.3)	67 (1.5)	91 (0.7)	98 (0.4)
[2 †] Northern Ireland	23 (1.2)	61 (1.5)	87 (1.0)	97 (0.5)
[2 †] Hong Kong SAR	21 (1.4)	68 (1.8)	92 (1.0)	98 (0.4)
Russian Federation	21 (1.3)	63 (2.0)	89 (1.4)	98 (0.4)
England ⋈	18 (1.2)	57 (1.3)	86 (0.9)	97 (0.4)
[2 ≡] United States	18 (2.1)	52 (3.2)	81 (2.9)	95 (1.5)
Bulgaria	16 (0.8)	49 (1.4)	78 (1.4)	93 (0.9)
[†] Croatia	15 (1.0)	56 (1.5)	88 (1.0)	98 (0.4)
[2] Sweden	15 (0.9)	50 (1.2)	81 (0.9)	95 (0.6)
Finland	14 (1.0)	53 (1.4)	84 (1.0)	96 (0.5)
Lithuania	14 (1.1)	54 (1.4)	86 (0.8)	97 (0.4)
Australia ⋈	14 (0.7)	48 (1.3)	80 (1.0)	94 (0.5)
Poland	14 (0.8)	52 (1.5)	85 (1.0)	97 (0.5)
Hungary	13 (0.9)	49 (1.6)	79 (1.5)	94 (1.0)
United Arab Emirates	12 (0.4)	34 (0.6)	58 (0.7)	75 (0.7)
[†] New Zealand	11 (0.8)	41 (1.1)	71 (1.0)	90 (0.6)
Czech Republic	11 (0.8)	47 (1.3)	82 (1.0)	96 (0.5)
[2 †] Denmark	11 (0.8)	48 (1.3)	81 (0.9)	96 (0.6)
Norway (5)	11 (0.6)	47 (1.3)	81 (1.0)	96 (0.6)
Chinese Taipei	10 (0.6)	50 (1.4)	85 (1.0)	97 (0.4)
Macao SAR	9 (0.7)	45 (0.7)	82 (0.6)	96 (0.4)
Latvia	8 (0.7)	40 (1.4)	78 (1.4)	94 (0.7)
Germany	8 (0.7)	39 (1.2)	75 (1.1)	94 (0.5)
[2] Italy	8 (0.6)	44 (1.5)	83 (1.0)	97 (0.3)
[3] Israel ⋈	8 (0.7)	35 (1.1)	67 (1.1)	88 (0.8)
[†] Slovak Republic	8 (0.8)	42 (1.7)	79 (1.2)	94 (0.8)
Malta	8 (0.6)	36 (1.3)	70 (1.4)	90 (0.9)
Austria	7 (0.7)	41 (1.6)	80 (1.2)	96 (0.4)
[2] Albania	7 (0.7)	33 (1.6)	69 (1.7)	92 (0.9)
[≡] Netherlands	6 (0.7)	37 (1.4)	79 (1.3)	96 (0.7)
Cyprus	6 (0.6)	32 (1.4)	69 (1.5)	92 (0.7)
Qatar	6 (0.8)	27 (1.6)	57 (1.7)	80 (1.2)
[2] Portugal	6 (0.6)	36 (1.4)	75 (1.0)	94 (0.6)
Spain	6 (0.6)	35 (1.3)	76 (1.2)	95 (0.6)
[2] Turkiye	5 (0.5)	29 (1.3)	62 (1.7)	86 (1.2)
Bahrain	5 (0.7)	20 (1.1)	47 (1.2)	71 (0.9)
Slovenia	5 (0.5)	35 (1.1)	75 (1.1)	94 (0.5)
[3] Serbia	5 (0.5)	33 (1.6)	73 (1.7)	93 (0.8)
France	5 (0.6)	32 (1.5)	72 (1.4)	94 (0.7)
[1] Georgia	4 (0.5)	25 (1.1)	61 (1.5)	87 (1.0)
Kazakhstan	4 (0.5)	28 (1.3)	67 (1.4)	91 (0.8)
Belgium (Flemish)	3 (0.5)	29 (1.5)	71 (1.4)	94 (0.5)
Oman	3 (0.4)	13 (1.0)	35 (1.4)	62 (1.4)
[2] Belgium (French)	3 (0.5)	23 (1.1)	62 (1.6)	89 (0.9)
[3] Montenegro	2 (0.3)	21 (0.8)	59 (1.2)	87 (0.7)
[2 †] Brazil ⋈	2 (0.3)	13 (1.0)	37 (1.6)	61 (1.9)
[3] Saudi Arabia	2 (0.3)	12 (0.9)	41 (1.8)	71 (1.6)
North Macedonia	1 (0.3)	11 (1.1)	38 (2.5)	70 (2.2)
Azerbaijan	1 (0.2)	11 (0.9)	37 (1.7)	67 (1.5)
[2 Ψ] Egypt	1 (0.2)	5 (0.7)	19 (1.4)	45 (2.0)
Jordan	1 (0.2)	5 (0.8)	22 (1.6)	47 (2.0)
[Ж] South Africa ⋈	1 (0.2)	3 (0.5)	9 (0.9)	19 (1.2)
Morocco	1 (0.4)	5 (1.0)	17 (1.4)	41 (1.6)
Iran, Islamic Rep. of ⋈	1 (0.2)	7 (0.6)	29 (1.5)	59 (2.0)
Uzbekistan	0 (0.1)	7 (0.7)	34 (1.3)	70 (1.4)
[2] Kosovo	0 (0.1)	5 (0.7)	27 (1.3)	62 (1.5)
International Median	**7**	**36**	**75**	**94**
Benchmarking Participants				
Moscow City, Russian Federation	35 (1.6)	79 (1.1)	96 (0.4)	100 (0.1)
[2] Dubai, UAE	24 (0.8)	56 (0.7)	80 (0.6)	92 (0.4)
[3 ≡] Alberta, Canada	12 (1.1)	47 (1.9)	80 (1.5)	95 (0.8)
[2] British Columbia, Canada	12 (1.1)	45 (1.9)	79 (1.5)	94 (0.8)
[≡] Quebec, Canada	12 (1.3)	53 (1.9)	88 (1.0)	99 (0.3)
Abu Dhabi, UAE	9 (0.6)	26 (1.0)	45 (1.2)	61 (1.2)
[2] Newfoundland & Labrador, Canada	8 (1.0)	40 (1.8)	74 (1.6)	93 (0.7)
South Africa (6) ⋈	3 (0.5)	11 (1.0)	25 (1.3)	44 (1.5)

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
See Appendix A.2 for population coverage notes 1, 2, and 3. See Appendix A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
Issues identified in Albania's data quality led to reduced comparability and framework coverage.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Trends in the Distributions of Achievement at the International Benchmarks

From PIRLS assessment cycle to assessment cycle, many countries work to improve levels of reading achievement such that increasingly higher percentages of fourth grade students reach successively higher International Benchmarks on the PIRLS achievement scale. Of course, the amount of progress and at which benchmarks this is feasible depends on the contexts for teaching and learning within each country. For example, a literacy initiative targeted to improve reading achievement for lower-performing students may be reflected in increased percentages of students reaching the Low and Intermediate Benchmarks with little change at higher benchmarks. Raising the level of reading achievement for all students across the achievement distribution is challenging and has not occurred in many PIRLS countries.

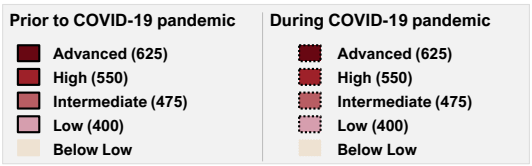
Exhibit 4.3 provides bar graphs of the trend results across the benchmarks for the 35 countries and 3 benchmarking entities that assessed students at the end of the school year and have data from previous cycles, with the countries that assessed students a year later than originally planned annotated with a bowtie (⋈) after their names. The bar graphs for each country present the distribution of achievement at the PIRLS International Benchmarks with a bar for each cycle from 2001 to 2021. The bar for 2021 has dashed lines to indicate that the 2021 results are based on data collected during the time of COVID-19 and may or may not be impacted by the pandemic. The bar graphs of the trend results are presented in alphabetical order country by country.

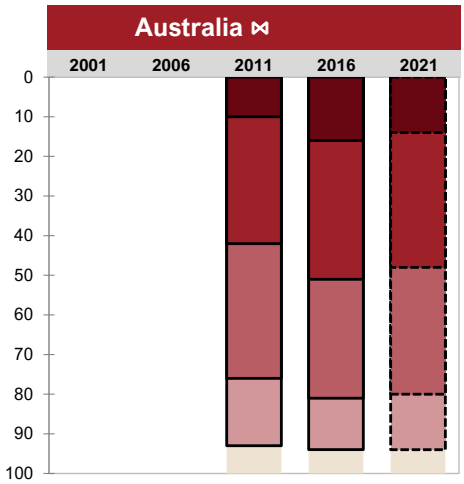
Exhibit 4.3: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks

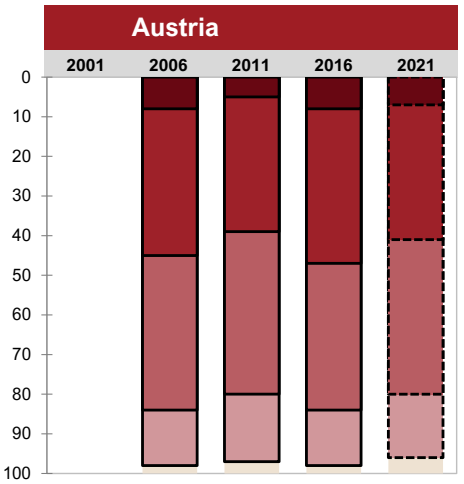
Assessed Fourth Grade Students at the End of the School Year

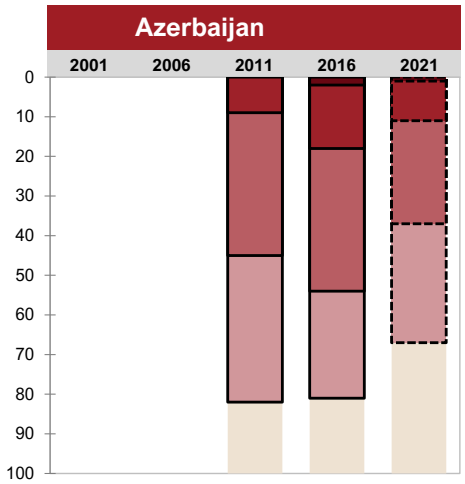
⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

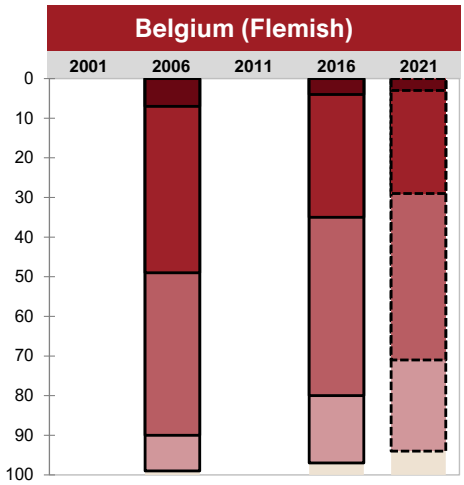
This exhibit displays changes in percentages of students reaching the PIRLS International Benchmarks in each country and benchmarking participant that assessed fourth grade students at the end of the school year and have comparable data from previous assessments. See Appendix A for country participation in previous assessments.

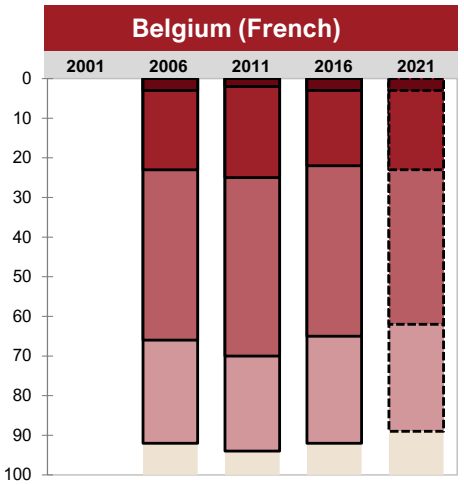


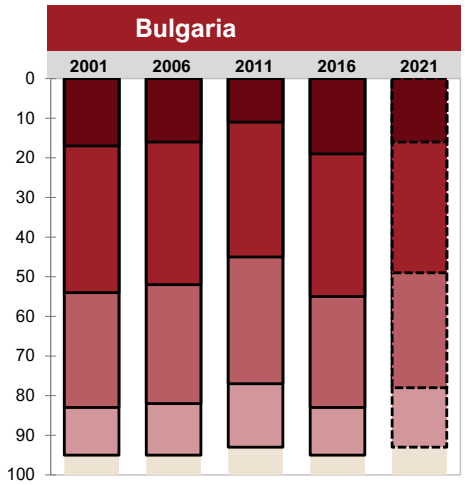


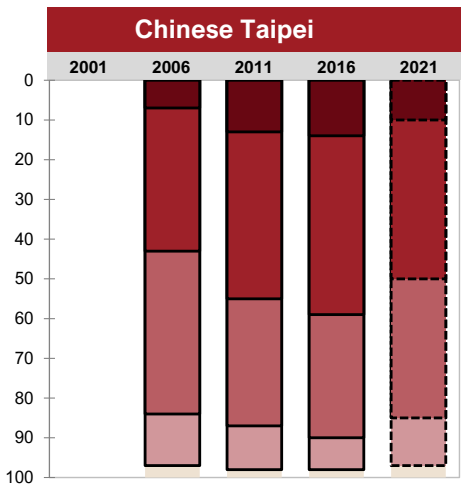


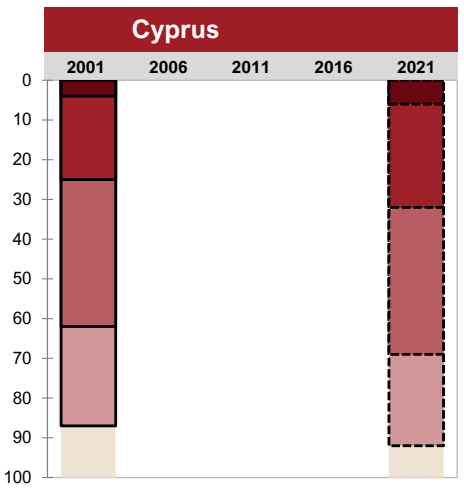


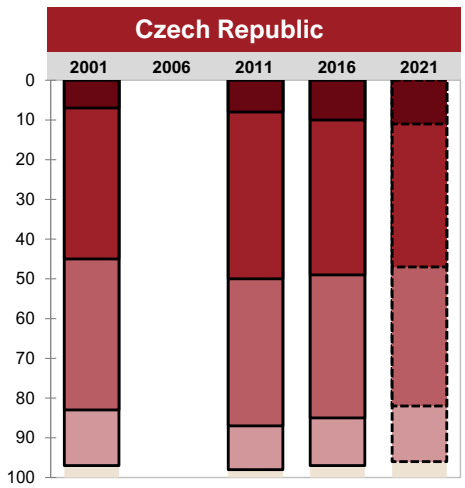












See Appendix A for country participation in previous PIRLS assessments.

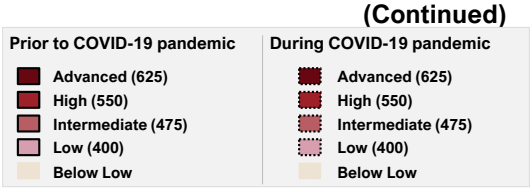
Exhibit 4.3: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks

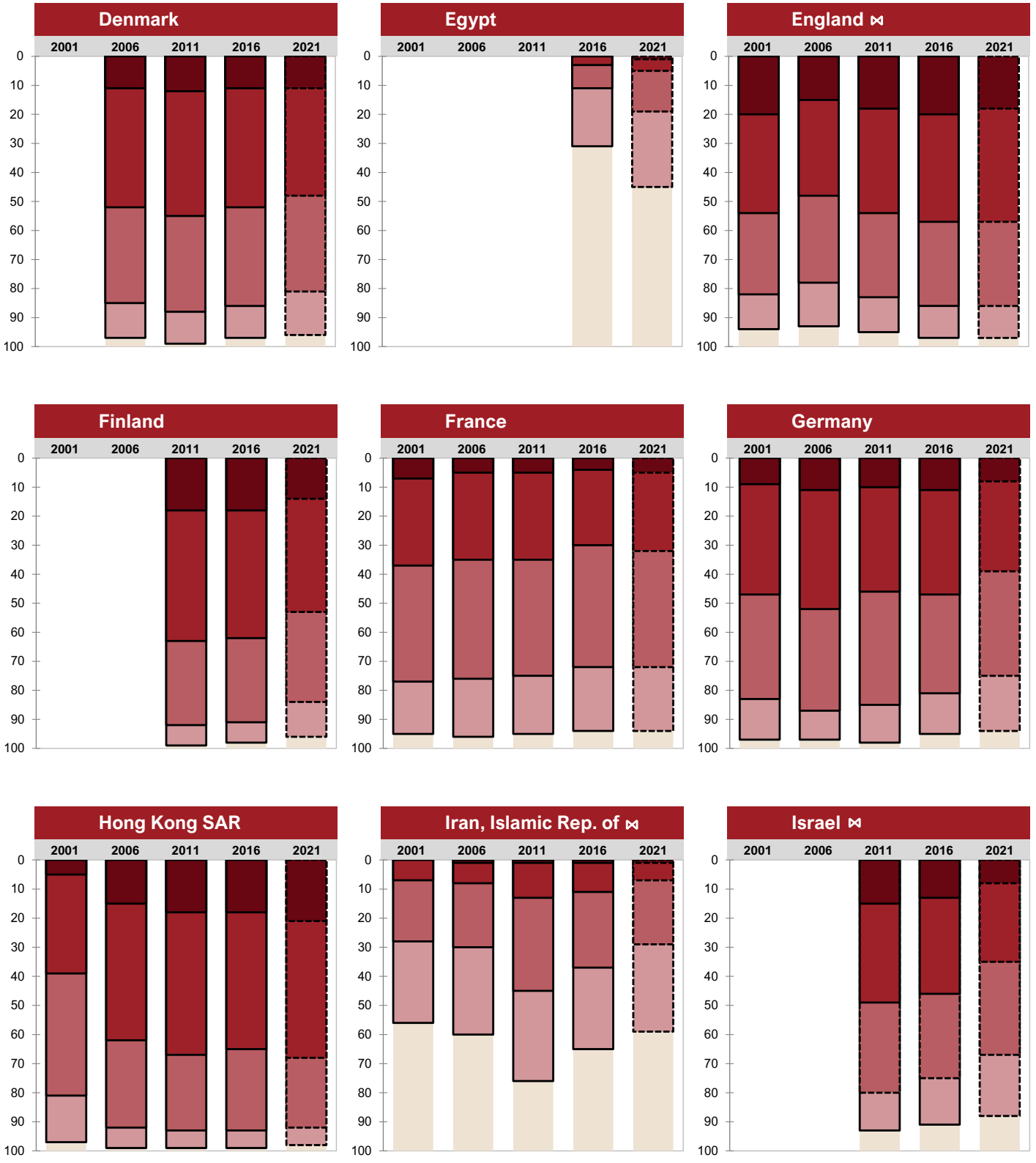
Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in percentages of students reaching the PIRLS International Benchmarks in each country and benchmarking participant that assessed fourth grade students at the end of the school year and have comparable data from previous assessments. See Appendix A for country participation in previous assessments.





See Appendix A for country participation in previous PIRLS assessments.

Exhibit 4.3: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

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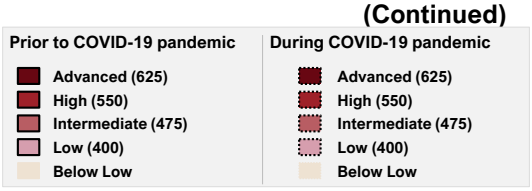

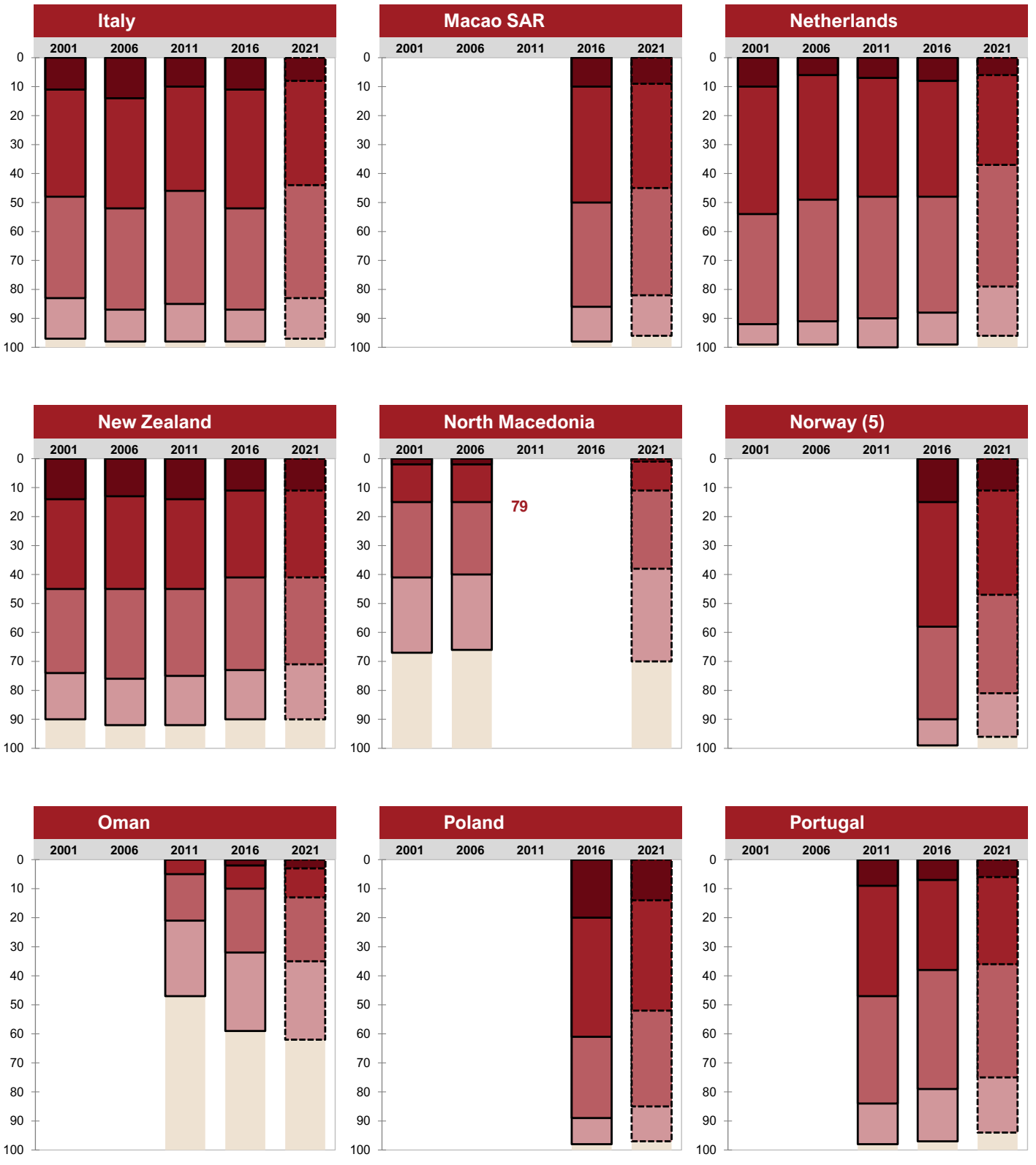

See Appendix A for country participation in previous PIRLS assessments.

Exhibit 4.3: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

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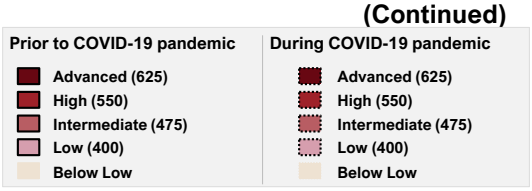
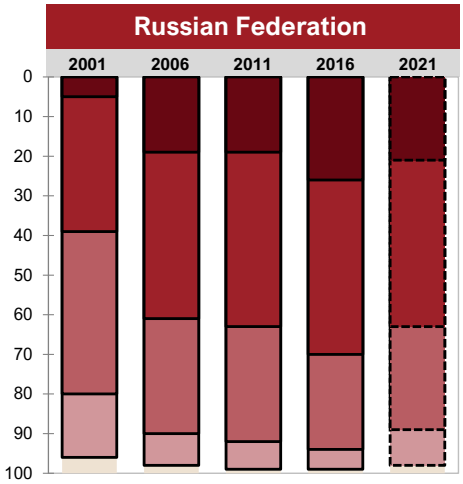
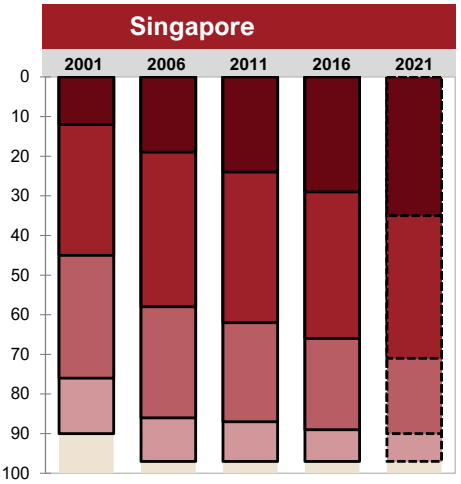
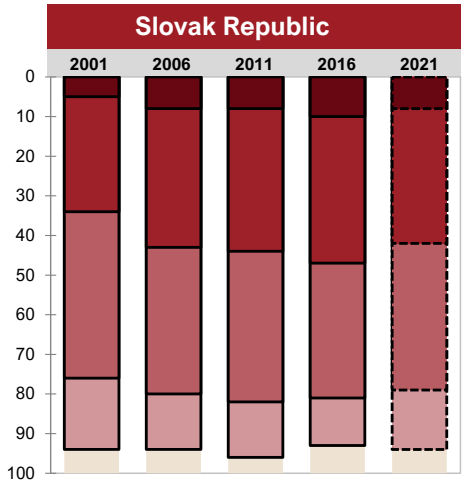
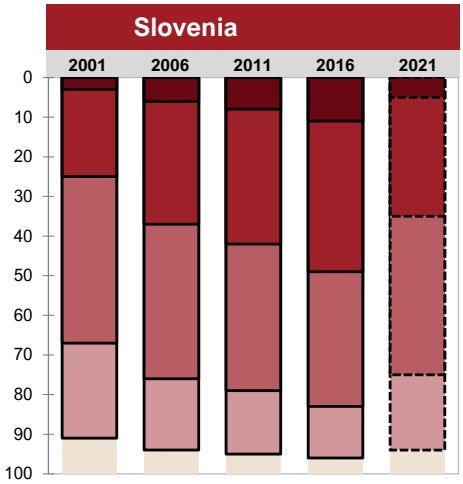
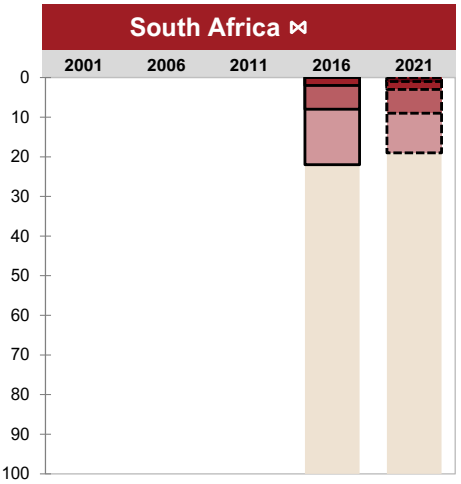


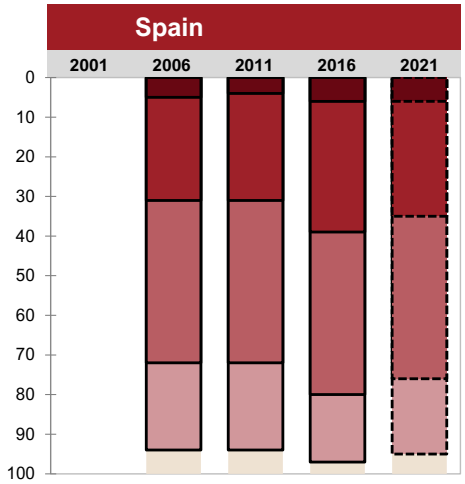


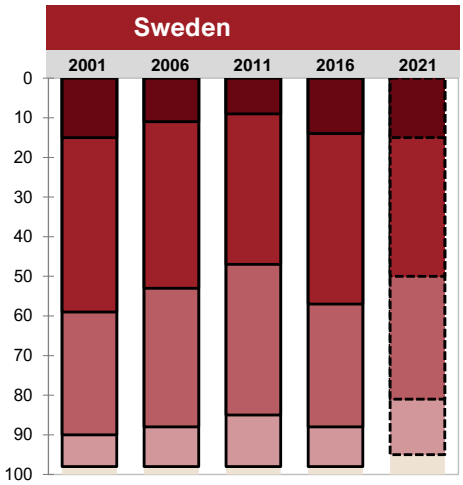


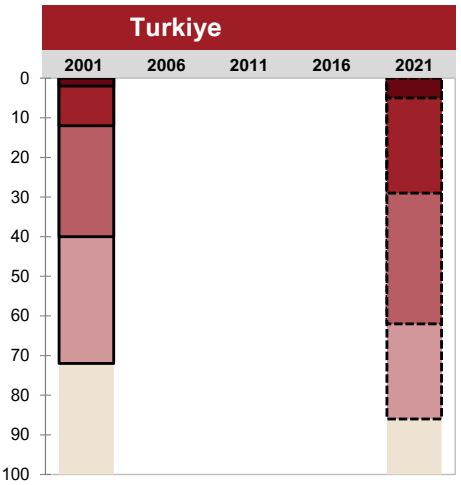












See Appendix A for country participation in previous PIRLS assessments.

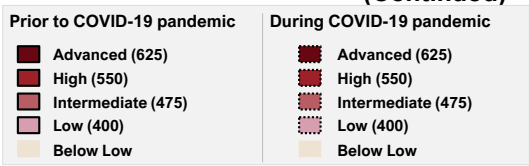
Exhibit 4.3: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks

Assessed Fourth Grade Students at the End of the School Year

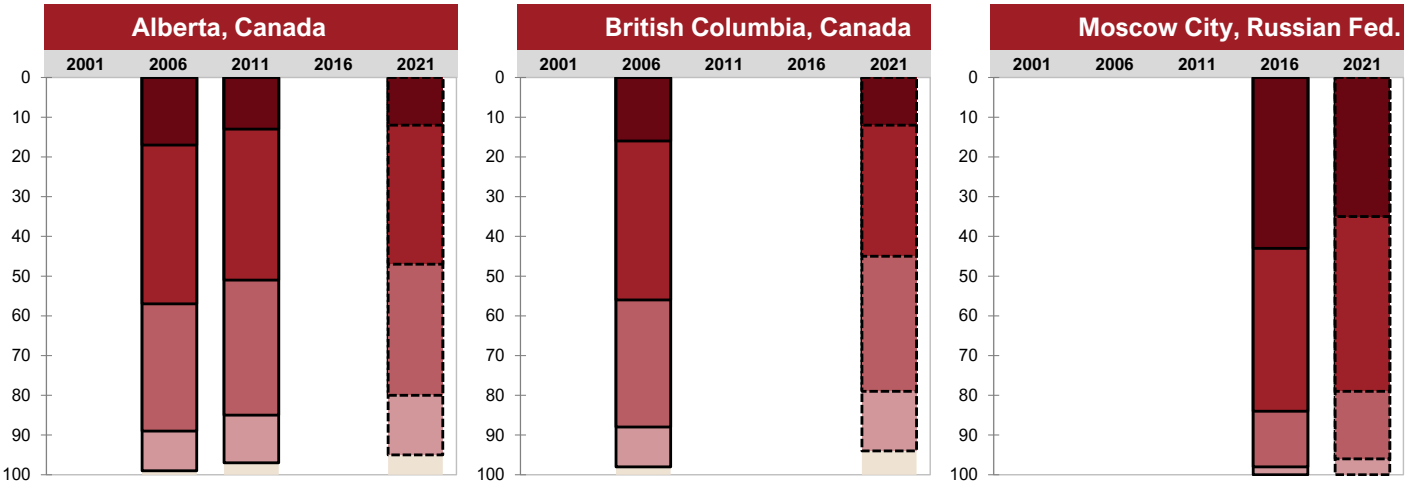
⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

(Continued)

This exhibit displays changes in percentages of students reaching the PIRLS International Benchmarks in each country and benchmarking participant that assessed fourth grade students at the end of the school year and have comparable data from previous assessments. See Appendix A for country participation in previous assessments.



Benchmarking Participants



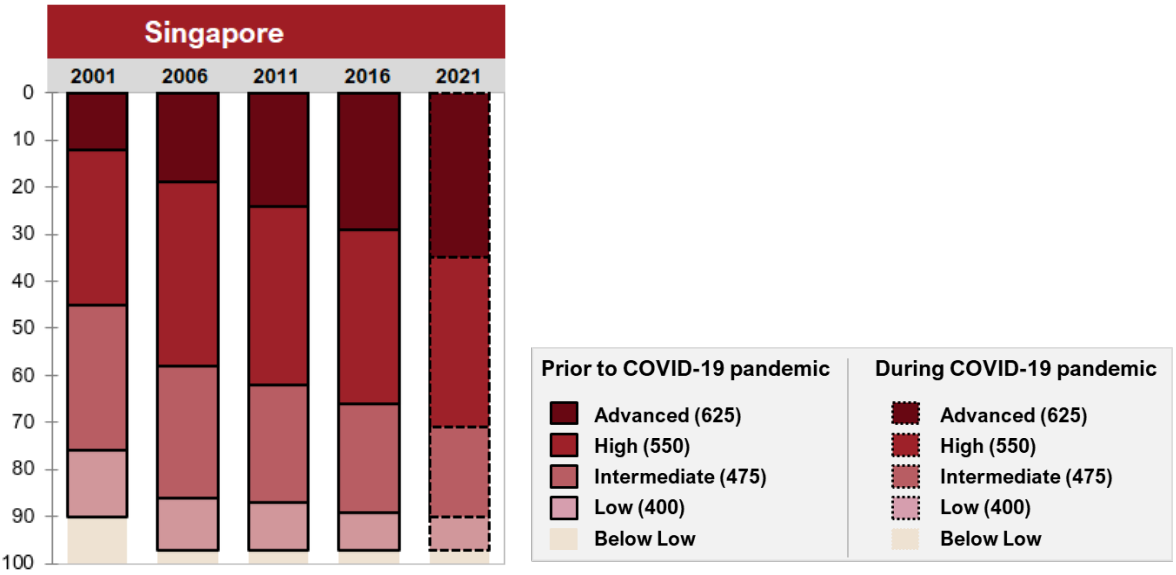
See Appendix A for country participation in previous PIRLS assessments.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Example of Singapore

Singapore's results provide a good example as a basis for discussion of how to read the graphs because this country has participated in all five cycles of PIRLS, had relatively high achievement in PIRLS 2001, and has increased the percentages of students reaching the higher PIRLS International Benchmarks with each successive assessment cycle.

Example of Singapore from Exhibit 4.3: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks



Looking at the bars in Singapore's graph, it can be seen that Singapore has results for all five PIRLS assessments. Each bar in the graph shows the cumulative percentage of students reaching the benchmarks in that assessment cycle. The more of the bar that is shaded (no matter how dark), the larger the percentage of students that reached the Low International Benchmark.

Looking at the bottom of Singapore's first bar for 2001, reading down the 0 to 100 scale on the left of the graph shows that about 90 percent of the Singaporean fourth grade students reached the Low International Benchmark in the first assessment. Further, by subtraction from 100, the difference between the bottom of the bar and 100 indicates the percentage of students that did not reach the Low International Benchmark. Looking at Singapore's 2001 bar, it can be determined that 10 percent of the students did not reach the Low International Benchmark (were "below low") in the first PIRLS assessment.

Moving up Singapore's 2001 bar, 76 percent of the students reached the Intermediate Benchmark. Next, 45 percent of the students reached the High International Benchmark, and 12 percent of the students reached the Advanced International Benchmark. With each higher benchmark, the shading on the bar

becomes darker. Larger amounts of darker shading on a bar indicate higher percentages of students reaching the High and Advanced International Benchmarks. For the Intermediate, High, and Advanced International Benchmarks, it should be remembered that the students reaching those benchmarks demonstrated all the reading skills displayed by the students at the lower levels.

Moving to the right across the bars in Singapore's graph across the assessment cycles, between the first two 2001 and 2006 bars, Singapore increased the percentage of students reaching each of the four International Benchmarks in PIRLS 2006 to the extent that nearly all students (97%) reached the Low International Benchmark and 86 percent reached the Intermediate International Benchmark. Also, moving across the bars for 2001 through 2021 shows steady progress in increasing the percentages of more proficient readers with each subsequent assessment cycle. That is, a successively higher percentage of students reached the High International Benchmark with each assessment and a successively higher percentage of students reached the Advanced International Benchmark.

Although Singapore was the only country to achieve such positive trend results across the International Benchmarks, several other countries have made good progress. For example, Hong Kong SAR has a similar pattern, although with smaller changes from cycle to cycle. Also, several countries were making progress across their benchmark distributions until there were declines between PIRLS 2016 and 2021, including Chinese Taipei, the Russian Federation, the Slovak Republic, and Slovenia. The decreases between 2016 and 2021 are consistent with the apparent impact of COVID-19 observed in the PIRLS trends more generally (see Exhibits 2.1.1 and 2.1.2 in Trends in Reading Achievement). However, as explained in previous sections, no control groups in 2021 are available that can tell us what the distribution would have been without the pandemic.

For most of the countries that have participated in four or five PIRLS assessment cycles, the trend results in the benchmark distributions show relative stability in the percentages of students reaching each benchmark or minor fluctuations at one or two benchmarks.

Exhibit 4.4 shows trends across the benchmarks for the 14 Northern Hemisphere countries that necessarily delayed assessing the fourth grade cohort of students until after the summer at the beginning of fifth grade. As described earlier, the students in these 14 countries were half a year older on average than the students in the other countries, which may have contributed to higher average achievement (see previous subsection: Impacts of Modifying the Assessment Schedule on Students' Achievement). They also were 6 months older on average than the students from the same countries assessed in PIRLS 2016, which may also have contributed to increases in achievement between 2016 and 2021 (see Exhibits 2.2.1 and 2.2.2 in Trends in Reading Achievement). Once again, this lack of comparability and unavailability of control groups from the same 2021 cohort complicates interpreting the trends in achievement at the PIRLS International Benchmarks.

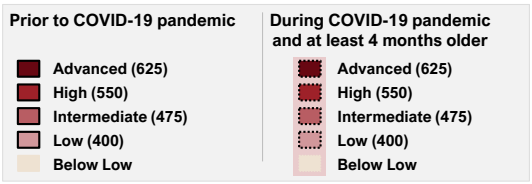
Although 5 of the countries with delayed assessment had increases in the percentage of students reaching the Advanced Benchmark between 2016 and 2021, considering questions about the comparability between 2016 and 2021 (COVID-19 and delayed testing), it is best to have data from 4 or 5 assessment cycles to interpret trends. Looking at the countries with data from at least 4 assessments, Georgia had increases at the Advanced and High Benchmarks, Lithuania and the United States have remained relatively stable, and Hungary and Latvia exhibited fluctuations with declines between 2016 and 2021.

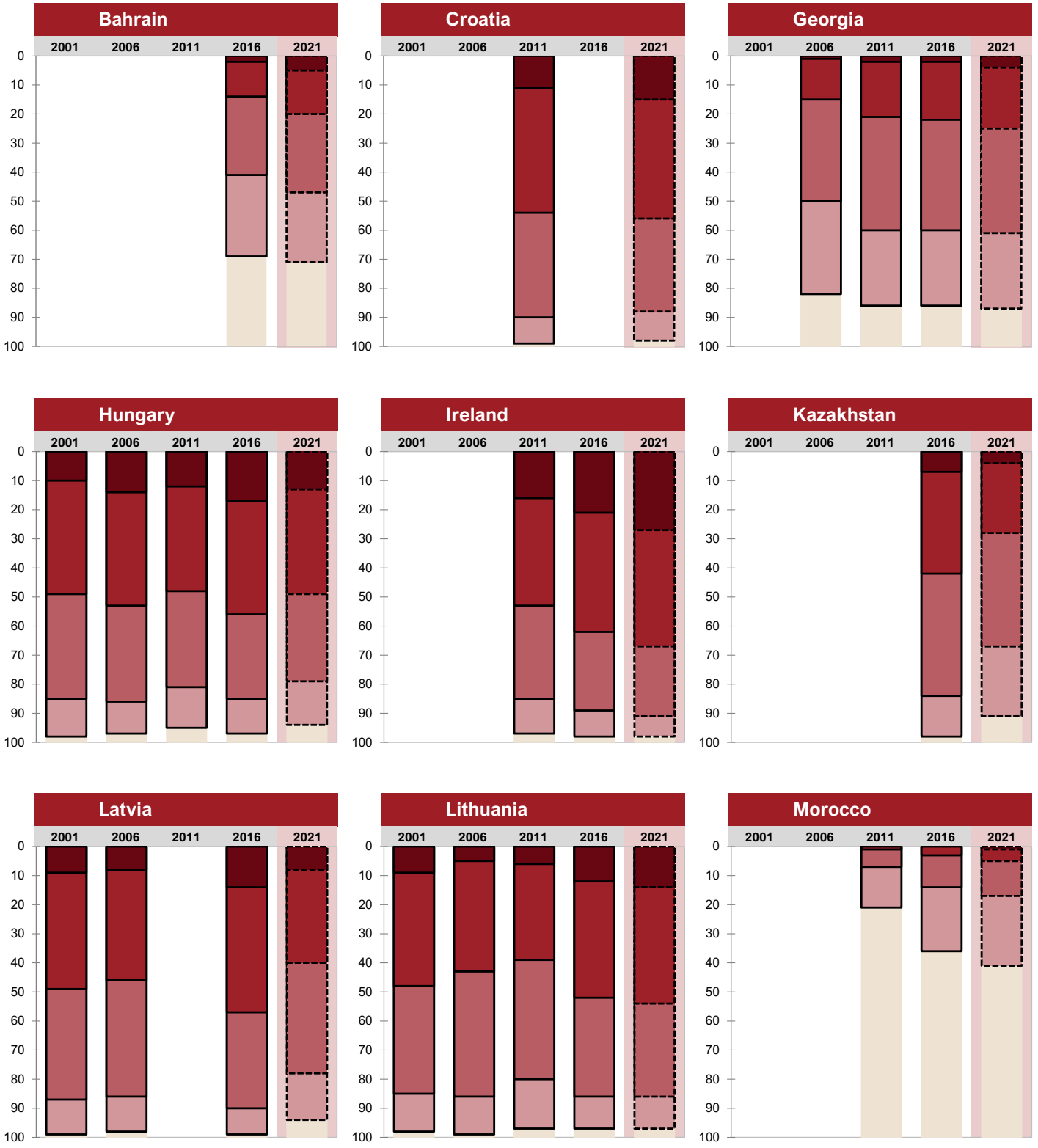
For these 14 countries, it is interesting to consider trends in the percentages of students not reaching the Low Benchmark ("below low"). Several countries, including Morocco, Qatar, and the United Arab Emirates appear to have made steady progress toward more students reaching the Low Benchmark over the last 3 assessments.

Exhibit 4.4: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

This exhibit displays changes in percentages of students reaching the PIRLS International Benchmarks in each country and benchmarking participant that assessed fourth grade cohort at the beginning of the fifth grade school year and have data from previous assessments. See Appendix A for country participation in previous assessments.





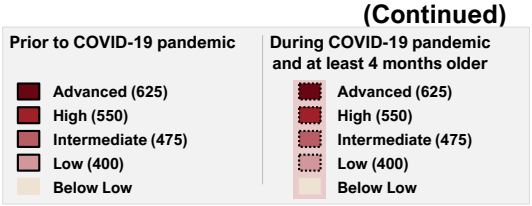
See Appendix A for country participation in previous PIRLS assessments.

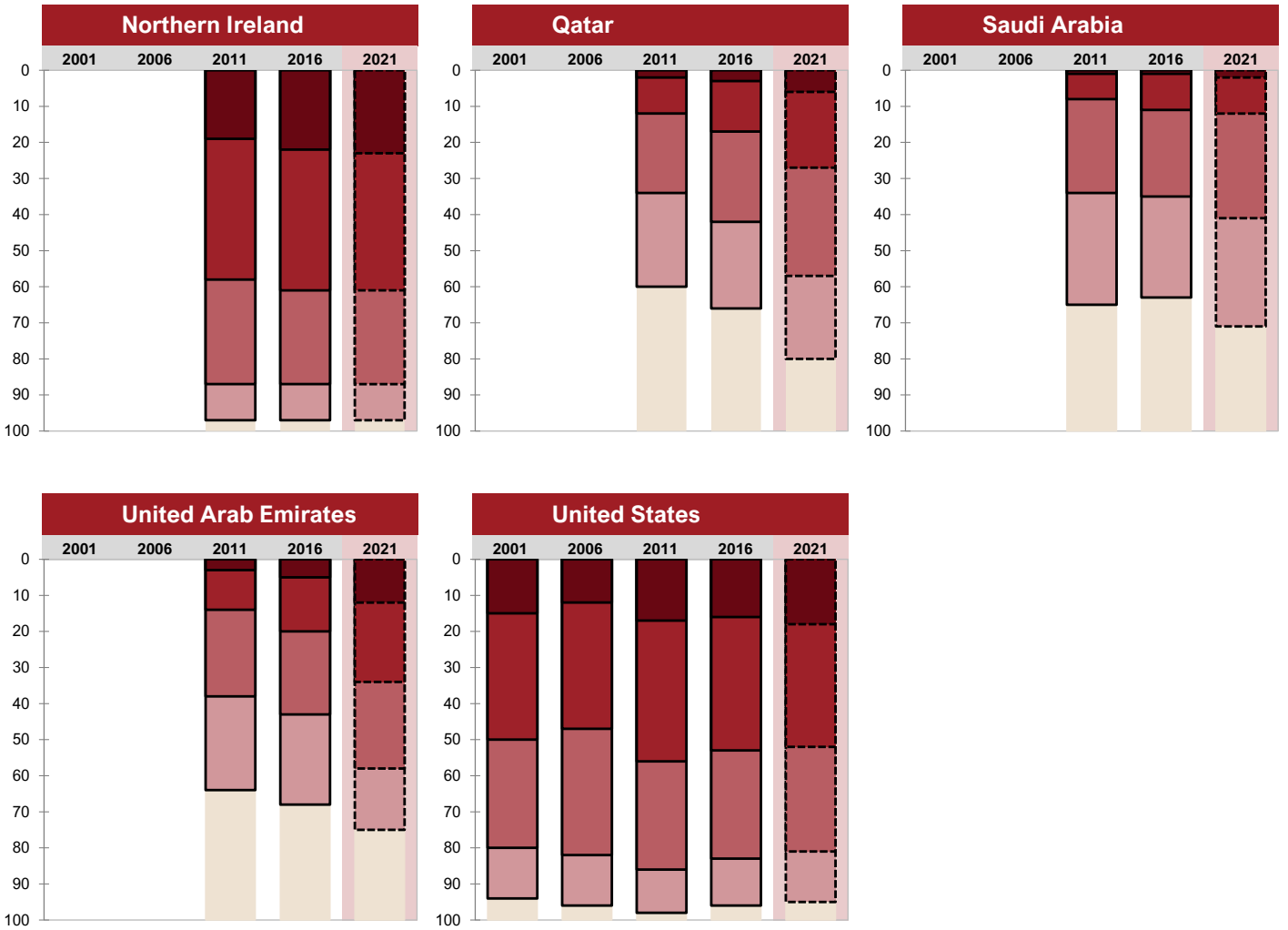
Exhibit 4.4: Trends in the Distribution of Students Reaching the PIRLS International Benchmarks

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

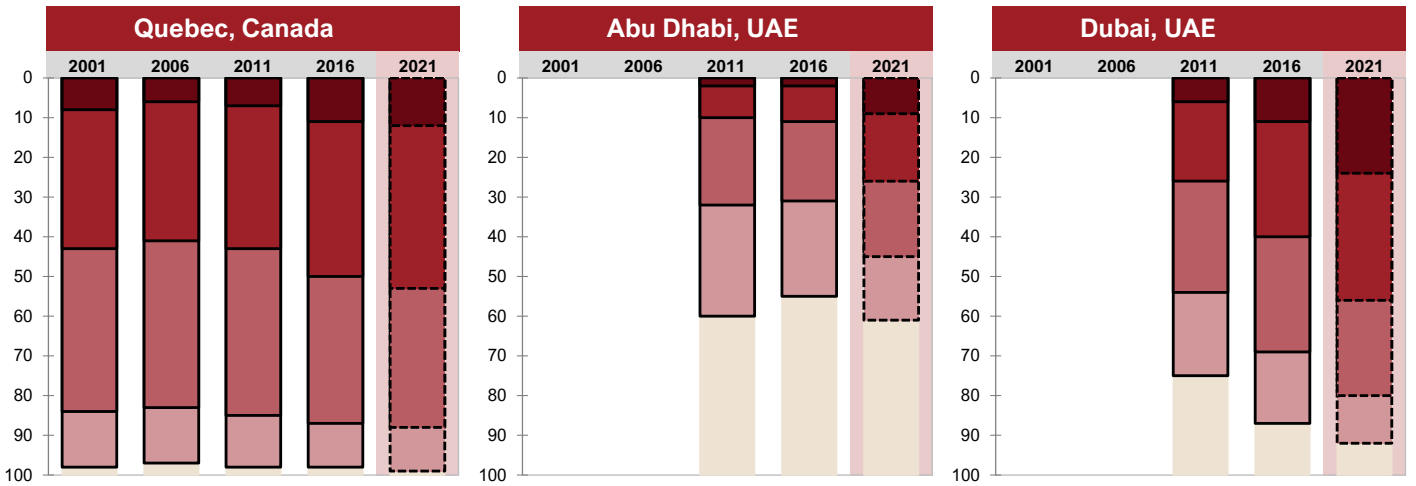
(Continued)

This exhibit displays changes in percentages of students reaching the PIRLS International Benchmarks in each country and benchmarking participant that assessed fourth grade cohort at the beginning of the fifth grade school year and have data from previous assessments. See Appendix A for country participation in previous assessments.





Benchmarking Participants



See Appendix A for country participation in previous PIRLS assessments.

SECTION 5

Home Environment Support

All of the data about Home Environment Support were collected from students' parents via the Home Questionnaire, or "Early Learning Survey." The TIMSS & PIRLS International Study Center conducted a series of analyses to establish that there was little or no discernable impact on the responses to the Home Questionnaire due to COVID-19 or delayed testing. However, throughout PIRLS' history, some countries have struggled to attain high participation rates from parents, and some countries have been unable to administer the Home Questionnaire. To caution readers about low response rates, there are designations in the exhibits. If data were available for less than 40 percent of students in a country, the country is designated with a "y," and the data are not reported. If data were available for 40–50 percent of students, the country is designated with an "x," and the data are reported but do not contribute to the International Average.

Many of the PIRLS 2021 Context Questionnaire items were combined into scales measuring a single underlying latent construct related to reading achievement. This section provides results for four scales: *Home Socioeconomic Status*, *Home Early Literacy Activities Before Primary School*, *Parents Like Reading*, and *Could Do Early Literacy Tasks When Beginning Primary School*.

PIRLS used item response theory (IRT) scaling methods, specifically the Rasch partial credit model (PCM), to place items on a scale and produce scale scores (see Chapter 15 in *Methods and Procedures: PIRLS 2021 Technical Report*). Each context questionnaire scale enabled students to be classified into regions corresponding to high, middle, and low values on the construct. The "About the Scale" tab associated with each exhibit contains the questionnaire items and describes how the three regions reported in the exhibit were defined in terms of combinations of response categories.

Home Socioeconomic Status

The PIRLS 2021 results contribute to the large body of existing research showing a strong positive relationship between students' socioeconomic environment and their educational achievement.

New for PIRLS 2021, the *Home Socioeconomic Status* scale, or "home SES" scale, was adapted from the *Home Resources for Learning* scale reported in previous PIRLS cycles, which combined data from both fourth grade students and their parents. The updated PIRLS 2021 SES scale is based solely on parents' data collected using the PIRLS 2021 Home Questionnaire.

As shown in "About the Scale," the PIRLS 2021 *Home Socioeconomic Status* scale is based on parents' reports of resources within the home, as well as parental self-reports on education and occupation. Based on the scores for the SES scale, students were placed into three regions—"higher," "medium," and "lower" home SES according to their parents' reports.

Exhibit 5.1 presents for each country the percentages of students classified as having a "higher," "middle," or "lower" home SES accompanied by the percentages and average reading achievement of the students in each category. Countries are ordered by the percentage of students with "higher" SES, from highest to lowest.

Internationally, on average, 29 percent of the students were classified as having "higher" home SES, 48 percent with "middle" home SES, and 23 percent with "lower" home SES. Internationally, the results show a large difference of 86 points in average reading achievement between students with "higher" SES and "lower" SES (542 vs. 456). The average reading achievement for students with "middle" SES was 500 scale score points.

Exhibit 5.1: Home Socioeconomic Status

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country		Higher Socioeconomic Status		Middle Socioeconomic Status		Lower Socioeconomic Status		Average Scale Score
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Norway (5)		57 (1.5)	561 (1.9)	37 (1.2)	522 (2.7)	6 (0.5)	492 (4.2)	11.3 (0.06)
Sweden	s	56 (1.2)	580 (3.0)	38 (1.2)	535 (3.1)	6 (0.8)	490 (7.2)	11.3 (0.06)
Denmark		54 (1.2)	562 (2.5)	41 (1.0)	520 (2.7)	5 (0.5)	485 (5.6)	11.2 (0.05)
Finland		50 (1.2)	571 (2.4)	45 (1.1)	538 (2.2)	5 (0.4)	490 (6.9)	11.1 (0.04)
Ireland		49 (1.9)	608 (2.2)	42 (1.6)	564 (2.4)	9 (0.8)	520 (5.5)	11.0 (0.08)
Northern Ireland	s	47 (1.4)	604 (3.4)	41 (1.1)	560 (3.3)	11 (0.8)	521 (5.7)	10.9 (0.06)
Israel ⋈	s	46 (1.7)	549 (2.6)	46 (1.4)	493 (3.6)	9 (0.8)	444 (8.4)	10.8 (0.06)
Germany	s	45 (1.7)	569 (2.9)	45 (1.5)	523 (3.2)	10 (0.8)	478 (5.6)	10.9 (0.07)
Malta	r	45 (1.6)	549 (3.1)	47 (1.2)	509 (3.0)	8 (0.8)	464 (8.1)	10.8 (0.06)
Singapore		45 (0.9)	624 (2.7)	49 (0.9)	572 (3.3)	6 (0.4)	515 (8.2)	10.9 (0.03)
Cyprus		44 (1.3)	545 (3.1)	48 (1.1)	497 (2.8)	8 (0.5)	450 (4.9)	10.8 (0.05)
Slovenia		43 (1.0)	548 (2.0)	49 (0.8)	510 (2.1)	8 (0.5)	470 (4.6)	10.7 (0.04)
Poland		43 (1.5)	576 (2.5)	49 (1.2)	536 (2.5)	9 (0.8)	505 (5.3)	10.8 (0.06)
Belgium (French)	r	42 (1.4)	531 (3.0)	45 (1.2)	482 (3.2)	13 (0.8)	451 (3.6)	10.7 (0.07)
Hungary	r	42 (1.6)	582 (3.4)	42 (1.2)	537 (3.2)	17 (1.3)	462 (6.4)	10.6 (0.08)
Czech Republic		41 (1.3)	574 (2.4)	51 (1.2)	531 (2.3)	8 (0.8)	485 (5.0)	10.8 (0.05)
Austria		41 (1.5)	568 (2.6)	48 (1.3)	517 (2.0)	11 (0.6)	470 (4.2)	10.8 (0.06)
Latvia		39 (1.5)	553 (4.1)	51 (1.4)	521 (3.5)	11 (1.1)	487 (5.9)	10.6 (0.06)
Belgium (Flemish)		38 (1.4)	541 (2.7)	48 (1.0)	504 (2.5)	13 (0.8)	475 (3.8)	10.5 (0.06)
Chinese Taipei		38 (1.3)	569 (1.9)	48 (0.9)	537 (2.4)	14 (0.9)	502 (4.4)	10.5 (0.06)
Spain		38 (1.4)	550 (3.0)	46 (1.1)	514 (2.1)	16 (0.8)	488 (3.9)	10.4 (0.06)
France		37 (1.4)	553 (2.6)	51 (1.2)	505 (2.5)	12 (0.7)	462 (4.9)	10.5 (0.06)
Hong Kong SAR		36 (1.8)	592 (2.5)	46 (1.2)	572 (2.9)	18 (1.2)	545 (4.3)	10.4 (0.08)
Bulgaria		34 (1.3)	589 (2.7)	40 (1.3)	545 (3.1)	25 (1.2)	469 (6.7)	9.9 (0.07)
Georgia		34 (1.2)	521 (3.0)	54 (1.1)	489 (3.0)	12 (0.9)	451 (7.0)	10.5 (0.05)
Slovak Republic		32 (1.4)	566 (2.4)	48 (1.5)	532 (2.7)	20 (1.8)	474 (9.0)	10.1 (0.08)
Russian Federation		31 (1.6)	596 (2.7)	58 (1.6)	561 (4.0)	11 (1.2)	521 (6.8)	10.4 (0.06)
Italy		29 (1.4)	568 (2.8)	50 (1.1)	537 (1.9)	21 (1.2)	504 (3.1)	10.1 (0.06)
Portugal		29 (1.1)	555 (2.8)	47 (0.8)	518 (1.9)	25 (0.9)	488 (3.0)	9.9 (0.05)
Serbia		29 (1.4)	553 (2.7)	49 (1.2)	512 (3.1)	22 (1.6)	469 (5.7)	10.0 (0.07)
Macao SAR		27 (0.6)	557 (2.3)	52 (0.8)	532 (1.5)	21 (0.6)	518 (2.6)	10.0 (0.02)
Croatia		27 (1.3)	590 (2.5)	56 (1.0)	555 (2.6)	17 (1.0)	515 (4.7)	10.1 (0.06)
Montenegro		23 (0.7)	521 (2.6)	56 (0.7)	489 (2.0)	21 (0.6)	448 (2.9)	9.9 (0.03)
United Arab Emirates	s	23 (0.7)	563 (2.9)	64 (0.7)	496 (2.4)	13 (0.5)	408 (4.5)	10.1 (0.03)
Qatar	r	20 (1.5)	539 (5.4)	65 (1.7)	495 (4.6)	15 (1.2)	434 (6.6)	10.0 (0.06)
Bahrain		19 (1.0)	524 (5.4)	57 (1.0)	464 (3.4)	24 (0.8)	408 (5.1)	9.6 (0.04)
North Macedonia		19 (1.5)	491 (5.3)	48 (1.5)	456 (4.3)	33 (2.2)	399 (6.4)	9.4 (0.10)
Kosovo		16 (1.7)	472 (5.6)	48 (1.4)	427 (3.2)	36 (1.7)	392 (3.5)	9.2 (0.09)
Turkiye		15 (1.0)	564 (3.8)	46 (1.3)	516 (2.8)	40 (1.8)	454 (4.7)	9.1 (0.09)
Kazakhstan		11 (0.7)	532 (4.6)	71 (1.0)	505 (2.8)	18 (0.9)	482 (3.9)	9.7 (0.03)
Oman		11 (0.6)	480 (6.1)	61 (1.1)	441 (3.9)	28 (1.1)	387 (5.1)	9.4 (0.04)
Albania		10 (0.8)	574 (4.5)	35 (1.2)	531 (3.4)	56 (1.5)	492 (3.6)	8.4 (0.07)
Saudi Arabia	r	8 (0.6)	489 (6.6)	62 (1.6)	460 (3.3)	30 (1.7)	435 (6.2)	9.2 (0.05)
Azerbaijan		8 (0.7)	486 (6.9)	48 (1.1)	452 (4.1)	44 (1.3)	419 (4.3)	8.9 (0.05)
Iran, Islamic Rep. of ⋈		7 (0.9)	493 (6.2)	37 (1.4)	445 (3.8)	55 (1.8)	381 (5.8)	8.4 (0.08)
Uzbekistan		6 (0.6)	474 (5.9)	55 (1.2)	445 (2.9)	39 (1.5)	421 (3.3)	8.9 (0.05)
Brazil ⋈		5 (0.6)	546 (10.1)	31 (1.2)	474 (5.0)	64 (1.4)	390 (6.5)	8.1 (0.07)
South Africa ⋈	r	5 (0.6)	445 (16.0)	34 (1.0)	334 (6.8)	61 (1.1)	265 (4.2)	8.2 (0.05)
Jordan		4 (0.6)	457 (12.8)	48 (1.4)	403 (5.7)	47 (1.5)	352 (6.3)	8.6 (0.05)
Egypt		4 (0.4)	415 (13.2)	42 (1.4)	398 (5.0)	54 (1.5)	365 (7.0)	8.4 (0.05)
Morocco		3 (0.3)	426 (18.4)	22 (1.0)	401 (5.6)	76 (1.0)	364 (5.1)	7.1 (0.06)
International Average		**29 (0.2)**	**542 (0.8)**	**48 (0.2)**	**500 (0.5)**	**23 (0.2)**	**456 (0.8)**	
New Zealand	x	55 (1.5)	566 (3.2)	38 (1.4)	516 (4.5)	7 (0.7)	482 (7.5)	11.3 (0.06)
Netherlands	x	49 (1.5)	559 (3.0)	43 (1.4)	530 (3.5)	7 (0.8)	497 (6.8)	11.0 (0.06)
Lithuania	y	- -	- -	- -	- -	- -	- -	- -
Australia ⋈		- -	- -	- -	- -	- -	- -	- -
England ⋈		- -	- -	- -	- -	- -	- -	- -
United States		- -	- -	- -	- -	- -	- -	- -
Benchmarking Participants								
Moscow City, Russian Federation		63 (1.3)	609 (2.1)	35 (1.2)	581 (2.4)	2 ~	~ ~	11.6 (0.05)
Newfoundland & Labrador, Canada	s	58 (2.1)	548 (4.5)	40 (2.1)	514 (4.0)	2 ~	~ ~	11.4 (0.06)
British Columbia, Canada	s	56 (2.5)	569 (4.2)	40 (2.0)	540 (4.0)	4 (1.0)	507 (11.0)	11.4 (0.10)
Alberta, Canada	s	52 (2.0)	575 (3.0)	45 (1.8)	543 (3.9)	3 (0.5)	500 (17.3)	11.2 (0.08)
Quebec, Canada	r	50 (1.9)	574 (3.5)	46 (1.6)	548 (3.5)	4 (0.5)	526 (7.5)	11.1 (0.06)
Abu Dhabi, UAE	s	22 (0.9)	542 (5.2)	63 (0.9)	467 (4.1)	15 (0.7)	357 (7.3)	10.0 (0.03)
South Africa (6) ⋈		5 (0.6)	488 (17.3)	37 (1.0)	425 (5.9)	58 (1.2)	359 (4.8)	8.3 (0.05)
Dubai, UAE	x	38 (1.1)	607 (2.7)	55 (1.1)	551 (3.0)	7 (0.4)	456 (5.8)	10.7 (0.03)

This PIRLS context questionnaire scale was established in 2021 based on the combined response distribution of PIRLS 2021 participating countries that assessed fourth grade students at the end of the school year in 2020 or 2021. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit 5.1: Home Socioeconomic Status

Students' Results based on Parents' Reports

About the Scale

Students were scored according to their parents' reports regarding the four indicators on the *Home Socioeconomic Status* scale. Cut scores divide the scale into three categories. Students with **Higher** socioeconomic status had a score at or above the cut score corresponding to their parents reporting they had more than 25 books and more than 25 children's books in their home, that at least one parent finished university, and that at least one parent had a professional occupation, on average. Students with **Lower** socioeconomic status had a score at or below the cut score corresponding to their parents reporting they had 25 or fewer books and 25 or fewer children's books in the home, that neither parent had gone beyond upper secondary education, and that neither parent was a small business owner or worked in a clerical or professional occupation, on average. All other students had **Middle** socioeconomic status.

Number of books in the home:
1) 0–10
2) 11–25
3) 26–100
4) 101–200
5) More than 200

Number of children's books in the home:
1) 0–10
2) 11–25
3) 26–50
4) 51–100
5) More than 100

Highest level of education of either parent:
1) Finished some primary or lower secondary or did not go to school
2) Finished lower secondary
3) Finished upper secondary
4) Finished post-secondary education
5) Finished university or higher

Highest level of occupation of either parent:
1) Has never worked outside home for pay, general laborer, or semi-professional (skilled agricultural or fishery worker, craft or trade worker, plant or machine operator)
2) Clerical (clerk or service or sales worker)
3) Small business owner
4) Professional (corporate manager or senior official, professional, or technician or associate professional)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Home Early Literacy Activities Before Primary School

The *Home Early Literacy Activities Before Primary School* scale is based on parents' reports of how often they engaged their child in nine early literacy activities before primary school (see "About the Scale"). Based on the scale response categories and IRT scores, students in the "often" category had parents that frequently engaged them in such activities as reading books, telling stories, talking with them, playing word games, or writing. In comparison, students whose parents reported doing these activities never or only sometimes were placed in the "never or almost never" category. All of the other students "sometimes" were engaged in early literacy activities.

Exhibit 5.2 presents the percentages of students in each participating country whose parents reported they engaged their children in these activities "often," "sometimes," or "never or almost never" together with the students' average reading achievement for each of the three categories. Countries are ordered by the percentage of students whose parents engaged them in these activities "often."

Internationally on average, 42 percent of students had parents that engaged them in these early literacy activities "often" and another 55 percent were engaged in the activities "sometimes." Only a very small percentage of students (3% on average) were "never or almost never" engaged in these activities. Engaging more frequently in literacy activities with young children appears to have a considerable impact on their reading achievement at the fourth grade. Average reading achievement was highest (517) for students whose parents "often" engaged them in these activities and noticeably lower (494) for students whose parents only "sometimes" engaged them in these activities. The average achievement was much lower (418) for the small percentage of students whose parents "never or almost never" engaged them in early literacy activities.

Exhibit 5.2: Home Early Literacy Activities Before Primary School

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Often		Sometimes		Never or Almost Never		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Kazakhstan	66 (0.9)	510 (2.7)	34 (0.9)	496 (3.6)	0 ~	~ ~	11.3 (0.04)
Russian Federation	64 (1.3)	573 (3.1)	35 (1.2)	558 (4.9)	1 ~	~ ~	11.3 (0.07)
Northern Ireland s	64 (0.9)	584 (3.2)	35 (0.9)	565 (3.9)	1 ~	~ ~	11.5 (0.04)
Georgia	59 (1.1)	501 (2.8)	40 (1.1)	489 (3.1)	1 ~	~ ~	11.0 (0.05)
Croatia	58 (1.1)	569 (2.8)	42 (1.1)	543 (3.0)	0 ~	~ ~	11.0 (0.05)
Malta r	57 (1.2)	532 (3.5)	42 (1.2)	512 (2.9)	0 ~	~ ~	11.1 (0.05)
Albania	57 (1.5)	528 (3.5)	41 (1.4)	498 (4.0)	2 ~	~ ~	10.9 (0.08)
Uzbekistan	57 (1.7)	445 (3.1)	43 (1.7)	427 (3.4)	0 ~	~ ~	10.8 (0.06)
Ireland	56 (1.1)	592 (2.6)	43 (1.0)	569 (2.8)	1 ~	~ ~	11.0 (0.05)
Kosovo	55 (1.3)	434 (3.8)	44 (1.3)	410 (3.4)	1 ~	~ ~	10.8 (0.04)
Montenegro	55 (0.9)	499 (2.0)	45 (0.9)	474 (2.0)	0 ~	~ ~	10.9 (0.03)
North Macedonia	55 (1.2)	455 (5.1)	43 (1.2)	435 (6.0)	2 ~	~ ~	10.9 (0.09)
Serbia	54 (1.2)	525 (3.5)	46 (1.2)	503 (3.2)	0 ~	~ ~	10.8 (0.05)
Poland	53 (0.9)	559 (2.5)	47 (1.0)	541 (2.8)	0 ~	~ ~	10.8 (0.04)
Spain	52 (0.8)	535 (2.1)	47 (0.8)	510 (2.8)	1 ~	~ ~	10.7 (0.03)
Italy	52 (0.9)	547 (2.5)	47 (0.9)	531 (2.4)	1 ~	~ ~	10.7 (0.03)
Cyprus	51 (0.6)	527 (3.1)	48 (0.7)	501 (3.2)	1 ~	~ ~	10.7 (0.03)
Slovak Republic	49 (1.1)	541 (2.9)	49 (1.2)	527 (3.4)	2 ~	~ ~	10.5 (0.07)
Slovenia	49 (1.0)	531 (2.4)	51 (1.0)	516 (2.2)	1 ~	~ ~	10.6 (0.04)
Latvia	48 (1.1)	538 (3.2)	51 (1.1)	522 (3.4)	1 ~	~ ~	10.5 (0.04)
Israel ⋈ s	47 (1.0)	527 (2.8)	52 (1.0)	504 (3.5)	1 ~	~ ~	10.6 (0.04)
Hungary r	47 (1.0)	551 (4.1)	52 (1.0)	538 (4.2)	1 ~	~ ~	10.5 (0.03)
Czech Republic	46 (0.8)	550 (2.7)	54 (0.8)	541 (2.3)	0 ~	~ ~	10.5 (0.03)
United Arab Emirates s	42 (0.7)	522 (2.8)	56 (0.7)	483 (2.4)	2 ~	~ ~	10.3 (0.03)
Bulgaria	41 (1.1)	569 (2.8)	50 (1.1)	531 (3.8)	9 (1.2)	457 (9.3)	9.9 (0.09)
France	41 (0.9)	531 (2.7)	57 (0.9)	510 (2.8)	2 ~	~ ~	10.2 (0.04)
Denmark	41 (0.9)	551 (2.6)	58 (0.9)	534 (2.5)	1 ~	~ ~	10.3 (0.04)
Germany s	40 (1.1)	548 (3.5)	59 (1.1)	535 (3.1)	1 ~	~ ~	10.3 (0.04)
Norway (5)	39 (0.7)	556 (2.5)	59 (0.7)	535 (2.1)	1 ~	~ ~	10.2 (0.03)
Saudi Arabia r	39 (1.0)	463 (4.5)	58 (1.1)	448 (3.8)	3 (0.4)	462 (12.1)	10.2 (0.05)
South Africa ⋈ r	38 (0.9)	319 (5.8)	58 (0.8)	284 (5.3)	4 (0.5)	233 (11.1)	10.1 (0.05)
Bahrain	38 (0.7)	489 (3.6)	60 (0.7)	447 (3.3)	2 ~	~ ~	10.1 (0.03)
Sweden s	38 (1.1)	569 (3.3)	61 (1.1)	551 (3.0)	1 ~	~ ~	10.2 (0.04)
Austria	37 (0.9)	547 (2.7)	61 (0.9)	525 (2.4)	1 ~	~ ~	10.1 (0.04)
Portugal	37 (0.9)	536 (2.4)	62 (0.9)	514 (2.2)	1 ~	~ ~	10.1 (0.03)
Azerbaijan	36 (1.0)	459 (4.4)	62 (1.0)	431 (4.0)	2 ~	~ ~	10.1 (0.05)
Singapore	35 (0.8)	613 (2.8)	62 (0.8)	582 (3.5)	4 (0.3)	553 (7.3)	10.0 (0.04)
Oman	34 (1.0)	456 (4.7)	65 (1.0)	420 (3.8)	2 ~	~ ~	10.0 (0.04)
Qatar r	33 (1.0)	513 (5.3)	65 (1.0)	488 (4.4)	2 ~	~ ~	9.9 (0.04)
Finland	33 (0.7)	565 (2.4)	66 (0.7)	547 (2.5)	1 ~	~ ~	10.0 (0.02)
Turkiye	31 (1.1)	532 (3.7)	57 (1.2)	497 (3.1)	13 (1.6)	422 (6.7)	9.3 (0.12)
Belgium (French) r	30 (1.0)	514 (3.2)	67 (1.0)	494 (3.2)	2 ~	~ ~	9.8 (0.04)
Brazil ⋈	30 (1.0)	456 (5.2)	63 (1.2)	417 (5.2)	7 (0.9)	361 (23.4)	9.6 (0.06)
Jordan	29 (1.0)	406 (5.5)	66 (0.9)	375 (6.3)	5 (0.6)	331 (11.4)	9.6 (0.06)
Belgium (Flemish)	27 (0.8)	525 (2.8)	71 (0.9)	511 (2.5)	2 ~	~ ~	9.6 (0.04)
Egypt	27 (1.3)	400 (7.0)	67 (1.3)	377 (5.3)	7 (0.7)	348 (13.0)	9.4 (0.07)
Iran, Islamic Rep. of ⋈	24 (1.1)	434 (5.2)	71 (1.2)	412 (4.9)	5 (0.9)	338 (21.3)	9.4 (0.07)
Chinese Taipei	18 (0.5)	567 (3.0)	76 (0.6)	541 (2.2)	6 (0.4)	514 (5.8)	9.1 (0.03)
Hong Kong SAR	16 (0.8)	591 (3.4)	81 (0.8)	571 (2.8)	3 (0.3)	560 (7.3)	9.2 (0.04)
Morocco	13 (0.7)	410 (5.6)	67 (1.4)	377 (5.3)	19 (1.6)	333 (7.3)	8.2 (0.10)
Macao SAR	10 (0.4)	547 (3.1)	85 (0.4)	535 (1.4)	5 (0.3)	523 (6.1)	8.7 (0.02)
International Average	**42 (0.1)**	**517 (0.5)**	**55 (0.1)**	**494 (0.5)**	**3 (0.1)**	**418 (3.4)**	
New Zealand x	59 (1.1)	556 (3.7)	40 (1.1)	523 (4.2)	1 ~	~ ~	11.2 (0.05)
Netherlands x	39 (1.3)	549 (3.3)	60 (1.4)	539 (3.3)	1 ~	~ ~	10.2 (0.05)
Lithuania y	- -	- -	- -	- -	- -	- -	- -
Australia ⋈	- -	- -	- -	- -	- -	- -	- -
England ⋈	- -	- -	- -	- -	- -	- -	- -
United States	- -	- -	- -	- -	- -	- -	- -
Benchmarking Participants							
Moscow City, Russian Federation	71 (0.7)	602 (2.1)	28 (0.7)	591 (2.6)	0 ~	~ ~	11.6 (0.03)
Newfoundland & Labrador, Canada s	69 (1.3)	542 (3.8)	30 (1.3)	517 (5.5)	0 ~	~ ~	11.8 (0.07)
Alberta, Canada s	57 (1.7)	564 (3.6)	43 (1.6)	550 (4.3)	1 ~	~ ~	11.0 (0.07)
British Columbia, Canada s	55 (1.5)	563 (4.1)	44 (1.4)	545 (4.1)	1 ~	~ ~	11.0 (0.07)
Quebec, Canada r	47 (0.9)	566 (3.2)	53 (0.9)	554 (3.4)	1 ~	~ ~	10.5 (0.04)
Abu Dhabi, UAE s	38 (0.9)	494 (4.1)	60 (0.9)	452 (3.9)	3 (0.3)	371 (18.2)	10.1 (0.04)
South Africa (6) ⋈ r	32 (1.3)	419 (6.5)	63 (1.3)	379 (5.3)	4 (0.5)	359 (17.5)	9.8 (0.07)
Dubai, UAE x	47 (1.0)	583 (2.6)	52 (1.0)	550 (2.7)	1 ~	~ ~	10.5 (0.04)

This PIRLS context questionnaire scale was established in 2011 based on the combined response distribution of countries that participated in PIRLS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

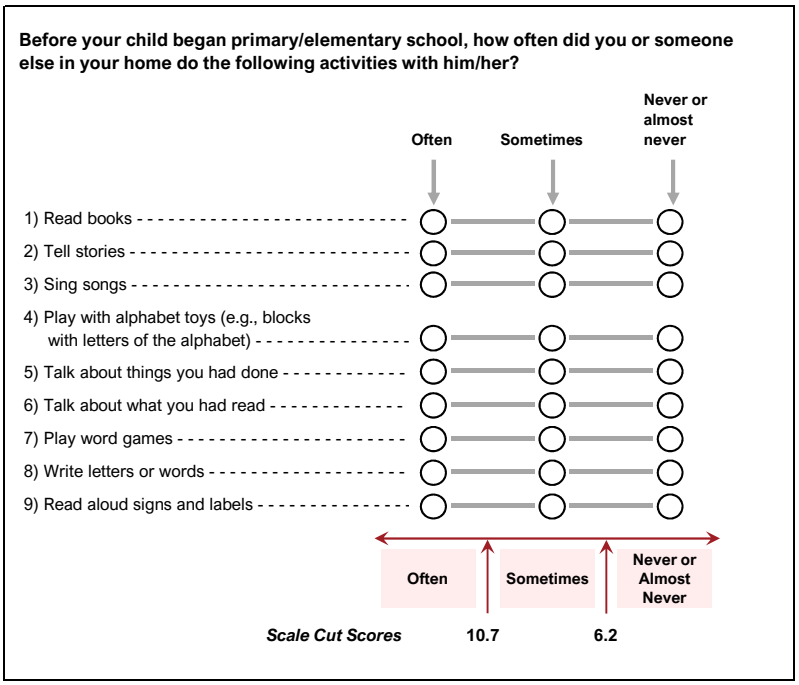
A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit 5.2: Home Early Literacy Activities Before Primary School

Students' Results based on Parents' Reports

About the Scale

Students were scored according to their parents' reports regarding the frequency they or someone in the home engaged their children in the nine activities on the *Early Literacy Activities* scale. Cut scores divide the scale into three categories. Students who **Often** engaged in early literacy activities before primary school had a score at or above the cut score corresponding to their parents reporting they "often" did five of the nine activities and "sometimes" did the other four, on average. Students who **Never or Almost Never** engaged in early literacy activities before primary school had a score at or below the cut score corresponding to their parents reporting they "never or almost never" did five of the nine activities and "sometimes" did the other four, on average. All other students **Sometimes** engaged in early literacy activities before primary school.



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Parents Like Reading

Young students who see adults and older children reading or using texts in a variety of different ways can learn to model these behaviors. In PIRLS 2021, students whose parents reported liking to read had higher average reading achievement than students whose parents were more ambivalent about reading.

The *Parents Like Reading* scale is based on parents' degree of agreement with a series of eight statements about reading enjoyment (such as "I like to spend my spare time reading." and "I would like to have more time for reading."), as well as their reports of how often they read for enjoyment (for further information see "About the Scale"). Based on their parents' responses, students were placed in three regions of the scale: "very much like," "somewhat like," or "do not like."

Exhibit 5.3 presents the percentages and average reading achievement of students whose parents reported that they "very much like," "somewhat like," or "do not like" reading. Countries are ordered according to the percentage of students whose parents "very much like" reading, from highest to lowest.

The results indicate a positive association between parents' liking to read and their children having higher reading achievement at the fourth grade. Across the PIRLS 2021 countries, on average, 30 percent of students whose parents "very much like" reading had higher average achievement than the 52 percent of the students whose parents only "somewhat like" reading (524 vs. 497, respectively). In turn, 17 percent of students whose parents "do not like" reading had the lowest average reading achievement (478).

Exhibit 5.3: Parents Like Reading

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Very Much Like Reading		Somewhat Like Reading		Do Not Like Reading		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Serbia	51 (1.2)	532 (3.0)	39 (1.1)	497 (3.6)	10 (1.0)	492 (6.5)	10.4 (0.05)
Montenegro	51 (0.8)	505 (2.1)	43 (0.7)	472 (2.3)	6 (0.4)	455 (5.4)	10.5 (0.03)
Azerbaijan	46 (1.1)	451 (4.2)	46 (1.1)	437 (4.5)	8 (0.6)	409 (7.6)	10.4 (0.04)
Georgia	44 (1.0)	511 (3.0)	50 (1.0)	486 (3.0)	6 (0.6)	471 (12.9)	10.2 (0.04)
Kosovo	42 (1.3)	441 (3.7)	53 (1.2)	410 (3.6)	5 (0.6)	385 (7.6)	10.3 (0.04)
Ireland	42 (1.2)	599 (2.7)	42 (1.1)	574 (2.8)	16 (0.7)	555 (3.8)	10.0 (0.05)
Italy	41 (1.0)	553 (2.6)	45 (0.8)	531 (2.4)	13 (0.6)	520 (3.2)	10.1 (0.04)
North Macedonia	41 (1.2)	467 (4.7)	49 (1.1)	432 (5.5)	10 (1.0)	406 (10.2)	10.1 (0.08)
Bulgaria	41 (1.3)	570 (3.2)	41 (1.2)	537 (4.0)	18 (1.4)	481 (7.0)	9.8 (0.07)
Spain	40 (0.9)	540 (2.7)	44 (0.8)	517 (2.4)	16 (0.6)	498 (3.3)	10.0 (0.03)
Uzbekistan	39 (1.4)	449 (3.1)	57 (1.3)	431 (3.2)	4 (0.3)	404 (8.8)	10.3 (0.04)
Northern Ireland s	39 (1.1)	595 (3.9)	42 (1.2)	569 (4.0)	19 (0.9)	556 (5.0)	9.8 (0.05)
Denmark	39 (1.0)	557 (2.6)	42 (0.9)	539 (2.6)	19 (0.7)	514 (3.4)	9.8 (0.04)
Finland	38 (0.8)	573 (2.6)	44 (0.8)	547 (2.6)	18 (0.8)	522 (3.2)	9.9 (0.04)
Malta r	37 (1.0)	539 (3.7)	47 (1.0)	515 (2.7)	15 (0.9)	514 (4.8)	9.8 (0.04)
Cyprus	37 (0.8)	535 (3.5)	49 (0.9)	505 (2.9)	14 (0.6)	491 (4.2)	9.9 (0.03)
Poland	36 (1.1)	566 (3.1)	47 (1.0)	546 (2.2)	17 (0.9)	529 (4.8)	9.8 (0.05)
Austria	36 (1.1)	559 (2.5)	44 (1.1)	524 (2.6)	20 (0.8)	504 (3.4)	9.7 (0.05)
Albania	35 (1.4)	535 (3.6)	56 (1.3)	504 (3.5)	9 (1.2)	493 (7.6)	10.0 (0.05)
Sweden s	34 (1.2)	575 (3.7)	50 (1.1)	551 (3.6)	16 (0.8)	541 (4.0)	9.7 (0.04)
Germany s	33 (1.0)	562 (3.4)	47 (1.0)	540 (3.4)	20 (0.9)	504 (4.6)	9.6 (0.04)
Czech Republic	33 (0.9)	564 (2.9)	45 (0.8)	543 (2.8)	22 (0.7)	522 (3.1)	9.6 (0.04)
Norway (5)	32 (1.0)	560 (2.4)	48 (0.9)	540 (2.5)	19 (0.8)	520 (2.7)	9.6 (0.04)
Slovak Republic	32 (1.0)	554 (3.1)	47 (1.3)	528 (3.1)	21 (1.6)	504 (6.6)	9.5 (0.09)
Israel ⋈ s	32 (1.0)	542 (3.6)	51 (1.1)	503 (3.4)	17 (0.8)	497 (4.9)	9.7 (0.04)
Turkiye	31 (1.2)	531 (3.2)	48 (1.4)	497 (3.4)	21 (1.8)	453 (6.4)	9.5 (0.09)
Hungary r	30 (0.9)	569 (3.6)	50 (1.0)	541 (4.3)	20 (1.0)	509 (6.0)	9.5 (0.04)
Portugal	30 (0.9)	543 (2.2)	52 (0.8)	516 (2.4)	18 (0.6)	501 (3.5)	9.6 (0.03)
Belgium (French) r	28 (0.9)	529 (3.6)	48 (1.1)	496 (3.2)	24 (1.0)	470 (3.4)	9.3 (0.04)
Belgium (Flemish)	27 (1.0)	535 (2.6)	46 (0.9)	513 (2.8)	27 (0.9)	498 (2.9)	9.2 (0.05)
Bahrain	27 (0.8)	488 (4.3)	60 (0.9)	458 (3.4)	14 (0.5)	427 (4.7)	9.6 (0.02)
Croatia	26 (1.3)	575 (3.3)	56 (1.0)	557 (2.8)	18 (1.2)	535 (4.0)	9.5 (0.05)
Slovenia	26 (0.8)	544 (2.8)	57 (0.7)	520 (1.9)	17 (0.7)	501 (3.2)	9.4 (0.03)
Latvia	24 (0.9)	553 (3.4)	54 (0.9)	529 (3.0)	22 (0.9)	507 (4.9)	9.3 (0.04)
South Africa ⋈ r	24 (0.8)	342 (6.8)	62 (0.8)	283 (4.8)	15 (0.5)	270 (9.4)	9.6 (0.03)
Iran, Islamic Rep. of ⋈	24 (1.0)	449 (4.4)	62 (0.9)	405 (5.5)	14 (0.8)	385 (7.0)	9.5 (0.04)
Saudi Arabia r	23 (0.8)	469 (4.6)	62 (1.0)	451 (3.8)	15 (0.8)	448 (5.7)	9.5 (0.04)
Qatar r	22 (0.9)	512 (5.6)	63 (1.2)	491 (4.7)	15 (0.9)	485 (6.2)	9.4 (0.03)
France	22 (0.8)	546 (3.1)	57 (0.9)	514 (2.8)	21 (0.7)	500 (3.4)	9.3 (0.03)
Oman	22 (0.9)	451 (6.0)	68 (1.0)	428 (3.8)	10 (0.6)	407 (8.7)	9.5 (0.03)
United Arab Emirates s	21 (0.5)	534 (4.0)	65 (0.6)	491 (2.5)	13 (0.4)	488 (3.7)	9.5 (0.01)
Russian Federation	21 (0.9)	587 (2.8)	58 (1.1)	566 (4.3)	21 (0.9)	550 (4.6)	9.2 (0.04)
Singapore	21 (0.6)	622 (3.4)	57 (0.7)	589 (3.2)	23 (0.6)	571 (3.8)	9.2 (0.03)
Morocco	20 (1.1)	410 (5.0)	53 (1.7)	377 (5.6)	27 (2.1)	338 (6.5)	9.1 (0.07)
Brazil ⋈	19 (0.9)	456 (7.5)	51 (0.8)	423 (5.8)	29 (1.1)	401 (8.2)	9.0 (0.04)
Macao SAR	17 (0.6)	551 (2.5)	61 (0.7)	535 (1.6)	22 (0.6)	526 (2.2)	9.1 (0.02)
Kazakhstan	17 (0.7)	527 (3.8)	70 (0.7)	501 (2.7)	13 (0.6)	493 (4.6)	9.4 (0.03)
Chinese Taipei	15 (0.6)	564 (3.3)	62 (0.8)	545 (2.2)	23 (0.8)	528 (3.3)	9.1 (0.03)
Jordan	15 (0.9)	416 (6.4)	62 (1.2)	382 (5.8)	23 (1.2)	358 (8.2)	9.1 (0.04)
Hong Kong SAR	14 (0.8)	592 (3.7)	63 (0.9)	573 (2.7)	24 (0.7)	567 (3.8)	9.0 (0.03)
Egypt	14 (0.7)	416 (7.4)	60 (1.4)	379 (5.7)	27 (1.5)	367 (7.7)	8.9 (0.04)
International Average	**30 (0.1)**	**524 (0.5)**	**52 (0.1)**	**497 (0.5)**	**17 (0.1)**	**478 (0.8)**	
New Zealand x	44 (1.4)	563 (3.4)	40 (1.2)	532 (4.5)	17 (0.8)	508 (5.7)	10.0 (0.06)
Netherlands x	39 (1.2)	557 (3.3)	41 (1.3)	541 (3.6)	21 (1.2)	516 (4.5)	9.6 (0.06)
Lithuania y	- -	- -	- -	- -	- -	- -	- -
Australia ⋈	- -	- -	- -	- -	- -	- -	- -
England ⋈	- -	- -	- -	- -	- -	- -	- -
United States	- -	- -	- -	- -	- -	- -	- -
Benchmarking Participants							
Alberta, Canada s	40 (2.0)	573 (4.1)	44 (1.7)	551 (3.8)	15 (1.1)	540 (7.3)	10.0 (0.08)
British Columbia, Canada s	38 (1.7)	572 (3.8)	46 (1.2)	549 (4.7)	16 (1.3)	534 (5.4)	9.9 (0.07)
Newfoundland & Labrador, Canada s	38 (1.4)	549 (3.7)	45 (1.4)	529 (4.7)	18 (1.0)	515 (6.5)	9.9 (0.06)
Moscow City, Russian Federation	32 (0.8)	612 (2.1)	54 (0.7)	595 (2.3)	14 (0.7)	579 (3.9)	9.8 (0.03)
Quebec, Canada r	30 (1.3)	576 (4.1)	48 (1.0)	558 (3.0)	22 (1.1)	543 (3.7)	9.4 (0.06)
South Africa (6) ⋈ r	22 (0.8)	436 (6.6)	62 (0.8)	380 (5.1)	16 (0.7)	366 (6.1)	9.5 (0.04)
Abu Dhabi, UAE s	20 (0.7)	513 (6.1)	66 (1.0)	457 (4.1)	14 (0.6)	450 (6.7)	9.4 (0.02)
Dubai, UAE x	26 (0.8)	594 (3.6)	60 (1.0)	555 (2.8)	14 (0.8)	555 (5.6)	9.6 (0.03)

This PIRLS context questionnaire scale was established in 2011 based on the combined response distribution of countries that participated in PIRLS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

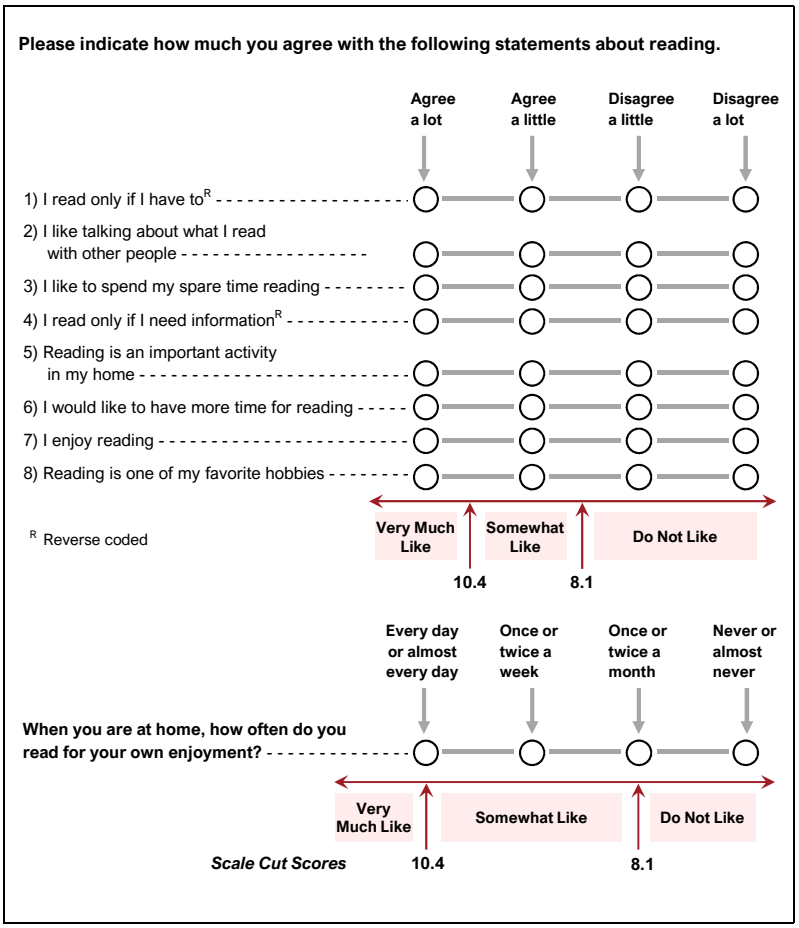
A dash (-) indicates comparable data not available.

Exhibit 5.3: Parents Like Reading

Students' Results based on Parents' Reports

About the Scale

Students were scored on the *Parents Like Reading* scale according to their parents' responses to eight statements about reading as well as how often they read for enjoyment. Cut scores divide the scale into three categories. Students whose parents **Very Much Like Reading** had a score at or above the cut score corresponding to their parents "agreeing a lot" with four of the eight statements and "agreeing a little" with the other four, as well as reading for enjoyment "every day or almost every day," on average. Students whose parents **Do Not Like Reading** had a score at or below the cut score corresponding to their parents "disagreeing a little" with four of the eight statements and "agreeing a little" with the other four, as well as reading for enjoyment only "once or twice a month," on average. All other students had parents who **Somewhat Like Reading**.



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Could Do Early Literacy Tasks When Beginning Primary School

The *Could Do Early Literacy Tasks When Beginning Primary School* scale is based on parents' reports of how well their child could do six literacy tasks when their child began the first grade of primary school. For example, parents were asked how well their children could read sentences, read stories, or write words. Consistent with existing research, the PIRLS 2021 results show that students with an early start in literacy learning had higher average reading achievement at the fourth grade.

Exhibit 5.4 presents the percentages of students who could do early literacy tasks "very well," "moderately well," and "not well" when they began the first grade of primary school based on their parents' reports, together with the students' average reading achievement. Countries are listed in descending order by the percentage of students who could do the tasks "very well."

Across countries, on average, similar percentages of students could do the early literacy tasks "very well" (32%), "moderately well" (35%), or "not well" (34%) before beginning primary school. Literacy readiness when beginning primary school was associated with higher reading achievement at the fourth grade. On average, students who could do the early literacy tasks "very well" when they began primary school had higher average reading achievement at fourth grade (524) than students who could do the early literacy tasks "moderately well" (498). The students in the "not well" category had the lowest average achievement (475).

Exhibit 5.4: Could Do Early Literacy Tasks When Beginning Primary School

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Very Well		Moderately Well		Not Well		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Ireland	60 (1.0)	602 (2.5)	30 (0.8)	561 (3.6)	10 (0.6)	521 (5.3)	11.9 (0.04)
United Arab Emirates s	56 (0.7)	523 (2.3)	31 (0.5)	482 (3.1)	13 (0.4)	440 (4.5)	11.7 (0.03)
Bahrain	54 (0.8)	484 (3.0)	31 (0.7)	452 (3.7)	15 (0.5)	402 (7.1)	11.5 (0.03)
Oman	53 (1.0)	457 (3.7)	34 (0.8)	413 (5.1)	13 (0.7)	370 (6.4)	11.5 (0.04)
Singapore	52 (1.1)	619 (2.3)	37 (0.8)	575 (3.5)	11 (0.6)	514 (5.7)	11.7 (0.04)
Uzbekistan	51 (1.3)	451 (2.9)	35 (0.9)	427 (3.6)	14 (0.9)	415 (5.1)	11.4 (0.06)
Qatar r	50 (1.3)	513 (5.1)	35 (1.0)	489 (4.8)	15 (0.8)	451 (7.4)	11.4 (0.05)
Kazakhstan	49 (1.0)	514 (3.2)	34 (0.7)	501 (3.1)	17 (0.7)	492 (4.6)	11.3 (0.04)
Saudi Arabia r	48 (1.0)	464 (4.0)	34 (1.0)	449 (4.3)	18 (0.8)	439 (5.3)	11.3 (0.04)
Poland	47 (1.0)	570 (2.4)	35 (1.1)	541 (2.9)	17 (0.9)	518 (4.9)	11.3 (0.03)
Albania	47 (1.7)	532 (3.2)	33 (1.2)	503 (4.3)	20 (1.6)	491 (6.1)	11.1 (0.08)
Hong Kong SAR	46 (1.1)	596 (2.5)	43 (0.9)	565 (2.8)	11 (0.6)	525 (5.2)	11.4 (0.04)
Croatia	44 (1.2)	580 (2.6)	37 (1.2)	546 (3.0)	18 (1.0)	528 (3.6)	11.1 (0.04)
Spain	43 (0.9)	547 (2.4)	37 (0.8)	515 (2.6)	20 (0.9)	485 (2.9)	11.1 (0.04)
Jordan	42 (1.3)	417 (5.4)	36 (1.1)	370 (6.2)	23 (1.2)	337 (8.6)	11.0 (0.07)
Latvia	41 (1.1)	562 (2.7)	39 (1.1)	520 (3.7)	20 (0.9)	483 (5.6)	11.1 (0.04)
Kosovo	41 (1.2)	434 (3.3)	39 (1.1)	420 (4.1)	19 (0.9)	406 (4.8)	11.1 (0.05)
Egypt	38 (1.7)	402 (5.5)	40 (1.4)	374 (6.1)	22 (1.4)	359 (8.6)	10.8 (0.07)
Israel ⋈ s	35 (1.1)	521 (3.9)	34 (0.8)	513 (3.6)	30 (1.0)	510 (3.7)	10.6 (0.05)
Serbia	35 (1.1)	539 (3.6)	41 (1.0)	508 (3.2)	24 (1.1)	492 (4.3)	10.7 (0.05)
South Africa ⋈ r	33 (0.9)	329 (6.0)	40 (0.8)	304 (5.9)	27 (0.8)	248 (5.8)	10.7 (0.04)
Cyprus	32 (0.6)	537 (3.3)	35 (0.6)	511 (2.8)	33 (0.7)	496 (4.0)	10.5 (0.03)
Azerbaijan r	32 (1.1)	466 (4.5)	36 (1.0)	444 (4.9)	32 (1.2)	418 (4.7)	10.4 (0.06)
Sweden s	31 (1.0)	588 (3.7)	38 (0.9)	556 (3.5)	31 (1.2)	529 (3.5)	10.6 (0.05)
Chinese Taipei	31 (0.7)	570 (2.1)	50 (0.8)	543 (2.5)	19 (0.6)	508 (3.8)	10.9 (0.02)
Morocco	30 (1.3)	421 (6.1)	35 (1.3)	369 (4.6)	35 (1.8)	338 (6.7)	10.1 (0.12)
Denmark	28 (0.8)	572 (2.9)	41 (0.8)	541 (2.6)	31 (0.8)	514 (2.9)	10.5 (0.03)
Russian Federation	28 (1.3)	594 (3.4)	37 (1.1)	569 (4.7)	35 (1.8)	545 (4.9)	10.3 (0.09)
Finland	28 (0.6)	587 (2.5)	29 (0.7)	553 (2.9)	44 (0.8)	530 (2.6)	10.2 (0.03)
North Macedonia	28 (1.1)	453 (7.1)	38 (1.3)	452 (5.5)	34 (1.3)	434 (6.0)	10.3 (0.06)
Malta r	27 (1.0)	548 (4.1)	39 (1.0)	526 (3.7)	34 (1.2)	502 (3.4)	10.3 (0.05)
Georgia	26 (1.1)	513 (3.5)	31 (0.8)	499 (3.0)	43 (1.3)	488 (3.4)	9.9 (0.06)
Bulgaria	25 (0.9)	574 (4.3)	33 (1.1)	557 (3.4)	42 (1.4)	509 (4.3)	9.9 (0.09)
Iran, Islamic Rep. of ⋈	25 (1.0)	435 (5.4)	35 (1.0)	411 (5.1)	40 (1.2)	403 (6.7)	10.0 (0.06)
Brazil ⋈	24 (1.0)	475 (7.1)	34 (1.0)	441 (5.9)	42 (1.0)	385 (7.6)	10.0 (0.05)
Montenegro	23 (0.7)	512 (2.7)	38 (0.7)	490 (2.5)	39 (0.8)	473 (2.3)	10.0 (0.03)
Macao SAR	23 (0.6)	565 (2.3)	53 (0.7)	538 (1.6)	24 (0.6)	503 (2.3)	10.5 (0.02)
Turkiye	22 (1.2)	521 (3.5)	24 (1.1)	501 (3.8)	54 (1.8)	488 (5.1)	9.2 (0.13)
France	22 (0.8)	539 (3.6)	43 (0.8)	520 (2.8)	35 (0.8)	504 (3.2)	10.2 (0.03)
Czech Republic	19 (0.8)	567 (3.1)	33 (0.8)	540 (2.9)	48 (0.9)	540 (2.8)	9.7 (0.04)
Portugal	14 (0.7)	546 (3.3)	35 (0.7)	524 (2.1)	51 (0.8)	513 (2.6)	9.6 (0.03)
Slovenia	14 (0.6)	561 (2.9)	26 (0.8)	531 (2.9)	61 (0.8)	512 (2.2)	9.1 (0.04)
Italy	13 (0.5)	559 (3.2)	35 (0.8)	540 (2.7)	52 (0.9)	534 (2.5)	9.5 (0.03)
Austria	13 (0.6)	541 (5.6)	26 (0.9)	529 (2.9)	62 (0.9)	533 (2.2)	9.2 (0.04)
Norway (5)	12 (0.5)	577 (4.3)	29 (0.8)	553 (2.6)	59 (0.8)	531 (2.2)	9.3 (0.03)
Belgium (French) r	11 (0.6)	516 (4.4)	34 (1.0)	501 (3.2)	55 (1.2)	494 (3.6)	9.4 (0.04)
Slovak Republic	10 (0.8)	549 (11.4)	19 (0.8)	537 (4.0)	71 (1.0)	529 (2.8)	8.7 (0.06)
Belgium (Flemish)	10 (0.4)	519 (4.8)	29 (0.8)	512 (3.2)	61 (0.8)	516 (2.3)	9.1 (0.04)
Germany s	9 (0.6)	556 (6.5)	24 (0.9)	539 (3.9)	67 (1.1)	538 (2.9)	9.0 (0.04)
Hungary r	9 (0.5)	571 (7.2)	16 (0.7)	544 (5.7)	75 (0.8)	542 (3.4)	8.1 (0.04)
International Average	**32 (0.1)**	**524 (0.6)**	**35 (0.1)**	**498 (0.5)**	**34 (0.1)**	**475 (0.7)**	
New Zealand x	23 (1.1)	561 (5.3)	34 (1.1)	546 (5.0)	43 (1.0)	529 (4.2)	10.0 (0.05)
Netherlands x	12 (0.9)	569 (5.2)	33 (1.6)	547 (3.6)	54 (1.8)	533 (3.6)	9.5 (0.06)
Lithuania y	- -	- -	- -	- -	- -	- -	- -
Australia ⋈	- -	- -	- -	- -	- -	- -	- -
England ⋈	- -	- -	- -	- -	- -	- -	- -
Northern Ireland	- -	- -	- -	- -	- -	- -	- -
United States	- -	- -	- -	- -	- -	- -	- -
Benchmarking Participants							
Abu Dhabi, UAE s	53 (1.1)	497 (3.7)	33 (0.9)	447 (6.1)	14 (0.6)	399 (7.2)	11.6 (0.04)
Newfoundland & Labrador, Canada s	43 (1.8)	561 (4.0)	39 (1.7)	526 (4.4)	18 (0.9)	487 (7.9)	11.2 (0.05)
Moscow City, Russian Federation	39 (1.0)	621 (2.3)	41 (0.8)	594 (2.2)	21 (0.7)	566 (2.6)	11.0 (0.04)
South Africa (6) ⋈ r	37 (1.2)	414 (5.6)	41 (0.9)	392 (5.3)	22 (0.9)	356 (6.3)	10.9 (0.05)
British Columbia, Canada s	36 (1.5)	582 (4.6)	40 (1.1)	553 (3.9)	24 (1.3)	520 (5.2)	10.9 (0.06)
Alberta, Canada s	33 (1.5)	582 (4.0)	40 (1.6)	553 (4.1)	27 (1.3)	537 (5.3)	10.7 (0.05)
Quebec, Canada r	21 (1.1)	580 (4.0)	40 (1.2)	561 (3.3)	39 (1.3)	548 (3.9)	10.1 (0.05)
Dubai, UAE x	56 (0.9)	581 (2.8)	33 (1.0)	551 (3.0)	12 (0.7)	532 (5.6)	11.7 (0.04)

This PIRLS context questionnaire scale was established in 2011 based on the combined response distribution of countries that participated in PIRLS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

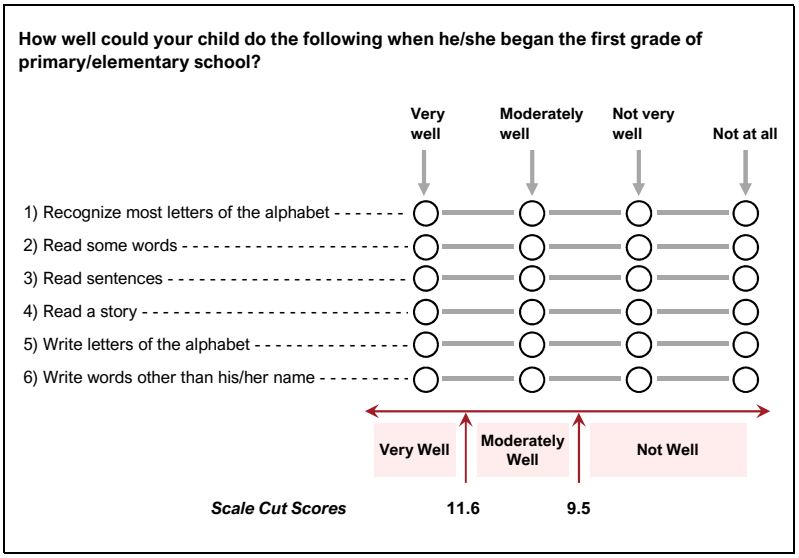
A dash (-) indicates comparable data not available.

Exhibit 5.4: Could Do Early Literacy Tasks When Beginning Primary School

Students' Results based on Parents' Reports

About the Scale

Students were scored according to their parents' reports regarding how well their children could do the six tasks on the *Early Literacy Tasks* scale when they began primary school. Cut scores divide the scale into three categories. Students who could do the tasks **Very Well** had a score at or above the cut score corresponding to their parents reporting the students could do three of the six tasks "very well" and the other three "moderately well," on average. Students who could do the tasks **Not Well** had a score at or below the cut score corresponding to their parents reporting the students could do three of the six tasks "not very well" and the other three "moderately well," on average. All other students could do the early literacy tasks **Moderately Well** when they began primary school.



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

SECTION 6

School Composition, Resources, and Climate

The data in this section about School Composition, Resources, and Climate were collected from school principals via the PIRLS 2021 School Questionnaire. In countries where the assessment of the fourth grade cohort was delayed to the beginning of the fifth year of schooling, typically the schools had both fourth and fifth grades and principals were asked to answer in terms of the fourth grade cohort from the previous school year. The TIMSS & PIRLS International Study Center conducted a series of analyses to establish that there was little or no discernable impact in the responses to the School Questionnaire due to COVID-19 or delayed testing.

Many of the PIRLS 2021 Context Questionnaire items were combined into scales measuring a single underlying latent construct related to reading achievement. This section provides results for three scales: *Instruction Affected by Reading Resource Shortages*, *School Emphasis on Academic Success*, and *School Discipline*.

PIRLS used item response theory (IRT) scaling methods, specifically the Rasch partial credit model (PCM), to place items on a scale and produce scale scores (see Chapter 15 in *Methods and Procedures: PIRLS 2021 Technical Report*). Each context questionnaire scale enabled students to be classified into regions corresponding to high, middle, and low values on the construct. The "About the Scale" tab associated with each exhibit contains the questionnaire items and describes how the three regions reported in the exhibit were defined in terms of combinations of response categories.

Socioeconomic Background of the Student Body

PIRLS asked school principals to estimate the percentages of economically affluent and economically disadvantaged students in the school. As described in "About the Index," the principals' reports were combined to characterize schools as "more affluent," "neither more affluent nor more disadvantaged," or "more disadvantaged."

For each country, Exhibit 6.1 presents the percentages of fourth grade students attending schools in each of the three categories of socioeconomic composition together with the students' average reading achievement. On average, 43 percent of

students attended schools with relatively "more affluent" students than disadvantaged students and 25 percent attended schools with relatively "more disadvantaged" than affluent students. The remaining 32 percent of students attended schools classified as "neither more affluent nor more disadvantaged."

Consistent with the results of considerable research, PIRLS 2021 found that students who attended schools with higher proportions of economically affluent students had higher reading achievement than students attending schools with lower proportions of economically affluent students. The average achievement was highest for students in the "more affluent" schools and lowest in the "more disadvantaged" schools (521 and 479, respectively). Average reading achievement for students attending "neither more affluent nor more disadvantaged" schools was in the middle—502 scale score points, on average.

Exhibit 6.1: School Composition by Socioeconomic Background of the Student Body

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	More Affluent		Neither More Affluent Nor More Disadvantaged		More Disadvantaged	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Kazakhstan	78 (3.0)	509 (3.0)	20 (3.1)	481 (5.8)	2 ~	~ ~
Lithuania s	78 (4.0)	555 (2.7)	18 (3.5)	532 (5.6)	4 (2.0)	525 (11.1)
Russian Federation	77 (2.8)	576 (3.7)	19 (2.8)	538 (7.1)	5 (1.7)	547 (17.8)
Uzbekistan r	73 (3.9)	442 (3.6)	24 (3.8)	430 (5.5)	3 (1.4)	426 (15.0)
Qatar	66 (3.5)	491 (5.0)	26 (3.5)	483 (7.9)	8 (1.9)	461 (12.1)
North Macedonia r	64 (5.3)	453 (5.9)	27 (4.3)	436 (14.0)	9 (3.8)	402 (21.2)
Sweden r	63 (4.0)	560 (3.7)	26 (4.1)	524 (4.6)	10 (2.5)	514 (8.5)
Croatia	61 (4.1)	561 (3.0)	33 (4.0)	555 (3.9)	6 (1.9)	521 (16.8)
Spain	61 (3.0)	530 (2.4)	28 (3.2)	515 (4.0)	11 (2.1)	483 (6.9)
Denmark	60 (3.9)	550 (2.8)	32 (3.8)	521 (4.3)	8 (1.9)	525 (6.5)
Netherlands r	58 (4.4)	536 (3.6)	24 (4.3)	518 (5.0)	19 (3.5)	506 (8.6)
Singapore	57 (0.0)	600 (3.6)	36 (0.0)	573 (5.5)	7 (0.0)	552 (16.6)
Saudi Arabia	57 (5.4)	456 (5.4)	25 (4.7)	441 (10.2)	18 (3.9)	450 (13.4)
United Arab Emirates s	56 (1.4)	519 (3.2)	27 (1.5)	510 (4.5)	17 (1.2)	479 (8.6)
Belgium (Flemish)	56 (4.3)	518 (3.1)	29 (4.5)	512 (3.8)	15 (3.4)	479 (5.7)
Hungary	53 (4.0)	563 (3.6)	27 (4.3)	528 (7.0)	20 (3.3)	488 (8.1)
Slovenia r	51 (4.8)	524 (3.0)	36 (4.7)	517 (3.1)	13 (3.0)	508 (6.1)
Kosovo s	50 (5.6)	423 (5.4)	34 (5.0)	415 (7.2)	16 (4.0)	412 (5.9)
Norway (5)	49 (4.1)	548 (2.7)	45 (4.0)	533 (2.4)	6 (2.1)	513 (12.8)
Czech Republic	48 (3.5)	550 (3.4)	43 (3.5)	535 (3.7)	10 (2.1)	506 (9.0)
Montenegro	47 (0.7)	492 (2.0)	34 (0.8)	486 (3.3)	19 (0.6)	475 (3.6)
Belgium (French) r	47 (3.3)	511 (3.7)	26 (3.8)	484 (5.2)	28 (3.4)	475 (5.1)
France	46 (3.5)	530 (3.1)	26 (3.6)	516 (6.0)	27 (3.2)	485 (4.6)
Cyprus	46 (4.0)	529 (4.3)	41 (3.9)	501 (3.4)	13 (2.2)	471 (5.2)
Israel ⋈	44 (3.5)	537 (3.7)	26 (3.6)	520 (4.2)	30 (2.9)	465 (5.8)
Ireland	42 (4.8)	595 (3.3)	33 (4.3)	582 (3.9)	25 (3.2)	550 (4.9)
Oman	41 (3.7)	435 (5.9)	36 (3.5)	440 (6.9)	24 (3.4)	403 (8.5)
Australia ⋈	40 (3.8)	562 (3.0)	34 (3.6)	540 (3.4)	26 (3.1)	508 (5.6)
Macao SAR	39 (0.1)	546 (1.9)	35 (0.1)	526 (1.7)	26 (0.1)	532 (2.1)
Northern Ireland r	38 (4.5)	587 (4.1)	31 (4.8)	564 (4.1)	31 (3.5)	543 (5.2)
New Zealand r	38 (3.7)	553 (3.9)	36 (3.8)	528 (4.7)	27 (3.3)	483 (6.5)
Serbia	37 (4.1)	524 (4.2)	43 (4.0)	513 (4.7)	20 (3.5)	494 (7.0)
Albania	37 (4.2)	527 (5.6)	30 (3.6)	516 (5.6)	33 (4.3)	495 (4.6)
Finland	37 (4.3)	561 (3.1)	52 (3.9)	548 (2.6)	11 (2.7)	518 (9.4)
Bulgaria	37 (4.1)	572 (4.1)	45 (4.1)	550 (4.1)	18 (2.7)	483 (9.5)
Italy	35 (4.0)	548 (3.4)	44 (3.8)	540 (3.1)	22 (3.0)	517 (6.3)
Malta	33 (5.4)	538 (4.2)	61 (5.4)	506 (4.0)	6 (2.6)	458 (13.3)
Brazil ⋈ r	32 (4.7)	473 (9.6)	16 (3.9)	438 (14.5)	51 (5.0)	389 (11.5)
Georgia	32 (3.5)	502 (3.8)	36 (3.7)	490 (4.9)	32 (3.8)	489 (3.7)
Latvia	32 (4.0)	531 (5.3)	61 (4.1)	528 (3.3)	7 (1.8)	509 (12.5)
United States	32 (5.0)	587 (8.0)	12 (4.1)	555 (12.2)	56 (5.0)	524 (9.2)
Portugal	32 (2.9)	537 (3.6)	37 (3.4)	517 (2.8)	32 (3.3)	506 (4.5)
England ⋈ r	32 (4.1)	578 (5.0)	25 (4.3)	565 (3.8)	43 (4.4)	539 (3.7)
Austria	30 (3.7)	543 (3.1)	43 (4.1)	537 (3.5)	26 (3.1)	504 (5.0)
Germany r	29 (3.6)	543 (3.9)	36 (3.4)	533 (3.5)	35 (2.8)	501 (4.4)
Iran, Islamic Rep. of ⋈	29 (3.5)	458 (8.0)	21 (2.8)	422 (6.9)	50 (3.6)	382 (6.7)
Poland	29 (3.9)	555 (3.7)	65 (4.2)	547 (3.0)	7 (2.3)	537 (7.3)
Bahrain r	28 (2.6)	494 (8.4)	27 (2.9)	449 (8.5)	44 (3.1)	439 (5.1)
Turkiye	28 (3.3)	530 (5.3)	21 (3.3)	505 (7.3)	51 (3.4)	474 (4.6)
Hong Kong SAR	28 (3.5)	588 (4.3)	28 (4.1)	572 (6.7)	45 (4.3)	564 (4.1)
Egypt	27 (3.3)	410 (7.6)	25 (3.8)	389 (10.7)	49 (3.7)	359 (8.8)
Chinese Taipei	25 (3.2)	558 (3.2)	67 (3.7)	540 (2.4)	8 (2.1)	521 (9.3)
Azerbaijan r	13 (2.8)	410 (11.6)	22 (3.3)	450 (10.4)	64 (4.1)	444 (5.2)
Jordan r	13 (3.1)	423 (13.3)	33 (4.2)	385 (10.6)	55 (4.3)	367 (9.0)
South Africa ⋈ r	11 (1.9)	420 (22.2)	16 (2.7)	331 (15.2)	73 (3.1)	264 (5.7)
Morocco r	7 (1.6)	452 (20.1)	7 (2.0)	402 (15.8)	86 (2.1)	363 (5.7)
International Average	**43 (0.5)**	**521 (0.9)**	**32 (0.5)**	**502 (0.9)**	**25 (0.4)**	**479 (1.2)**
Slovak Republic	- -	- -	- -	- -	- -	- -
Benchmarking Participants						
Quebec, Canada r	54 (5.6)	559 (4.1)	30 (4.7)	544 (4.9)	16 (3.7)	540 (6.2)
British Columbia, Canada r	49 (4.7)	549 (5.8)	41 (4.5)	535 (5.3)	11 (2.9)	508 (11.7)
Newfoundland & Labrador, Canada r	35 (6.8)	536 (5.9)	54 (7.1)	522 (3.8)	11 (3.1)	496 (7.8)
Alberta, Canada	32 (4.8)	561 (5.2)	47 (5.3)	538 (5.7)	21 (3.9)	516 (8.7)
Moscow City, Russian Federation	91 (2.1)	598 (2.2)	7 (2.0)	593 (6.4)	2 ~	~ ~
South Africa (6) ⋈ r	11 (2.6)	465 (32.9)	15 (3.1)	447 (19.5)	74 (3.4)	360 (6.1)
Dubai, UAE s	65 (0.4)	581 (2.0)	30 (0.3)	560 (2.7)	5 (0.2)	527 (4.8)
Abu Dhabi, UAE r	57 (2.1)	478 (5.9)	27 (2.6)	467 (6.6)	16 (2.9)	470 (16.6)

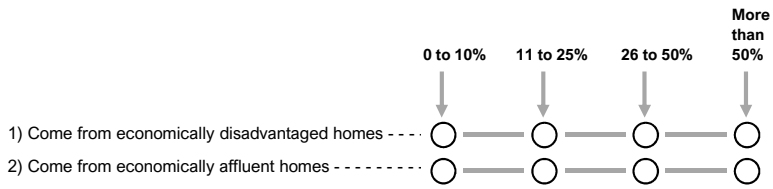
( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
An "r" indicates data are available for at least 70% but less than 85% of the students.
An "s" indicates data are available for at least 50% but less than 70% of the students.
A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit 6.1: School Composition by Socioeconomic Background of the Student Body

Students' Results based on Principals' Reports

About the Index

Approximately what percentage of students in your school have the following backgrounds?



More Affluent: Schools where more than 25% of the student body comes from economically affluent homes and not more than 25% from economically disadvantaged homes

More Disadvantaged: Schools where more than 25% of the student body comes from economically disadvantaged homes and not more than 25% from economically affluent homes

Neither More Affluent Nor More Disadvantaged: All other possible response combinations

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Students Begin Primary Grades with Literacy Skills

To provide information about students' foundation for formal reading instruction when they began school, PIRLS asked principals about how many students in the school have basic literacy skills (e.g., write the alphabet, write sentences) when they begin the primary grades—less than 25%, 25–50%, 51–75%, or more than 75%.

Exhibit 6.2 presents the average percentages of students attending schools with each of the four amounts of students having basic literacy skills when they begin primary school together with the students' average reading achievement. The country-by-country results are ordered from highest to lowest according to the percentage of students in schools with "more than 75%" of students beginning with basic literacy skills, and there was considerable variation across countries. This variation might be related to a number of factors, such as students' home SES, countries' policies on preprimary school attendance, or the age of entry to primary school (see Curriculum Questionnaire results in the *PIRLS 2021 Encyclopedia*).

On average across countries, 26 percent of students were in schools where "more than 75%" of students begin the primary grades with literacy skills, 19 percent were in schools where "51–75%" of students begin with literacy skills, 22 percent were in schools where "25–50%" of students begin with literacy skills, and 33 percent were in schools where "less than 25%" of students begin with literacy skills.

In general, average reading achievement was higher for fourth grade students in schools where greater percentages of students begin primary school equipped with basic literacy skills. Students who attended schools where "more than 75%" of students begin the primary grades with basic literacy skills had the highest average achievement (511), followed by "51–75%" with basic literacy skills (503). Students in schools where fewer students begin school with basic literacy skills—"25–50%" and "less than 25"—had somewhat lower average reading achievement (495 and 491, respectively).

Exhibit 6.2: Schools Where Students Begin the Primary Grades with Literacy Skills

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	More than 75% Begin with Literacy Skills		51–75% Begin with Literacy Skills		25–50% Begin with Literacy Skills		Less than 25% Begin with Literacy Skills	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Singapore	89 (0.0)	590 (3.2)	6 (0.0)	565 (14.4)	3 (0.0)	541 (24.9)	2 ~	~ ~
Ireland	73 (3.3)	587 (2.5)	18 (3.4)	554 (6.1)	4 (1.9)	533 (7.3)	5 (2.0)	564 (24.7)
United Arab Emirates s	54 (1.8)	539 (3.9)	17 (1.2)	501 (3.4)	10 (0.9)	444 (8.5)	18 (1.5)	458 (5.4)
Spain	51 (3.5)	527 (2.5)	29 (3.1)	519 (4.2)	9 (1.5)	515 (8.2)	11 (2.5)	500 (10.9)
Qatar	50 (3.8)	505 (6.1)	22 (3.0)	475 (5.6)	16 (2.6)	456 (9.4)	11 (2.4)	464 (10.8)
Denmark	49 (3.7)	542 (3.5)	19 (2.9)	536 (4.3)	16 (2.9)	533 (7.2)	15 (2.8)	535 (5.1)
Bahrain	49 (2.5)	489 (4.9)	19 (2.5)	444 (8.8)	20 (2.3)	413 (6.3)	12 (2.1)	434 (12.4)
United States	46 (5.8)	574 (7.3)	25 (4.0)	526 (19.8)	14 (4.2)	527 (7.8)	15 (4.8)	521 (14.4)
Chinese Taipei	46 (3.7)	549 (2.6)	22 (3.1)	542 (4.4)	20 (3.2)	534 (4.5)	12 (2.4)	545 (7.6)
Hong Kong SAR	44 (3.8)	579 (4.1)	31 (3.7)	572 (4.5)	18 (2.9)	557 (7.7)	8 (2.3)	577 (9.4)
Sweden r	44 (4.6)	554 (4.9)	23 (4.0)	547 (7.2)	19 (3.9)	543 (7.9)	14 (3.0)	521 (9.1)
England ⋈	42 (4.3)	572 (4.1)	38 (4.0)	553 (4.1)	11 (2.6)	540 (6.9)	9 (2.4)	542 (7.9)
Saudi Arabia	41 (4.7)	448 (6.3)	22 (3.7)	455 (9.7)	19 (3.9)	455 (10.7)	19 (3.7)	438 (10.4)
Oman	38 (3.6)	444 (5.9)	21 (3.1)	424 (8.5)	22 (2.9)	420 (9.2)	19 (2.8)	419 (8.4)
Kazakhstan	32 (3.3)	513 (4.9)	27 (3.4)	504 (5.2)	34 (3.5)	494 (4.3)	8 (1.9)	500 (6.5)
Malta	32 (7.3)	530 (8.9)	17 (4.9)	503 (8.6)	15 (5.2)	507 (9.1)	36 (7.1)	505 (9.0)
Latvia	31 (3.6)	534 (5.0)	33 (3.5)	532 (4.5)	26 (3.6)	519 (4.5)	10 (2.3)	515 (11.9)
France	30 (3.5)	525 (3.9)	28 (3.7)	520 (4.7)	16 (3.1)	501 (6.5)	26 (3.4)	508 (4.6)
Kosovo	30 (4.4)	417 (6.8)	21 (4.3)	428 (5.6)	29 (3.6)	430 (7.6)	20 (3.5)	404 (6.2)
Poland	29 (3.6)	552 (4.5)	19 (3.4)	546 (4.6)	29 (3.4)	552 (4.3)	23 (3.3)	544 (4.7)
Iran, Islamic Rep. of ⋈	29 (3.9)	425 (8.2)	16 (2.7)	403 (11.5)	14 (3.4)	401 (17.7)	42 (3.7)	412 (8.5)
Albania	28 (3.4)	526 (6.2)	31 (4.2)	520 (5.8)	22 (3.5)	505 (6.2)	19 (3.6)	497 (7.2)
Cyprus	27 (3.5)	535 (5.7)	6 (1.9)	513 (14.3)	13 (3.4)	522 (6.1)	54 (4.7)	496 (3.5)
Lithuania s	25 (5.4)	552 (4.8)	17 (3.5)	549 (6.6)	30 (4.3)	552 (4.4)	28 (4.8)	543 (6.0)
Finland	25 (3.5)	554 (3.2)	23 (3.6)	551 (4.6)	36 (3.4)	547 (4.4)	15 (2.8)	544 (6.3)
Uzbekistan	25 (3.8)	453 (5.1)	20 (3.2)	430 (5.1)	30 (3.8)	432 (5.6)	25 (3.4)	431 (5.0)
Macao SAR	25 (0.1)	537 (2.0)	22 (0.1)	532 (2.5)	15 (0.1)	525 (3.0)	38 (0.1)	540 (1.5)
Belgium (French)	25 (3.7)	505 (4.5)	27 (4.1)	492 (6.9)	21 (3.6)	490 (5.6)	27 (3.8)	489 (5.4)
Egypt	24 (3.2)	395 (7.6)	35 (3.9)	370 (7.8)	21 (3.4)	367 (12.4)	20 (2.9)	385 (16.1)
Netherlands r	22 (4.5)	530 (5.1)	28 (4.7)	525 (5.8)	17 (4.2)	532 (8.9)	32 (5.6)	520 (6.7)
Bulgaria	21 (3.1)	564 (5.6)	23 (3.3)	558 (7.0)	27 (3.9)	542 (9.3)	29 (3.6)	508 (7.1)
Georgia	20 (2.5)	507 (4.4)	14 (2.5)	492 (7.0)	22 (3.0)	497 (5.6)	43 (3.8)	489 (4.0)
Australia ⋈	20 (2.9)	556 (3.7)	21 (3.1)	542 (6.0)	19 (3.1)	541 (5.1)	40 (3.8)	532 (4.3)
Jordan	18 (2.8)	410 (11.9)	22 (3.4)	386 (12.7)	26 (4.1)	382 (14.1)	34 (3.8)	362 (8.9)
Belgium (Flemish)	17 (3.7)	518 (4.8)	17 (3.2)	528 (3.6)	10 (2.7)	506 (8.7)	56 (4.9)	504 (3.6)
Turkiye	16 (2.7)	505 (6.8)	5 (1.7)	497 (14.0)	6 (1.8)	474 (20.6)	73 (3.4)	496 (4.1)
Brazil ⋈	16 (2.7)	475 (12.4)	17 (3.7)	442 (18.1)	32 (5.1)	383 (15.5)	35 (3.9)	415 (7.0)
Italy	16 (2.9)	542 (6.1)	11 (2.4)	538 (7.6)	22 (3.1)	542 (3.8)	52 (3.6)	534 (3.4)
Azerbaijan	16 (3.2)	421 (9.3)	32 (3.6)	437 (8.5)	36 (3.8)	451 (7.2)	16 (2.9)	439 (10.0)
Israel ⋈ r	15 (2.8)	503 (10.3)	14 (2.9)	529 (9.6)	27 (3.7)	523 (5.3)	44 (3.9)	500 (6.6)
South Africa ⋈	14 (2.5)	323 (19.9)	25 (3.5)	273 (9.9)	29 (4.1)	275 (10.8)	31 (3.1)	284 (9.1)
Portugal	14 (2.5)	534 (4.6)	6 (1.8)	522 (9.7)	21 (3.1)	522 (4.7)	59 (3.6)	515 (3.1)
North Macedonia	13 (3.1)	440 (14.0)	8 (2.1)	446 (13.0)	31 (4.4)	449 (9.0)	48 (4.6)	439 (9.0)
Montenegro	11 (0.2)	481 (3.4)	1 ~	~ ~	20 (0.6)	470 (3.4)	67 (0.6)	494 (2.2)
Russian Federation	11 (2.3)	601 (6.9)	28 (3.9)	574 (5.8)	32 (3.5)	567 (5.2)	29 (3.6)	548 (6.9)
Serbia	9 (2.3)	516 (12.2)	17 (3.5)	517 (8.3)	26 (3.7)	512 (5.4)	47 (4.4)	512 (4.4)
Croatia	9 (2.6)	561 (8.4)	23 (3.4)	563 (5.4)	42 (4.4)	555 (4.2)	26 (3.7)	553 (5.2)
Morocco	8 (1.9)	385 (17.9)	22 (3.3)	399 (14.8)	35 (3.5)	367 (6.7)	36 (3.3)	362 (7.0)
Slovak Republic	8 (2.1)	544 (8.0)	10 (2.6)	544 (5.8)	26 (3.6)	537 (4.4)	56 (3.6)	522 (4.3)
Slovenia r	6 (2.3)	531 (5.8)	6 (2.1)	508 (7.6)	41 (5.0)	521 (2.9)	47 (4.5)	517 (3.1)
Hungary	6 (2.2)	538 (24.4)	4 (1.7)	553 (21.9)	10 (3.0)	549 (11.5)	80 (3.7)	536 (3.8)
Germany r	4 (1.5)	537 (8.5)	6 (1.4)	536 (8.5)	13 (2.4)	544 (6.5)	78 (3.0)	518 (2.8)
Norway (5)	4 (1.7)	538 (13.0)	6 (1.8)	543 (10.2)	28 (3.8)	543 (3.6)	62 (4.3)	537 (2.9)
Czech Republic	2 ~	~ ~	7 (1.9)	544 (11.2)	24 (3.3)	541 (5.9)	67 (3.6)	538 (2.7)
Austria	2 ~	~ ~	3 (1.3)	550 (10.5)	16 (3.4)	547 (7.2)	80 (3.6)	525 (2.3)
International Average	**26 (0.4)**	**511 (1.1)**	**19 (0.4)**	**503 (1.3)**	**22 (0.5)**	**495 (1.2)**	**33 (0.5)**	**491 (1.1)**
New Zealand	- -	- -	- -	- -	- -	- -	- -	- -
Northern Ireland	- -	- -	- -	- -	- -	- -	- -	- -
Benchmarking Participants								
Dubai, UAE s	71 (0.3)	571 (1.8)	17 (0.3)	578 (4.1)	5 (0.1)	545 (7.9)	7 (0.1)	575 (3.6)
Newfoundland & Labrador, Canada r	57 (5.2)	527 (4.8)	19 (4.2)	522 (9.2)	14 (3.9)	532 (4.8)	10 (3.0)	498 (7.3)
British Columbia, Canada r	50 (5.0)	552 (4.9)	26 (4.1)	528 (5.4)	16 (3.8)	531 (9.0)	8 (2.6)	497 (13.9)
Abu Dhabi, UAE r	39 (2.1)	537 (5.3)	16 (1.8)	458 (5.4)	16 (1.2)	404 (10.8)	28 (1.2)	427 (5.6)
Alberta, Canada	37 (5.1)	545 (6.5)	28 (4.9)	542 (8.4)	14 (3.5)	533 (10.7)	22 (4.6)	536 (8.5)
Quebec, Canada	36 (5.3)	559 (5.5)	17 (3.6)	553 (6.5)	18 (3.8)	537 (5.9)	28 (4.7)	552 (4.6)
Moscow City, Russian Federation	24 (3.4)	607 (4.9)	32 (3.3)	598 (3.3)	34 (3.8)	595 (3.2)	10 (2.2)	590 (4.0)
South Africa (6) ⋈	19 (3.4)	419 (16.9)	24 (3.5)	365 (12.5)	24 (3.8)	382 (12.8)	33 (3.7)	374 (9.8)

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
An "r" indicates data are available for at least 70% but less than 85% of the students.
An "s" indicates data are available for at least 50% but less than 70% of the students.
A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit 6.2: Schools Where Students Begin the Primary Grades with Literacy Skills

Students' Results based on Principals' Reports

About the Item

About how many of the students in your school have basic literacy skills (e.g., can write letters of the alphabet, write sentences) when they begin the first grade of primary/elementary school?

- Less than 25% - - - - ◯
- 25–50% - - - - ◯
- 51–75% - - - - ◯
- More than 75% - - - - ◯

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021

Instruction Affected by Resource Shortages

The PIRLS 2021 *Instruction Affected by Reading Resources* scale summarizes principals' reports about how much two kinds of resource shortages affect instruction: general school resources and resources specific to reading instruction. Students were categorized according to three levels of resource shortages experienced by their school—"not affected," "somewhat affected," and "affected a lot" (see "About the Scale").

In Exhibit 6.3, countries are ordered by the percentage of fourth grade students in schools "not affected" by resource shortages. There was a positive association between the availability of resources and fourth grade students' reading achievement. On average, 31 percent of students attended schools "not affected" by resource shortages, and they had the highest average reading achievement (519). Average reading achievement was comparatively lower for the 61 percent of students in schools "somewhat affected" by resource shortages (498) and even lower for the 8 percent of students in schools "affected a lot" by resource shortages (472).

Exhibit 6.3: Instruction Affected by Reading Resource Shortages – Principals' Reports

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Not Affected		Somewhat Affected		Affected A Lot		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Bulgaria	83 (3.1)	544 (3.4)	15 (3.0)	516 (14.3)	2 ~	~ ~	12.4 (0.15)
Netherlands r	73 (4.4)	525 (4.1)	27 (4.4)	529 (4.8)	1 ~	~ ~	11.7 (0.13)
Australia ⋈	65 (3.8)	545 (3.1)	33 (3.6)	532 (4.6)	1 ~	~ ~	11.5 (0.18)
Poland	57 (4.2)	553 (3.0)	42 (4.2)	544 (3.4)	1 ~	~ ~	11.3 (0.15)
Singapore	56 (0.0)	586 (4.2)	31 (0.0)	589 (5.5)	13 (0.0)	589 (8.7)	10.9 (0.00)
Denmark	55 (4.1)	538 (3.3)	43 (4.0)	540 (3.7)	2 ~	~ ~	11.4 (0.12)
Sweden r	55 (5.3)	547 (4.3)	43 (5.2)	545 (5.8)	2 ~	~ ~	11.2 (0.18)
Norway (5)	54 (4.1)	540 (2.4)	46 (4.1)	537 (3.3)	0 ~	~ ~	11.3 (0.14)
United Arab Emirates s	53 (2.2)	530 (3.5)	35 (2.0)	473 (4.0)	12 (1.3)	506 (5.3)	10.8 (0.13)
Qatar	53 (3.4)	496 (5.4)	25 (2.7)	474 (7.2)	22 (3.1)	474 (10.6)	10.5 (0.28)
United States	53 (7.2)	558 (7.7)	46 (7.3)	534 (11.8)	2 ~	~ ~	11.2 (0.29)
New Zealand r	52 (4.3)	532 (5.2)	45 (4.4)	511 (5.1)	2 ~	~ ~	11.2 (0.14)
Czech Republic	51 (4.0)	542 (3.9)	49 (4.0)	537 (2.9)	0 ~	~ ~	11.1 (0.11)
Finland	50 (4.1)	559 (2.5)	49 (4.2)	539 (3.5)	1 ~	~ ~	11.2 (0.14)
Croatia	42 (4.4)	559 (3.3)	58 (4.4)	556 (3.7)	0 ~	~ ~	10.6 (0.14)
Kazakhstan	42 (3.2)	506 (3.6)	41 (3.5)	500 (5.3)	17 (2.5)	505 (4.9)	10.1 (0.19)
England ⋈	42 (4.2)	563 (4.1)	58 (4.2)	556 (3.5)	1 ~	~ ~	10.8 (0.14)
Cyprus	41 (4.5)	519 (4.6)	57 (4.5)	504 (3.4)	2 ~	~ ~	10.7 (0.17)
Lithuania s	41 (4.9)	549 (3.9)	59 (4.8)	549 (3.1)	1 ~	~ ~	10.6 (0.15)
Bahrain	39 (2.6)	477 (6.2)	41 (2.6)	443 (4.9)	21 (2.4)	456 (8.4)	9.8 (0.15)
Spain	38 (3.0)	531 (3.3)	61 (3.2)	515 (2.9)	2 ~	~ ~	10.6 (0.10)
Hungary	36 (3.9)	539 (5.8)	63 (4.0)	538 (4.7)	1 ~	~ ~	10.6 (0.15)
Austria	36 (3.8)	535 (3.9)	64 (3.8)	527 (2.6)	0 ~	~ ~	10.7 (0.10)
Georgia	35 (3.7)	500 (3.7)	62 (3.7)	492 (3.4)	3 (1.1)	482 (22.2)	10.6 (0.14)
Slovak Republic	35 (3.1)	540 (4.5)	65 (3.2)	524 (3.4)	1 ~	~ ~	10.5 (0.09)
Slovenia r	34 (4.0)	517 (3.7)	66 (4.0)	520 (2.5)	0 ~	~ ~	10.8 (0.10)
Russian Federation	34 (3.2)	582 (5.0)	59 (3.8)	560 (4.4)	7 (2.0)	554 (12.3)	10.2 (0.16)
Israel ⋈	33 (3.9)	526 (5.9)	58 (4.2)	510 (4.3)	9 (2.1)	462 (17.2)	10.0 (0.15)
Malta	31 (5.9)	525 (7.8)	60 (5.5)	507 (5.5)	9 (3.8)	503 (15.6)	10.0 (0.26)
Uzbekistan	30 (3.8)	441 (4.5)	49 (4.2)	433 (4.2)	21 (3.5)	439 (6.0)	9.5 (0.22)
Serbia	30 (3.7)	524 (4.4)	70 (3.8)	509 (4.1)	1 ~	~ ~	10.3 (0.13)
Ireland	27 (3.9)	586 (5.0)	72 (4.0)	574 (3.0)	1 ~	~ ~	10.2 (0.14)
Brazil ⋈	26 (2.7)	481 (9.3)	73 (2.9)	398 (7.4)	1 ~	~ ~	10.1 (0.12)
Belgium (Flemish)	25 (3.5)	516 (5.7)	75 (3.5)	508 (2.8)	0 ~	~ ~	10.4 (0.10)
Latvia	24 (3.5)	526 (5.3)	75 (3.5)	528 (3.0)	1 ~	~ ~	10.3 (0.13)
Oman	22 (2.8)	437 (9.3)	59 (3.4)	423 (5.4)	19 (3.1)	439 (6.9)	9.2 (0.18)
Montenegro	21 (1.0)	484 (4.6)	77 (1.0)	488 (1.6)	2 ~	~ ~	9.7 (0.03)
Germany r	21 (3.0)	535 (5.5)	79 (3.0)	520 (2.8)	0 ~	~ ~	10.3 (0.09)
France	19 (3.2)	527 (6.7)	79 (3.3)	513 (2.5)	2 ~	~ ~	10.0 (0.10)
Northern Ireland	18 (3.4)	558 (5.7)	81 (3.4)	568 (3.4)	1 ~	~ ~	10.0 (0.12)
Portugal	17 (2.6)	534 (8.1)	83 (2.6)	517 (2.4)	0 ~	~ ~	10.1 (0.09)
Iran, Islamic Rep. of ⋈	14 (3.2)	432 (9.7)	73 (3.8)	406 (6.3)	13 (2.4)	431 (8.8)	9.1 (0.20)
Azerbaijan	13 (2.9)	436 (10.5)	66 (4.1)	439 (4.7)	20 (3.3)	445 (10.0)	8.6 (0.18)
Saudi Arabia	13 (3.1)	458 (10.3)	69 (4.3)	444 (4.8)	18 (3.7)	462 (12.4)	8.6 (0.19)
Albania	13 (2.3)	535 (11.4)	66 (3.9)	507 (3.6)	21 (3.4)	519 (7.4)	8.8 (0.16)
Egypt	11 (1.9)	407 (13.7)	81 (2.7)	375 (6.4)	7 (2.3)	375 (14.0)	9.2 (0.13)
Chinese Taipei	11 (2.1)	549 (4.8)	74 (3.2)	544 (2.7)	15 (2.6)	541 (5.0)	8.6 (0.13)
Belgium (French)	11 (2.6)	500 (9.4)	89 (2.6)	494 (3.0)	0 ~	~ ~	9.7 (0.10)
Italy	11 (2.7)	546 (10.3)	89 (2.7)	536 (2.1)	0 ~	~ ~	9.7 (0.09)
South Africa ⋈	8 (1.8)	444 (24.7)	89 (2.0)	272 (5.1)	3 (1.1)	295 (30.0)	9.2 (0.09)
Macao SAR	8 (0.1)	546 (3.2)	55 (0.1)	534 (1.6)	37 (0.1)	536 (1.6)	7.6 (0.00)
Turkiye	7 (1.7)	513 (8.4)	59 (3.8)	495 (4.9)	34 (3.8)	496 (6.8)	7.8 (0.15)
Kosovo	5 (1.5)	424 (15.1)	74 (3.2)	420 (3.9)	21 (3.1)	422 (5.7)	8.3 (0.14)
Hong Kong SAR	2 ~	~ ~	66 (3.8)	573 (3.6)	31 (3.8)	572 (4.5)	7.6 (0.14)
Jordan	2 ~	~ ~	80 (3.0)	375 (6.3)	18 (2.8)	403 (12.1)	8.2 (0.12)
Morocco	2 ~	~ ~	91 (2.5)	367 (4.4)	7 (2.3)	449 (31.9)	8.8 (0.10)
North Macedonia	0 ~	~ ~	84 (3.6)	443 (6.3)	16 (3.6)	440 (12.7)	8.0 (0.11)
International Average	**31 (0.5)**	**519 (1.0)**	**61 (0.5)**	**498 (0.6)**	**8 (0.3)**	**472 (2.7)**	
Benchmarking Participants							
Dubai, UAE s	67 (0.3)	577 (1.8)	24 (0.3)	558 (2.9)	9 (0.2)	552 (4.8)	11.6 (0.02)
Alberta, Canada	62 (5.3)	545 (5.0)	37 (5.3)	535 (6.2)	1 ~	~ ~	11.8 (0.23)
Moscow City, Russian Federation	62 (3.7)	597 (2.4)	34 (3.5)	598 (3.5)	4 (1.5)	623 (11.9)	11.8 (0.20)
Quebec, Canada	59 (5.0)	553 (3.3)	41 (5.0)	550 (5.1)	0 ~	~ ~	11.5 (0.18)
Newfoundland & Labrador, Canada r	51 (8.5)	525 (5.7)	46 (8.1)	520 (4.0)	4 (2.5)	558 (15.0)	11.2 (0.28)
British Columbia, Canada r	46 (4.8)	546 (5.7)	53 (4.6)	532 (4.9)	2 ~	~ ~	10.9 (0.17)
Abu Dhabi, UAE r	45 (3.5)	502 (6.3)	44 (2.2)	436 (5.8)	11 (2.4)	481 (19.1)	10.4 (0.26)
South Africa (6) ⋈	8 (2.1)	512 (28.5)	86 (2.2)	368 (5.5)	6 (2.1)	399 (28.2)	9.2 (0.15)

This PIRLS context questionnaire scale was established in 2011 based on the combined response distribution of countries that participated in PIRLS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

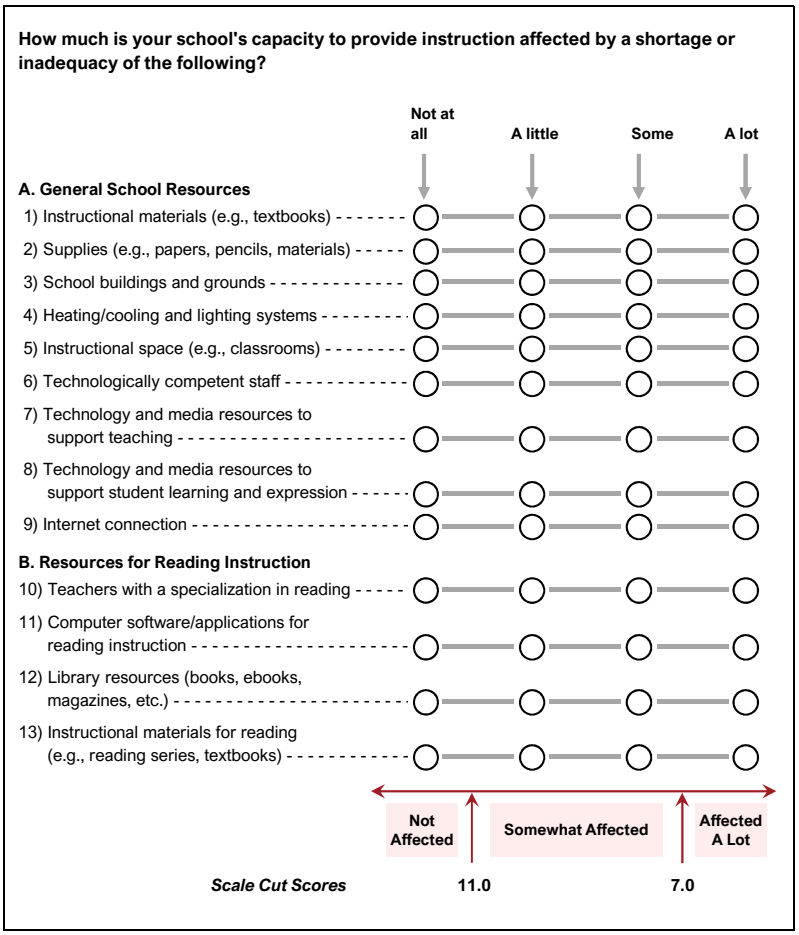
A tilde (~) indicates insufficient data to report result.

Exhibit 6.3: Instruction Affected by Reading Resource Shortages – Principals' Reports

Students' Results based on Principals' Reports

About the Scale

Students were scored according to their principals' responses regarding thirteen school and classroom resources on the *Instruction Affected by Reading Resource Shortages* scale. Cut scores divide the scale into three categories. Students in schools where instruction was **Not Affected** by resource shortages had a score at or above the cut score corresponding to their principals reporting that shortages affected instruction "not at all" for seven of the thirteen resources and "a little" for the other six, on average. Students in schools where instruction was **Affected A Lot** had a score at or below the cut score corresponding to their principals reporting that shortages affected instruction "a lot" for seven of the thirteen resources and "some" for the other six, on average. All other students attended schools where instruction was **Somewhat Affected** by resource shortages.



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

School Emphasis on Academic Success

The *School Emphasis on Academic Success* scale was administered to school principals of fourth grade students to collect information about their schools' expectations regarding academic achievement. Based on the IRT scaling, students were placed into three categories according to their principals' responses regarding 12 aspects of the school climate oriented toward academics (see the description in "About the Scale"). Consistent with previous PIRLS results, principals in PIRLS 2021 reported a high degree of emphasis on academics in their schools, so the three categories are described as "very high," "high," and "medium" emphasis.

Exhibit 6.4 shows countries' results, ordered according to the percentage of students attending schools in the "very high emphasis" category from highest to lowest. Across countries, on average, 10 percent of fourth grade students attended schools where the principal reported a "very high emphasis" on academic success, 58 percent attended schools with a "high emphasis," and 32 percent attended schools with a "medium emphasis." Students who attended schools with a higher emphasis on academic success had higher average reading achievement. Students in the "very high emphasis" category had the highest average achievement (525), followed by the "high emphasis" category (509). Students in the "medium emphasis" category had the lowest average reading achievement (486).

Exhibit 6.4: School Emphasis on Academic Success – Principals' Reports

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Very High Emphasis		High Emphasis		Medium Emphasis		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Saudi Arabia	43 (5.0)	459 (5.7)	51 (4.9)	442 (5.7)	5 (2.1)	435 (23.4)	12.5 (0.24)
Bahrain	37 (2.9)	474 (5.3)	55 (3.1)	451 (5.1)	8 (1.6)	440 (14.8)	12.3 (0.13)
Qatar	34 (3.3)	509 (6.2)	57 (3.5)	476 (5.5)	9 (1.9)	455 (7.9)	12.1 (0.14)
Oman	31 (3.5)	441 (6.9)	61 (3.6)	425 (5.1)	8 (1.9)	415 (13.7)	11.9 (0.15)
United Arab Emirates s	27 (1.3)	545 (6.0)	57 (1.5)	512 (2.8)	16 (0.7)	430 (5.8)	11.6 (0.07)
Ireland	20 (3.3)	593 (4.7)	59 (4.0)	581 (3.5)	21 (2.7)	551 (4.6)	11.2 (0.17)
New Zealand r	18 (3.2)	562 (5.4)	55 (4.6)	523 (4.8)	26 (3.7)	489 (6.7)	10.9 (0.18)
Kazakhstan	17 (2.9)	512 (5.7)	71 (3.4)	501 (3.3)	12 (2.3)	504 (9.5)	11.2 (0.13)
North Macedonia	16 (3.4)	447 (16.9)	56 (4.7)	450 (5.6)	28 (4.2)	426 (10.0)	10.7 (0.20)
Northern Ireland	16 (3.4)	585 (5.7)	70 (4.5)	568 (3.2)	14 (3.1)	538 (7.8)	11.0 (0.16)
Iran, Islamic Rep. of ⋈	15 (3.1)	445 (8.8)	53 (4.0)	413 (7.6)	32 (3.7)	397 (8.3)	10.4 (0.22)
Kosovo	14 (2.6)	417 (8.9)	63 (4.3)	427 (4.3)	22 (3.8)	404 (8.6)	10.7 (0.18)
United States	13 (4.9)	587 (15.2)	45 (6.9)	560 (7.0)	41 (5.6)	521 (13.0)	10.1 (0.26)
Australia ⋈	13 (2.6)	566 (4.5)	58 (3.9)	545 (3.2)	29 (3.1)	520 (4.3)	10.6 (0.14)
Chinese Taipei	12 (2.6)	564 (4.0)	60 (3.7)	546 (2.2)	28 (3.4)	531 (4.3)	10.5 (0.16)
Turkiye	12 (2.2)	539 (4.9)	51 (3.7)	509 (3.5)	37 (3.3)	464 (6.2)	10.2 (0.15)
England ⋈	12 (2.6)	580 (7.0)	61 (4.0)	563 (3.4)	26 (3.4)	539 (4.0)	10.6 (0.15)
Albania	12 (2.2)	552 (6.4)	66 (3.5)	514 (4.1)	22 (3.2)	492 (7.0)	10.7 (0.13)
Singapore	11 (0.0)	615 (6.1)	73 (0.0)	589 (3.7)	16 (0.0)	559 (8.3)	10.9 (0.00)
Cyprus	10 (3.3)	541 (7.9)	51 (3.8)	518 (4.2)	38 (3.9)	493 (4.1)	10.0 (0.18)
Spain	10 (1.8)	529 (5.6)	68 (3.2)	524 (2.8)	22 (2.8)	506 (5.9)	10.7 (0.11)
Serbia	10 (2.5)	514 (10.1)	68 (3.9)	519 (3.3)	22 (3.6)	495 (6.7)	10.7 (0.16)
Uzbekistan	10 (2.3)	449 (8.8)	71 (3.5)	437 (3.3)	19 (2.9)	431 (6.2)	10.8 (0.13)
Jordan	10 (2.6)	405 (15.6)	55 (3.5)	396 (6.8)	35 (3.3)	351 (11.0)	10.1 (0.21)
Macao SAR	9 (0.0)	562 (2.6)	51 (0.1)	542 (1.5)	39 (0.1)	521 (1.9)	10.1 (0.00)
Lithuania s	9 (4.3)	555 (10.9)	77 (4.4)	550 (2.4)	13 (2.4)	536 (6.7)	10.7 (0.15)
Bulgaria	9 (2.3)	577 (7.7)	58 (4.2)	554 (4.8)	33 (3.6)	505 (7.9)	10.2 (0.14)
Poland	9 (2.4)	558 (4.9)	56 (4.1)	553 (2.8)	35 (3.9)	540 (3.6)	10.2 (0.16)
Israel ⋈	8 (2.1)	509 (11.9)	66 (3.7)	516 (3.9)	25 (3.3)	498 (7.4)	10.4 (0.15)
Egypt	8 (2.0)	404 (21.1)	61 (4.0)	383 (6.5)	31 (3.7)	363 (10.1)	10.1 (0.14)
Austria	8 (2.3)	539 (10.4)	62 (4.2)	535 (2.9)	30 (3.7)	516 (3.8)	10.4 (0.13)
Denmark	7 (2.1)	562 (9.6)	61 (3.7)	543 (3.1)	32 (3.4)	525 (3.9)	10.2 (0.14)
Azerbaijan	7 (2.3)	437 (18.4)	60 (3.9)	442 (5.4)	33 (3.8)	438 (7.3)	10.0 (0.15)
Finland	7 (2.3)	569 (8.5)	70 (3.5)	552 (2.5)	23 (3.2)	536 (4.4)	10.4 (0.14)
Sweden r	7 (2.4)	583 (8.7)	50 (4.3)	555 (4.3)	44 (4.2)	529 (4.3)	9.7 (0.18)
Portugal	6 (1.7)	550 (11.4)	51 (3.5)	526 (2.6)	43 (3.3)	508 (3.7)	9.7 (0.13)
Croatia	5 (2.0)	560 (6.2)	73 (4.1)	558 (3.1)	22 (3.8)	553 (6.5)	10.4 (0.14)
South Africa ⋈	5 (1.4)	392 (29.4)	37 (3.7)	302 (9.7)	58 (3.8)	268 (6.5)	9.2 (0.14)
France	5 (1.3)	526 (8.9)	66 (3.4)	522 (3.0)	29 (3.4)	495 (4.0)	10.2 (0.13)
Hong Kong SAR	5 (1.8)	582 (10.0)	53 (3.7)	578 (3.7)	42 (3.8)	565 (4.5)	9.7 (0.15)
Montenegro	5 (0.7)	492 (7.5)	75 (0.8)	487 (1.9)	20 (0.3)	486 (3.0)	10.4 (0.03)
Brazil ⋈	4 (1.6)	474 (28.9)	51 (4.8)	439 (6.8)	45 (5.0)	391 (10.9)	9.5 (0.19)
Georgia	4 (1.4)	517 (9.7)	57 (4.1)	496 (3.5)	39 (4.1)	492 (4.4)	9.8 (0.14)
Germany r	4 (1.4)	546 (7.5)	61 (3.2)	534 (3.0)	35 (3.1)	503 (3.8)	9.7 (0.10)
Belgium (French)	4 (1.6)	525 (7.9)	44 (3.8)	507 (4.5)	53 (3.7)	483 (3.5)	9.3 (0.14)
Hungary	3 (1.5)	584 (18.4)	50 (4.5)	551 (4.7)	47 (4.3)	521 (5.9)	9.4 (0.12)
Slovak Republic	3 (1.3)	564 (11.2)	50 (3.8)	541 (3.2)	47 (3.7)	516 (5.0)	9.4 (0.12)
Russian Federation	3 (1.1)	585 (18.1)	63 (3.3)	573 (3.8)	34 (2.9)	555 (6.4)	9.9 (0.11)
Netherlands r	3 (1.8)	553 (10.4)	42 (5.4)	532 (4.3)	56 (5.0)	520 (4.9)	9.3 (0.16)
Latvia	3 (1.3)	500 (42.1)	54 (3.8)	536 (3.1)	43 (3.8)	518 (3.8)	9.5 (0.09)
Malta	2 ~	~ ~	75 (5.3)	521 (3.7)	23 (5.2)	486 (6.3)	10.5 (0.17)
Norway (5)	1 ~	~ ~	51 (4.2)	548 (2.4)	48 (4.3)	530 (2.9)	9.4 (0.13)
Morocco	1 ~	~ ~	33 (3.4)	392 (8.7)	66 (3.3)	364 (5.9)	8.5 (0.12)
Belgium (Flemish)	1 ~	~ ~	45 (4.6)	519 (3.4)	55 (4.7)	502 (3.3)	9.0 (0.14)
Czech Republic	1 ~	~ ~	53 (4.0)	550 (2.9)	46 (4.0)	527 (3.2)	9.5 (0.10)
Italy	1 ~	~ ~	45 (3.6)	545 (3.5)	54 (3.5)	532 (2.8)	9.1 (0.11)
Slovenia r	0 ~	~ ~	46 (4.6)	522 (3.1)	54 (4.6)	517 (2.8)	9.3 (0.12)
International Average	**10 (0.3)**	**525 (1.8)**	**58 (0.5)**	**509 (0.6)**	**32 (0.5)**	**486 (1.0)**	
Benchmarking Participants							
Dubai, UAE s	49 (0.4)	592 (1.6)	38 (0.4)	560 (3.2)	12 (0.3)	512 (2.9)	13.0 (0.02)
Abu Dhabi, UAE r	24 (3.2)	519 (8.5)	52 (3.6)	491 (7.0)	24 (1.7)	385 (10.0)	11.0 (0.14)
Alberta, Canada	18 (4.7)	554 (6.4)	65 (5.4)	540 (5.4)	16 (4.1)	530 (9.5)	11.3 (0.25)
Newfoundland & Labrador, Canada r	12 (4.5)	564 (8.1)	73 (5.0)	521 (3.5)	16 (2.9)	509 (4.8)	10.8 (0.23)
British Columbia, Canada r	11 (2.5)	571 (6.8)	55 (4.7)	544 (4.9)	34 (4.5)	519 (6.0)	10.2 (0.19)
Quebec, Canada	7 (2.5)	571 (4.3)	65 (4.5)	555 (3.6)	28 (4.4)	539 (3.7)	10.3 (0.16)
South Africa (6) ⋈	6 (2.2)	399 (33.0)	27 (3.3)	409 (13.1)	67 (3.8)	370 (6.5)	8.8 (0.19)
Moscow City, Russian Federation	4 (1.0)	605 (6.5)	80 (2.8)	599 (2.4)	17 (2.8)	593 (3.8)	10.5 (0.09)

This PIRLS context questionnaire scale was established in 2011 based on the combined response distribution of countries that participated in PIRLS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

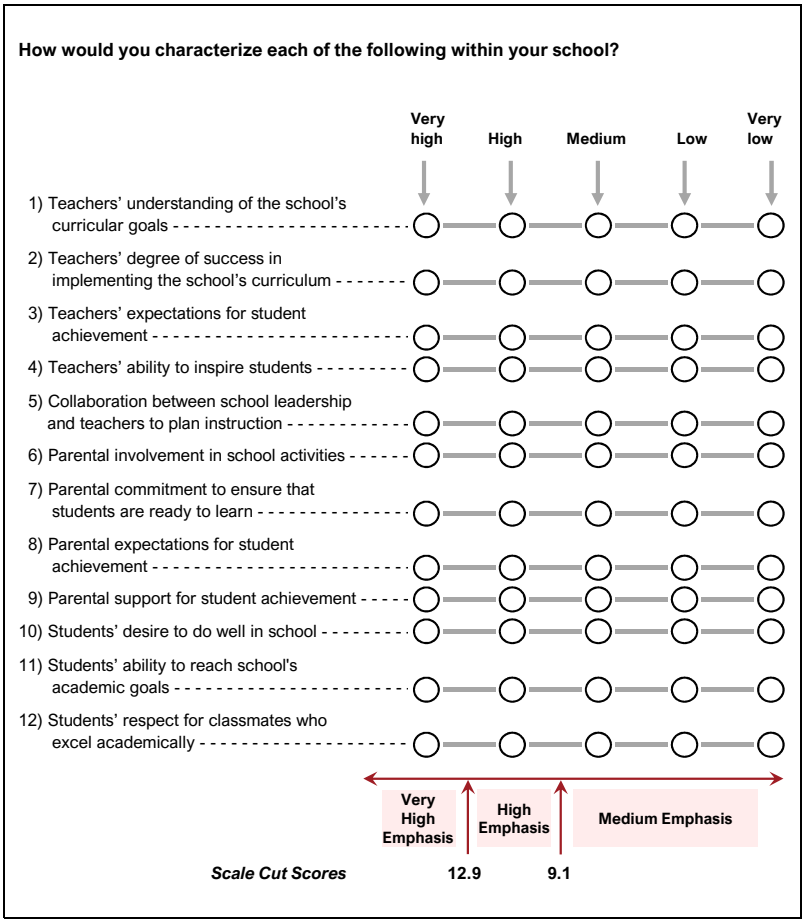
A tilde (~) indicates insufficient data to report result.

Exhibit 6.4: School Emphasis on Academic Success – Principals' Reports

Students' Results based on Principals' Reports

About the Scale

Students were scored according to their principals' responses characterizing twelve aspects on the *School Emphasis on Academic Success* scale. Cut scores divide the scale into three categories. Students in schools with a **Very High Emphasis** on academic success had a score at or above the cut score corresponding to their principals characterizing six of the twelve aspects as "very high" and the other six as "high," on average. Students in schools with a **Medium Emphasis** on academic success had a score at or below the cut score corresponding to their principals characterizing six of the twelve aspects as "medium" and the other six as "high," on average. All other students attended schools with a **High Emphasis** on academic success.



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

School Discipline

Exhibit 6.5 presents the results of the PIRLS 2021 *School Discipline* scale. The PIRLS 2021 School Questionnaire asked school principals for their perceptions about the extent that ten discipline, disorder, and bullying behaviors were problems among fourth grade students in their school. In countries where the assessment of the fourth grade cohort was delayed to the beginning of the fifth year of schooling, principals were asked to answer in terms of the fourth grade cohort from the previous school year. As detailed in the "About the Scale," IRT was used to create scale scores and students were categorized as attending three types of schools regarding discipline and safety, those with "hardly any problems," "minor problems," or "moderate to severe problems."

In Exhibit 6.5, the countries' results are presented according to the percentage of students in schools where principals reported "hardly any problems" with discipline and safety, from highest to lowest. On average, across countries, the majority of fourth grade students (64%) attended schools with "hardly any problems," and 27 percent attended schools with "minor problems." Although there was considerable variation across countries, only 9 percent of students, on average, attended schools where principals reported "moderate to severe problems" with discipline and safety.

Considerable research has shown that a higher degree of school safety is associated with higher student achievement. Consistent with this research and previous PIRLS assessments, PIRLS 2021 found that average reading achievement was relatively higher for students in schools with "hardly any problems" than for students in schools with "minor problems" (510 vs. 493). Average reading achievement for students who attended schools having "moderate to severe problems" with school discipline was 465, substantially lower (28 points) than for students in schools with "minor problems."

Exhibit 6.5: School Discipline – Principals' Reports

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Hardly Any Problems		Minor Problems		Moderate to Severe Problems		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Hong Kong SAR	93 (2.2)	574 (2.7)	7 (2.2)	550 (11.7)	0 ~	~ ~	12.0 (0.11)
Malta	87 (4.8)	515 (3.3)	12 (4.4)	496 (14.3)	2 ~	~ ~	11.4 (0.17)
Bahrain	85 (2.1)	462 (3.6)	9 (1.7)	445 (11.9)	6 (1.4)	426 (12.0)	11.1 (0.10)
Qatar	84 (2.3)	487 (3.9)	12 (2.5)	473 (14.8)	4 (1.5)	486 (7.8)	11.1 (0.10)
Northern Ireland	84 (3.3)	571 (3.1)	15 (3.2)	540 (6.6)	1 ~	~ ~	11.1 (0.11)
Montenegro	83 (0.3)	489 (1.7)	14 (0.3)	486 (4.8)	2 ~	~ ~	11.4 (0.02)
Albania	82 (3.3)	515 (3.5)	11 (2.7)	502 (7.1)	8 (1.8)	512 (15.6)	11.1 (0.16)
Czech Republic	81 (2.9)	542 (2.7)	17 (2.7)	526 (6.2)	1 ~	~ ~	10.8 (0.10)
Chinese Taipei	81 (3.1)	545 (2.4)	18 (3.0)	541 (3.8)	1 ~	~ ~	11.2 (0.13)
Singapore	81 (0.0)	589 (3.5)	19 (0.0)	580 (8.1)	0 ~	~ ~	11.1 (0.00)
Spain	80 (2.8)	524 (2.6)	14 (2.6)	504 (8.3)	5 (1.1)	511 (9.3)	11.0 (0.11)
Bulgaria	80 (2.7)	549 (3.4)	15 (2.8)	515 (11.3)	4 (1.7)	458 (34.0)	11.0 (0.12)
Serbia	80 (3.2)	516 (3.1)	20 (3.2)	506 (7.8)	0 ~	~ ~	11.0 (0.13)
United Arab Emirates s	79 (1.9)	523 (2.5)	14 (1.5)	449 (8.8)	7 (1.3)	474 (10.8)	10.8 (0.10)
Ireland	79 (3.0)	584 (2.8)	20 (3.2)	552 (6.7)	2 ~	~ ~	10.9 (0.10)
Macao SAR	77 (0.1)	539 (1.4)	13 (0.1)	531 (3.0)	9 (0.1)	515 (3.1)	10.9 (0.00)
Croatia	77 (3.8)	559 (2.7)	20 (3.7)	554 (7.0)	3 (1.4)	521 (24.7)	10.7 (0.13)
Kazakhstan	77 (2.8)	504 (2.8)	9 (2.1)	512 (11.9)	13 (2.4)	496 (7.4)	10.8 (0.16)
Georgia	77 (2.8)	494 (2.7)	15 (2.4)	495 (6.3)	7 (2.0)	500 (12.5)	10.7 (0.14)
North Macedonia	77 (4.0)	451 (5.2)	18 (4.1)	422 (12.4)	5 (2.2)	396 (25.4)	11.1 (0.17)
England ⋈	76 (3.2)	564 (3.0)	22 (3.1)	542 (4.8)	2 ~	~ ~	10.5 (0.11)
Lithuania s	75 (4.4)	550 (2.9)	24 (4.4)	547 (5.5)	1 ~	~ ~	10.7 (0.13)
Slovak Republic	74 (3.5)	536 (2.9)	22 (3.3)	515 (8.4)	4 (1.6)	504 (24.5)	10.6 (0.12)
Brazil ⋈	72 (4.4)	427 (5.8)	25 (4.3)	397 (16.2)	3 (1.0)	411 (26.3)	10.7 (0.16)
United States	69 (5.6)	566 (6.7)	30 (5.5)	506 (13.8)	1 ~	~ ~	10.3 (0.17)
Australia ⋈	69 (3.6)	548 (2.8)	29 (3.6)	525 (4.2)	2 ~	~ ~	10.4 (0.10)
Azerbaijan	69 (3.6)	436 (5.3)	14 (2.8)	469 (11.0)	18 (3.1)	431 (10.0)	10.1 (0.20)
Finland	68 (3.5)	554 (2.5)	30 (3.4)	541 (4.6)	2 ~	~ ~	10.3 (0.10)
Russian Federation	68 (3.4)	568 (4.5)	30 (3.4)	568 (5.2)	2 ~	~ ~	10.4 (0.10)
Slovenia r	65 (4.3)	519 (2.6)	31 (3.9)	517 (3.8)	4 (2.3)	535 (6.9)	10.3 (0.14)
Iran, Islamic Rep. of ⋈	65 (3.5)	421 (6.5)	28 (3.1)	395 (9.3)	7 (1.6)	410 (13.8)	10.3 (0.14)
Cyprus	62 (4.5)	518 (4.0)	34 (4.6)	498 (4.2)	4 (1.6)	502 (13.1)	10.0 (0.13)
Latvia	62 (4.1)	529 (3.2)	37 (4.0)	525 (4.5)	1 ~	~ ~	10.2 (0.10)
Denmark	62 (3.7)	543 (3.3)	36 (3.6)	532 (3.6)	3 (1.1)	514 (20.0)	10.2 (0.10)
Poland	61 (3.8)	551 (2.7)	37 (3.8)	546 (3.9)	2 ~	~ ~	10.1 (0.10)
Belgium (French)	59 (4.1)	503 (3.8)	37 (4.2)	485 (4.9)	4 (1.4)	467 (8.1)	10.2 (0.11)
France	59 (4.0)	523 (3.6)	37 (3.9)	505 (3.9)	4 (1.5)	466 (17.6)	10.2 (0.13)
Hungary	58 (4.2)	554 (3.2)	36 (4.1)	522 (6.7)	7 (2.6)	492 (29.0)	10.0 (0.14)
Uzbekistan	58 (4.1)	435 (3.6)	7 (2.2)	455 (7.3)	35 (4.0)	438 (5.2)	9.3 (0.28)
Belgium (Flemish)	57 (4.8)	517 (3.3)	37 (4.7)	506 (3.9)	6 (2.2)	477 (9.7)	10.2 (0.14)
Portugal	55 (3.9)	525 (3.1)	37 (3.8)	514 (3.1)	8 (2.2)	510 (12.6)	10.0 (0.15)
Oman	55 (3.5)	438 (5.1)	22 (2.8)	416 (6.6)	23 (3.0)	423 (7.6)	9.5 (0.19)
New Zealand r	54 (4.2)	540 (4.3)	40 (4.5)	503 (5.6)	6 (2.0)	470 (10.1)	10.1 (0.12)
Austria	53 (4.0)	534 (3.5)	42 (4.1)	524 (3.1)	4 (1.7)	529 (15.6)	10.0 (0.11)
Italy	53 (4.0)	543 (2.8)	31 (3.5)	535 (3.8)	16 (2.8)	522 (6.3)	9.6 (0.16)
Norway (5)	49 (4.2)	544 (2.9)	48 (4.3)	535 (3.1)	3 (1.4)	534 (5.8)	9.8 (0.10)
Kosovo	48 (5.2)	426 (5.2)	32 (4.7)	417 (5.3)	20 (3.2)	413 (9.8)	9.4 (0.19)
Israel ⋈	46 (4.0)	519 (5.3)	43 (3.6)	506 (4.8)	11 (2.6)	489 (10.3)	9.5 (0.14)
Saudi Arabia	45 (4.7)	463 (5.7)	13 (3.1)	430 (9.5)	41 (4.9)	439 (6.8)	9.0 (0.28)
Turkiye	43 (4.0)	504 (5.0)	27 (3.8)	492 (7.7)	30 (3.8)	489 (7.0)	8.9 (0.21)
Netherlands r	43 (5.3)	529 (4.2)	50 (5.6)	524 (5.3)	7 (2.4)	518 (6.5)	9.5 (0.13)
Germany r	42 (3.5)	538 (3.9)	52 (3.6)	516 (3.2)	6 (1.6)	492 (9.7)	9.6 (0.09)
Sweden r	42 (5.0)	555 (4.9)	58 (5.0)	540 (3.7)	0 ~	~ ~	9.6 (0.12)
Jordan	30 (3.3)	399 (10.0)	41 (3.7)	363 (9.3)	30 (3.8)	386 (11.0)	8.6 (0.15)
South Africa ⋈	30 (4.0)	347 (13.6)	55 (4.0)	268 (6.9)	15 (2.2)	240 (8.5)	9.0 (0.09)
Egypt	24 (3.0)	406 (10.2)	40 (3.5)	362 (7.2)	37 (3.4)	378 (9.7)	8.3 (0.17)
Morocco	16 (2.7)	367 (9.4)	23 (3.1)	378 (9.6)	61 (3.4)	373 (6.1)	7.2 (0.16)
International Average	**64 (0.5)**	**510 (0.6)**	**27 (0.5)**	**493 (1.0)**	**9 (0.3)**	**465 (2.3)**	
Benchmarking Participants							
Dubai, UAE s	89 (0.3)	575 (1.6)	9 (0.3)	542 (5.7)	2 ~	~ ~	11.7 (0.01)
Abu Dhabi, UAE r	76 (1.7)	501 (3.8)	17 (1.2)	376 (10.6)	7 (1.7)	417 (19.5)	10.7 (0.08)
Newfoundland & Labrador, Canada r	73 (6.1)	529 (4.3)	25 (6.0)	510 (6.5)	1 ~	~ ~	10.6 (0.18)
Quebec, Canada	71 (5.0)	555 (3.1)	27 (5.0)	546 (5.4)	2 ~	~ ~	10.4 (0.14)
Alberta, Canada	70 (5.6)	548 (4.5)	28 (5.4)	525 (7.1)	1 ~	~ ~	10.7 (0.18)
British Columbia, Canada r	67 (4.9)	545 (4.5)	32 (4.8)	523 (6.8)	2 ~	~ ~	10.4 (0.15)
Moscow City, Russian Federation	63 (3.8)	599 (2.5)	37 (3.8)	597 (3.5)	0 ~	~ ~	10.3 (0.08)
South Africa (6) ⋈	29 (3.6)	425 (12.3)	53 (4.3)	377 (7.9)	19 (3.2)	340 (9.6)	8.9 (0.11)

This PIRLS context questionnaire scale was established in 2011 based on the combined response distribution of countries that participated in PIRLS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

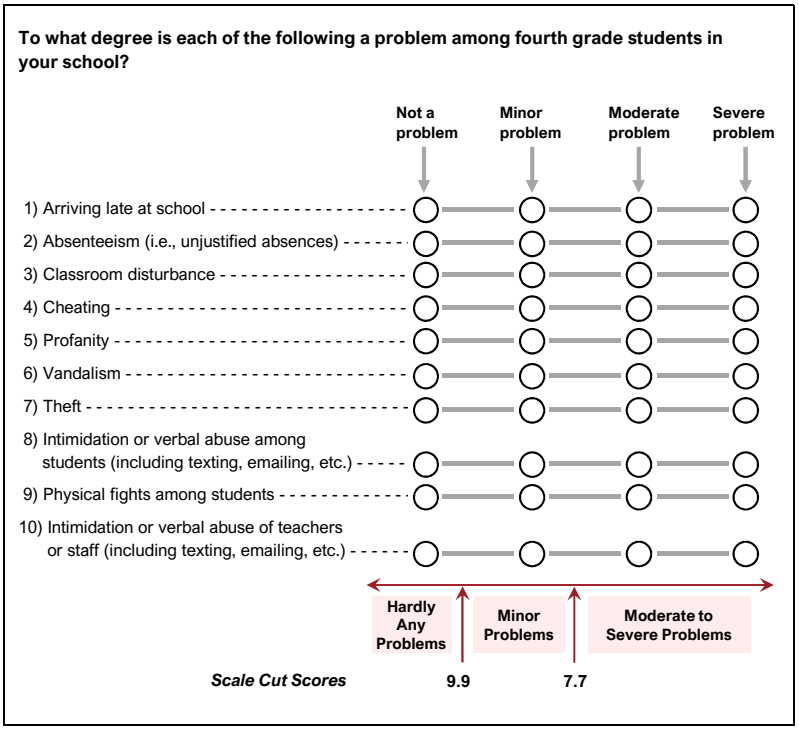
A tilde (~) indicates insufficient data to report result.

Exhibit 6.5: School Discipline – Principals' Reports

Students' Results based on Principals' Reports

About the Scale

Students were scored according to their principals' reports regarding ten potential problems on the *School Discipline* scale. Cut scores divide the scale into three categories. Students in schools with **Hardly Any Problems** had a score at or above the cut score corresponding to their principals reporting that five of the ten issues are "not a problem" and the other five are a "minor problem," on average. Students in schools with **Moderate to Severe Problems** had a score at or below the cut score corresponding to their principals reporting that five of the ten issues are a "moderate problem" and the other five are a "minor problem," on average. All other students were in schools with **Minor Problems**.



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

SECTION 7

Students' Reading Attitudes and Behaviors

The results in this section about Students' Reading Attitudes and Behaviors are based on students' responses to the PIRLS 2021 Student Questionnaire. The TIMSS & PIRLS International Study Center conducted a series of analyses to establish that there was little or no discernable impact in the responses to the Student Questionnaire due to COVID-19 or delayed testing. The exhibits include the results for all 57 countries and 8 benchmarking entities that participated in PIRLS 2021 (with the 14 countries that delayed testing highlighted in pink).

Many of the PIRLS 2021 Context Questionnaire items were combined into scales measuring a single underlying latent construct related to reading achievement. This section provides results for two scales: *Students Like Reading* and *Students Confident in Reading*.

PIRLS used item response theory (IRT) scaling methods, specifically the Rasch partial credit model (PCM), to place items on a scale and produce scale scores (see Chapter 15 in *Methods and Procedures: PIRLS 2021 Technical Report*). Each context questionnaire scale enabled students to be classified into regions corresponding to high, middle, and low values on the construct. The "About the Scale" tab associated with each exhibit contains the questionnaire items. It also describes how the three regions reported in the exhibit were defined in terms of combinations of response categories.

PIRLS assessments have contributed to a considerable body of research showing that students with positive attitudes toward reading typically have higher reading achievement. However, it is unclear whether students' positive attitudes toward reading lead to higher reading achievement or whether their positive attitudes result from higher reading achievement. There is evidence in the reading research literature that attitudes and reading achievement have a reciprocal rather than a causal relationship.

Students Like Reading

To create the *Students Like Reading* scale, PIRLS asked students how much they agreed with a series of eight statements about their attitudes toward reading and two items about how often they read outside of school (the items are provided in "About the Scale"). PIRLS used IRT scaling to summarize the results and then classified students into three regions on the scale, "very much like reading," "somewhat like reading," and "do not like reading."

Exhibit 7.1 presents the *Students Like Reading* scale results for the PIRLS 2021 countries, including the percentages of students classified into the three levels of attitudes toward reading (from positive to negative) together with their average achievement. The results are ordered by the percentage of students who reported they "very much like reading" (from highest to lowest). In general, fourth grade students had positive attitudes about reading—42 percent, on average, reported they "very much like reading" and another 40 percent reported that they "somewhat like reading." However, as a matter of some concern in today's information-driven society, 18 percent of these young students, on average, responded negatively that they "do not like reading."

There was a modest relationship between liking reading and reading achievement at the fourth grade. Students who responded that they "do not like reading" had lower average reading achievement (491) than students who "very much like reading" (513) and students who "somewhat like reading" (501).

Exhibit 7.1: Students Like Reading

Students' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Very Much Like Reading		Somewhat Like Reading		Do Not Like Reading		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Kosovo	85 (0.9)	426 (3.0)	13 (0.8)	407 (5.9)	2 ~	~ ~	12.4 (0.05)
Uzbekistan	83 (0.9)	446 (2.8)	15 (0.8)	403 (5.2)	2 ~	~ ~	12.5 (0.07)
Albania	81 (0.7)	517 (3.2)	17 (0.6)	503 (5.0)	2 ~	~ ~	12.1 (0.05)
North Macedonia	70 (1.3)	446 (6.4)	24 (1.0)	443 (5.2)	6 (0.6)	435 (10.2)	11.5 (0.07)
Iran, Islamic Rep. of ⋈	66 (1.2)	424 (4.2)	29 (1.0)	400 (7.7)	5 (0.6)	356 (15.1)	11.2 (0.06)
Azerbaijan	63 (1.1)	446 (3.8)	32 (0.9)	439 (4.5)	5 (0.5)	421 (10.3)	11.2 (0.05)
Turkiye	62 (1.2)	503 (3.3)	32 (1.0)	486 (4.9)	6 (0.4)	487 (6.4)	11.2 (0.06)
Morocco	62 (1.7)	388 (4.4)	33 (1.6)	353 (6.8)	5 (0.9)	318 (10.6)	11.1 (0.08)
Saudi Arabia	61 (1.2)	462 (3.6)	32 (1.1)	432 (5.2)	7 (0.5)	438 (6.7)	11.1 (0.06)
Portugal	60 (1.0)	520 (2.6)	34 (0.8)	518 (3.0)	6 (0.4)	525 (4.9)	11.0 (0.04)
Montenegro	59 (0.8)	495 (2.1)	33 (0.7)	483 (2.3)	8 (0.6)	472 (4.4)	11.0 (0.04)
Georgia	59 (1.2)	498 (2.9)	34 (0.9)	493 (2.9)	7 (0.7)	504 (8.6)	10.9 (0.05)
Oman	58 (1.1)	447 (4.0)	36 (1.0)	415 (4.6)	6 (0.4)	387 (8.5)	10.9 (0.06)
Jordan	55 (1.5)	394 (5.7)	34 (1.1)	369 (6.7)	10 (1.1)	356 (13.3)	10.7 (0.07)
Spain	54 (1.0)	527 (2.6)	35 (0.8)	517 (2.7)	11 (0.5)	509 (3.8)	10.7 (0.05)
Kazakhstan	53 (1.0)	501 (2.6)	39 (0.8)	504 (3.4)	7 (0.4)	518 (5.8)	10.6 (0.04)
United Arab Emirates	53 (0.5)	501 (1.9)	37 (0.4)	469 (2.5)	10 (0.2)	464 (3.8)	10.6 (0.02)
Bahrain	51 (1.0)	474 (3.7)	39 (0.9)	452 (3.9)	10 (0.5)	437 (6.9)	10.6 (0.04)
Bulgaria	51 (1.4)	548 (3.4)	37 (1.3)	541 (4.2)	12 (0.7)	511 (5.5)	10.6 (0.06)
South Africa ⋈	50 (1.6)	312 (4.6)	40 (1.3)	275 (5.5)	11 (0.6)	262 (10.5)	10.6 (0.09)
Qatar	49 (1.1)	500 (4.0)	40 (0.9)	477 (4.6)	11 (0.6)	467 (5.5)	10.5 (0.05)
Brazil ⋈	47 (1.6)	425 (6.0)	39 (1.3)	426 (6.2)	14 (0.8)	436 (7.9)	10.4 (0.07)
Malta	46 (1.2)	516 (3.6)	39 (0.9)	517 (3.5)	15 (0.9)	510 (4.1)	10.3 (0.06)
Serbia	45 (1.5)	516 (4.3)	40 (1.5)	514 (3.4)	16 (1.1)	508 (4.6)	10.2 (0.06)
Egypt	44 (1.6)	406 (5.8)	45 (1.5)	370 (6.2)	12 (0.7)	346 (8.1)	10.3 (0.06)
Italy	41 (0.9)	541 (2.6)	42 (0.8)	536 (2.6)	17 (0.7)	533 (3.0)	10.0 (0.04)
Israel ⋈	40 (1.0)	519 (2.6)	41 (0.8)	507 (2.9)	19 (0.8)	507 (3.1)	9.9 (0.05)
Chinese Taipei	39 (1.0)	560 (2.3)	43 (0.9)	537 (2.5)	19 (0.8)	526 (3.2)	9.9 (0.05)
New Zealand	38 (0.8)	532 (3.2)	44 (0.7)	521 (3.0)	18 (0.7)	511 (2.8)	9.9 (0.04)
Cyprus	37 (1.0)	517 (3.2)	41 (0.7)	511 (3.8)	21 (0.9)	501 (3.7)	9.8 (0.05)
France	36 (1.1)	526 (2.8)	47 (0.9)	514 (2.8)	17 (0.7)	490 (3.7)	9.9 (0.05)
Russian Federation	35 (1.4)	564 (5.6)	47 (1.0)	570 (3.5)	18 (0.9)	567 (3.4)	9.8 (0.06)
Germany r	34 (0.9)	544 (3.2)	44 (0.9)	530 (2.5)	22 (0.7)	509 (3.1)	9.6 (0.04)
Singapore	33 (0.8)	607 (4.1)	47 (0.8)	586 (3.3)	20 (0.6)	560 (3.8)	9.6 (0.03)
Austria	32 (1.1)	539 (2.6)	46 (1.0)	530 (2.9)	22 (1.1)	517 (3.1)	9.6 (0.05)
Belgium (French)	31 (1.1)	498 (3.9)	45 (0.9)	498 (3.2)	24 (1.0)	484 (3.2)	9.6 (0.06)
Ireland	31 (1.0)	593 (3.6)	45 (0.9)	578 (2.9)	23 (0.9)	556 (3.1)	9.5 (0.04)
Macao SAR	31 (0.6)	553 (1.9)	48 (0.6)	535 (1.6)	21 (0.5)	512 (2.7)	9.6 (0.02)
Hong Kong SAR	30 (0.9)	590 (2.9)	47 (0.8)	573 (3.0)	23 (0.8)	550 (4.0)	9.6 (0.05)
Slovak Republic	29 (1.0)	530 (3.4)	45 (1.1)	534 (3.5)	26 (1.0)	523 (3.7)	9.4 (0.04)
Australia ⋈	29 (0.9)	562 (3.8)	45 (1.0)	542 (2.8)	26 (0.9)	517 (3.2)	9.4 (0.05)
England ⋈	29 (0.8)	570 (3.7)	48 (0.9)	562 (2.8)	24 (1.1)	536 (3.4)	9.4 (0.05)
Northern Ireland	28 (1.0)	585 (3.7)	47 (0.9)	570 (2.8)	25 (1.0)	542 (3.2)	9.4 (0.05)
Slovenia	28 (0.7)	530 (2.8)	50 (0.9)	521 (2.3)	23 (1.0)	507 (2.8)	9.4 (0.04)
Czech Republic	27 (1.0)	540 (4.1)	49 (1.1)	545 (2.3)	23 (0.8)	530 (3.0)	9.4 (0.04)
Belgium (Flemish)	27 (0.9)	516 (3.3)	43 (0.7)	512 (2.8)	29 (1.0)	505 (2.6)	9.3 (0.05)
Hungary	27 (1.0)	555 (4.7)	46 (0.9)	539 (4.0)	28 (0.9)	527 (3.7)	9.3 (0.04)
United States	25 (1.4)	559 (8.6)	50 (1.4)	557 (6.3)	24 (1.4)	530 (6.7)	9.4 (0.06)
Finland	23 (0.8)	563 (3.9)	46 (0.8)	555 (2.6)	30 (0.9)	533 (2.5)	9.1 (0.04)
Poland	23 (1.1)	555 (4.0)	49 (1.2)	556 (2.5)	28 (1.0)	536 (3.3)	9.2 (0.05)
Croatia	23 (0.9)	560 (4.5)	52 (1.1)	557 (2.7)	25 (1.1)	554 (3.5)	9.3 (0.05)
Lithuania	22 (0.8)	555 (3.6)	48 (0.9)	555 (2.8)	30 (1.0)	548 (2.5)	9.1 (0.04)
Sweden	18 (0.6)	544 (4.1)	47 (0.9)	550 (2.6)	35 (0.9)	539 (2.5)	8.8 (0.04)
Netherlands	17 (0.9)	543 (3.9)	46 (1.0)	535 (2.7)	37 (1.1)	511 (3.4)	8.8 (0.04)
Latvia	16 (0.8)	538 (5.3)	47 (1.2)	533 (2.7)	37 (1.0)	520 (2.8)	8.8 (0.03)
Denmark	14 (0.7)	566 (4.2)	50 (0.9)	545 (2.5)	36 (1.1)	524 (3.0)	8.7 (0.04)
Norway (5)	13 (0.6)	556 (4.2)	46 (0.8)	547 (2.4)	41 (1.1)	528 (2.4)	8.6 (0.04)
International Average	**42 (0.1)**	**513 (0.5)**	**40 (0.1)**	**501 (0.5)**	**18 (0.1)**	**491 (0.8)**	
Benchmarking Participants							
Dubai, UAE	50 (0.9)	555 (2.2)	39 (0.7)	552 (2.4)	11 (0.4)	552 (4.1)	10.5 (0.04)
South Africa (6) ⋈	47 (1.2)	413 (3.7)	42 (0.9)	362 (5.6)	11 (0.8)	360 (11.3)	10.4 (0.05)
Abu Dhabi, UAE	46 (0.9)	474 (3.9)	41 (0.7)	416 (4.3)	13 (0.4)	414 (5.8)	10.3 (0.04)
Alberta, Canada	40 (1.4)	548 (4.2)	43 (1.3)	542 (4.1)	17 (0.8)	523 (4.7)	10.0 (0.06)
British Columbia, Canada	37 (1.1)	547 (3.7)	45 (1.1)	536 (4.4)	18 (1.0)	515 (4.7)	9.9 (0.05)
Newfoundland & Labrador, Canada	36 (1.4)	532 (4.4)	43 (1.1)	528 (3.4)	20 (1.0)	507 (5.3)	9.8 (0.08)
Quebec, Canada	36 (1.1)	559 (3.1)	45 (1.0)	552 (3.1)	19 (1.0)	536 (3.7)	9.8 (0.05)
Moscow City, Russian Federation	30 (1.0)	605 (2.5)	47 (0.7)	598 (2.6)	23 (0.9)	590 (2.6)	9.6 (0.05)

This PIRLS context questionnaire scale was established in 2016 based on the combined response distribution of countries that participated in PIRLS 2016. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

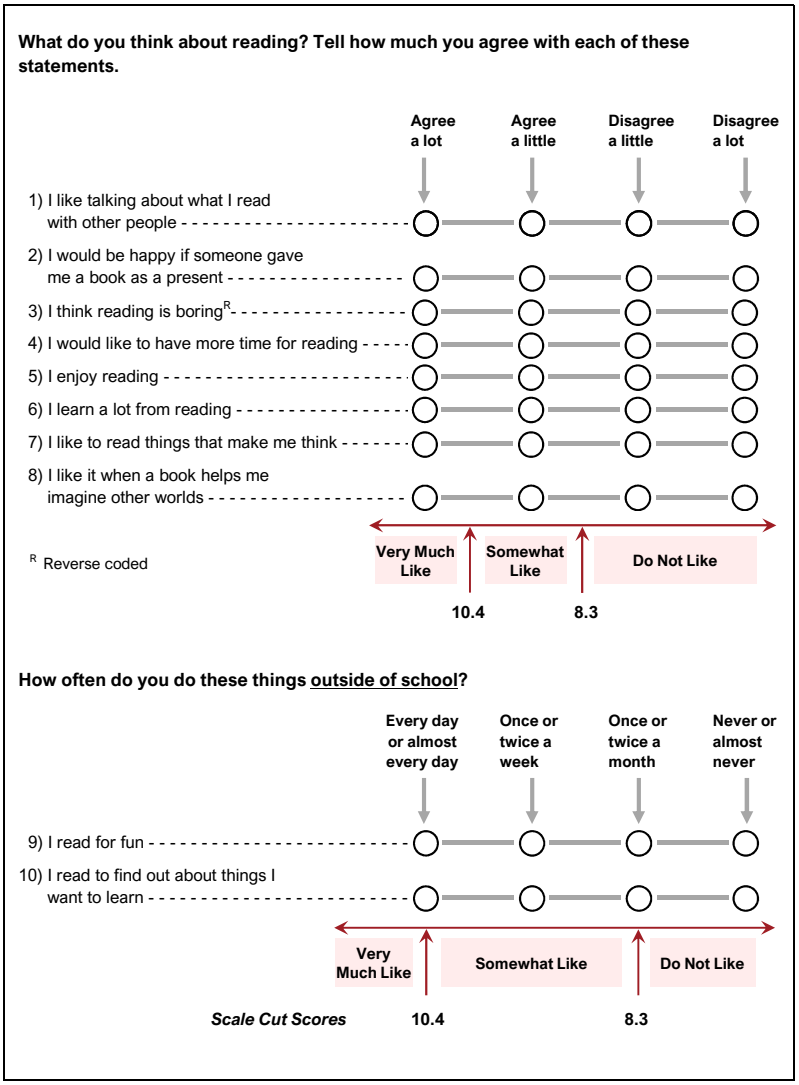
A tilde (~) indicates insufficient data to report result.

Exhibit 7.1: Students Like Reading

Students' Reports

About the Scale

Students were scored on the *Students Like Reading* scale according to their degree of agreement with eight statements and how often they did two reading activities outside of school. Students who **Very Much Like Reading** had a score at or above the cut score corresponding to "agreeing a lot" with four of the eight statements and "agreeing a little" with the other four, as well as doing one of the two reading activities outside of school "every day or almost every day," on average. Students who **Do Not Like Reading** had a score at or below the cut score corresponding to "disagreeing a little" with four of the eight statements and "agreeing a little" with the other four, as well as doing one of two the reading activities only "once or twice a month," on average. All other students **Somewhat Like Reading**.



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Exhibit 7.2 reports results for the *Students Like Reading* scale by gender, with countries ordered according to the difference between the percentage of girls and the percentage of boys who "very much like reading" from lowest to highest. Across countries in general, higher percentages of girls than boys responded that they "very much like reading," on average—46 percent of girls vs. 37 percent of boys.

Exhibit 7.2: Students Like Reading by Gender

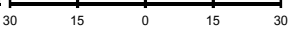
Students' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country		Very Much Like Reading		Somewhat Like Reading		Do Not Like Reading		Gender Difference in Percent of Students who Very Much Like Reading
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	More Girls Than Boys / More Boys Than Girls
Brazil ⋈	Girls	48 (1.6)	438 (6.2)	40 (1.4)	438 (7.6)	12 (1.0)	433 (12.6)	
	Boys	47 (2.2)	411 (7.4)	38 (1.8)	414 (8.3)	15 (1.1)	438 (10.3)	
Norway (5)	Girls	15 (0.9)	565 (5.6)	49 (1.1)	553 (2.7)	37 (1.2)	536 (3.0)	
	Boys	12 (0.8)	547 (6.5)	43 (1.2)	540 (3.5)	45 (1.5)	521 (2.9)	
Poland	Girls	25 (1.4)	563 (5.3)	53 (1.4)	565 (2.9)	22 (1.2)	547 (4.6)	
	Boys	22 (1.4)	547 (5.3)	45 (1.5)	547 (3.1)	34 (1.4)	529 (4.0)	
Russian Federation	Girls	37 (1.4)	571 (4.8)	47 (1.3)	577 (3.6)	16 (1.1)	572 (4.9)	
	Boys	33 (1.5)	556 (7.2)	46 (1.3)	563 (4.6)	21 (1.0)	563 (4.0)	
Macao SAR	Girls	33 (0.9)	558 (2.4)	48 (0.9)	539 (2.0)	19 (0.7)	517 (3.5)	
	Boys	29 (0.8)	548 (3.0)	48 (0.9)	531 (2.4)	23 (0.7)	508 (3.7)	
Kosovo	Girls	87 (1.1)	436 (2.9)	12 (1.0)	406 (7.9)	2 ~	~ ~	
	Boys	83 (1.0)	415 (3.7)	15 (0.9)	407 (7.2)	2 ~	~ ~	
Belgium (Flemish)	Girls	29 (1.2)	517 (3.8)	44 (1.0)	517 (3.1)	27 (1.3)	510 (3.3)	
	Boys	25 (1.0)	516 (4.2)	43 (1.0)	508 (3.6)	32 (1.2)	500 (3.4)	
Hong Kong SAR	Girls	32 (1.1)	593 (3.5)	49 (1.1)	576 (3.3)	19 (1.0)	553 (4.7)	
	Boys	28 (1.3)	586 (3.9)	46 (1.3)	570 (3.9)	27 (1.1)	548 (4.8)	
Sweden	Girls	20 (1.0)	550 (4.8)	48 (1.3)	558 (3.3)	32 (1.3)	546 (3.1)	
	Boys	15 (0.7)	536 (5.9)	46 (1.3)	541 (3.1)	39 (1.4)	534 (3.1)	
Denmark	Girls	16 (1.0)	572 (5.2)	51 (1.4)	550 (3.0)	33 (1.4)	528 (3.7)	
	Boys	12 (0.9)	557 (6.3)	48 (1.2)	539 (3.2)	40 (1.4)	521 (4.0)	
Iran, Islamic Rep. of ⋈	Girls	69 (1.7)	434 (6.3)	27 (1.5)	404 (12.0)	4 (0.6)	347 (24.4)	
	Boys	64 (1.4)	414 (5.4)	31 (1.2)	396 (8.2)	5 (0.9)	362 (17.9)	
Netherlands	Girls	20 (1.2)	545 (5.4)	47 (1.3)	541 (3.3)	33 (1.3)	517 (4.6)	
	Boys	15 (1.1)	541 (4.8)	45 (1.5)	528 (3.7)	40 (1.5)	506 (3.6)	
Egypt	Girls	47 (2.1)	412 (5.7)	43 (1.8)	378 (7.3)	10 (0.9)	357 (9.2)	
	Boys	41 (1.8)	400 (7.7)	47 (1.7)	362 (7.1)	13 (0.8)	337 (9.6)	
Ireland	Girls	35 (1.4)	598 (4.8)	46 (1.2)	582 (3.4)	19 (1.2)	560 (4.4)	
	Boys	28 (1.3)	588 (4.7)	44 (1.4)	574 (3.5)	27 (1.4)	554 (4.0)	
Latvia	Girls	19 (1.2)	547 (6.2)	50 (1.5)	547 (3.3)	31 (1.3)	531 (3.2)	
	Boys	13 (0.9)	526 (6.4)	44 (1.4)	517 (3.7)	43 (1.4)	512 (3.9)	
Azerbaijan	Girls	67 (1.3)	456 (4.2)	30 (1.2)	448 (5.8)	4 (0.5)	425 (13.8)	
	Boys	60 (1.3)	437 (4.7)	34 (1.2)	432 (5.1)	6 (0.7)	419 (10.5)	
United States	Girls	29 (2.0)	563 (8.8)	50 (2.2)	557 (8.3)	21 (1.9)	538 (9.3)	
	Boys	22 (1.7)	555 (12.3)	51 (1.8)	557 (6.5)	27 (1.6)	523 (8.2)	
Uzbekistan	Girls	87 (0.8)	456 (3.1)	12 (0.8)	415 (5.8)	2 ~	~ ~	
	Boys	80 (1.2)	435 (3.4)	18 (1.1)	396 (6.6)	3 (0.5)	350 (14.8)	
Belgium (French)	Girls	35 (1.5)	501 (5.4)	45 (1.3)	503 (3.7)	20 (1.1)	491 (4.6)	
	Boys	28 (1.5)	496 (4.2)	45 (1.3)	493 (3.9)	28 (1.5)	479 (4.1)	
England ⋈	Girls	32 (1.1)	574 (4.7)	48 (1.1)	567 (3.1)	19 (1.1)	538 (4.9)	
	Boys	25 (1.1)	566 (5.0)	47 (1.3)	556 (4.1)	28 (1.5)	535 (4.2)	
New Zealand	Girls	42 (1.2)	544 (4.0)	43 (1.1)	528 (3.4)	16 (0.9)	513 (4.2)	
	Boys	34 (1.1)	517 (4.0)	45 (1.3)	515 (3.9)	20 (0.9)	509 (3.3)	
Lithuania	Girls	25 (1.2)	562 (4.5)	49 (1.3)	568 (3.2)	25 (1.4)	557 (3.1)	
	Boys	18 (0.9)	545 (5.1)	47 (1.2)	542 (3.5)	35 (1.2)	542 (3.4)	
Chinese Taipei	Girls	43 (1.3)	565 (2.7)	42 (1.2)	541 (3.4)	15 (0.9)	535 (4.2)	
	Boys	35 (1.3)	553 (2.8)	43 (1.1)	533 (2.8)	22 (1.1)	521 (4.1)	
Qatar	Girls	53 (1.3)	504 (4.3)	38 (1.2)	486 (5.9)	9 (0.6)	473 (8.1)	
	Boys	45 (1.8)	494 (5.6)	41 (1.5)	468 (5.5)	14 (1.0)	464 (7.2)	
Singapore	Girls	37 (1.1)	613 (4.1)	47 (1.0)	594 (3.0)	16 (0.7)	564 (4.5)	
	Boys	29 (0.9)	598 (5.0)	47 (0.8)	577 (4.2)	25 (0.8)	558 (4.5)	
Kazakhstan	Girls	57 (1.2)	511 (2.9)	36 (1.1)	513 (3.6)	6 (0.5)	519 (7.2)	
	Boys	49 (1.2)	490 (3.4)	43 (1.1)	497 (4.2)	8 (0.6)	517 (6.9)	
Finland	Girls	28 (1.1)	569 (4.0)	46 (1.2)	561 (3.1)	26 (1.3)	543 (3.6)	
	Boys	19 (0.9)	554 (5.6)	46 (1.1)	548 (3.4)	34 (1.2)	525 (2.9)	
Hungary	Girls	31 (1.4)	565 (4.5)	46 (1.4)	544 (4.7)	23 (1.1)	528 (4.8)	
	Boys	23 (1.1)	542 (6.7)	45 (1.0)	533 (4.4)	33 (1.2)	526 (4.4)	
Malta	Girls	51 (1.5)	522 (4.2)	38 (1.6)	518 (4.4)	11 (1.1)	508 (6.9)	
	Boys	42 (1.7)	511 (4.8)	39 (1.4)	515 (5.1)	18 (0.9)	510 (5.0)	
Albania	Girls	86 (1.1)	527 (3.5)	13 (1.0)	506 (8.5)	1 ~	~ ~	
	Boys	77 (1.2)	506 (3.8)	20 (1.1)	501 (5.6)	2 ~	~ ~	
Portugal	Girls	65 (1.1)	524 (2.7)	30 (1.1)	519 (2.8)	5 (0.5)	529 (6.0)	
	Boys	56 (1.2)	516 (3.0)	37 (1.1)	518 (4.1)	7 (0.6)	521 (6.5)	
Spain	Girls	59 (1.2)	529 (3.1)	33 (1.2)	516 (3.7)	8 (0.6)	506 (6.8)	
	Boys	50 (1.3)	525 (2.9)	37 (1.1)	519 (3.3)	13 (0.9)	510 (4.4)	
Czech Republic	Girls	32 (1.5)	540 (4.7)	49 (1.4)	548 (2.7)	19 (1.0)	530 (4.4)	
	Boys	23 (1.2)	539 (5.9)	50 (1.4)	542 (3.2)	28 (1.3)	530 (3.7)	



This PIRLS context questionnaire scale was established in 2016 based on the combined response distribution of countries that participated in PIRLS 2016. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

A tilde (~) indicates insufficient data to report result.

Exhibit 7.2: Students Like Reading by Gender

Students' Reports

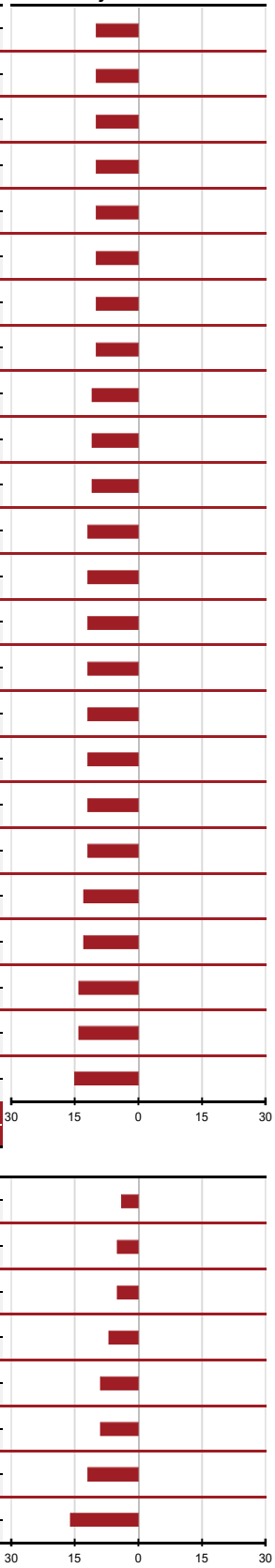
Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

Country		Very Much Like Reading		Somewhat Like Reading		Do Not Like Reading		Gender Difference in Percent of Students who Very Much Like Reading
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	More Girls Than Boys / More Boys Than Girls
Australia ⋈	Girls	34 (1.4)	569 (4.4)	45 (1.4)	547 (3.2)	21 (1.1)	527 (4.0)	
	Boys	24 (1.1)	552 (5.5)	45 (1.3)	538 (3.8)	31 (1.3)	510 (4.1)	
Germany	Girls r	38 (1.3)	549 (3.6)	43 (1.2)	536 (3.2)	19 (1.1)	514 (4.5)	
	Boys r	29 (1.1)	537 (4.4)	46 (1.3)	524 (3.5)	26 (1.1)	505 (3.8)	
Croatia	Girls	28 (1.4)	562 (5.3)	53 (1.5)	564 (3.3)	20 (1.2)	560 (4.7)	
	Boys	18 (1.1)	556 (5.1)	52 (1.6)	551 (3.4)	31 (1.6)	551 (4.5)	
Israel ⋈	Girls	45 (1.4)	520 (3.4)	39 (1.2)	509 (4.2)	16 (0.9)	507 (4.8)	
	Boys	35 (1.2)	518 (3.8)	43 (1.1)	505 (3.3)	22 (1.1)	507 (4.1)	
Austria	Girls	38 (1.7)	546 (3.6)	45 (1.3)	537 (3.4)	17 (1.5)	522 (4.0)	
	Boys	27 (1.3)	531 (3.3)	46 (1.3)	524 (3.5)	26 (1.3)	513 (4.3)	
Turkiye	Girls	67 (1.4)	512 (3.4)	29 (1.2)	493 (5.7)	4 (0.5)	497 (10.3)	
	Boys	57 (1.4)	494 (3.9)	35 (1.1)	481 (5.5)	8 (0.6)	482 (7.3)	
Slovenia	Girls	33 (1.1)	537 (3.4)	51 (1.2)	530 (2.5)	16 (1.0)	512 (3.8)	
	Boys	22 (0.9)	520 (4.2)	48 (1.4)	511 (2.9)	29 (1.5)	505 (3.1)	
Northern Ireland	Girls	33 (1.2)	590 (4.4)	48 (1.2)	578 (3.0)	19 (1.2)	557 (4.8)	
	Boys	22 (1.4)	576 (5.3)	45 (1.2)	559 (4.6)	32 (1.4)	532 (4.2)	
Morocco	Girls	68 (2.1)	403 (4.8)	29 (2.0)	367 (8.7)	4 (0.9)	330 (15.8)	
	Boys	57 (1.8)	372 (5.4)	36 (1.7)	342 (6.9)	7 (1.0)	312 (11.6)	
United Arab Emirates	Girls	58 (0.7)	510 (2.8)	34 (0.6)	485 (3.3)	8 (0.3)	467 (4.8)	
	Boys	47 (1.0)	489 (3.7)	41 (0.7)	454 (4.1)	12 (0.5)	462 (5.8)	
Bahrain	Girls	56 (1.5)	492 (4.3)	36 (1.3)	477 (5.1)	8 (0.7)	460 (10.6)	
	Boys	45 (1.2)	450 (4.3)	43 (1.1)	430 (4.9)	12 (0.8)	422 (8.4)	
Bulgaria	Girls	57 (1.8)	553 (3.7)	34 (1.6)	550 (5.7)	9 (0.8)	511 (8.8)	
	Boys	45 (1.7)	541 (4.6)	39 (1.5)	534 (5.3)	15 (1.3)	510 (7.0)	
Montenegro	Girls	66 (1.1)	504 (2.4)	30 (1.1)	494 (3.1)	5 (0.6)	478 (6.7)	
	Boys	54 (1.1)	485 (2.9)	35 (1.1)	474 (3.3)	11 (0.9)	470 (5.8)	
North Macedonia	Girls	76 (1.5)	458 (6.5)	19 (1.3)	452 (7.6)	4 (0.5)	451 (17.6)	
	Boys	64 (1.8)	430 (7.6)	29 (1.4)	436 (6.1)	7 (0.9)	424 (9.9)	
Oman	Girls	64 (1.5)	464 (4.3)	32 (1.3)	428 (5.5)	5 (0.5)	383 (13.0)	
	Boys	52 (1.3)	426 (4.8)	40 (1.1)	404 (5.3)	8 (0.7)	390 (10.5)	
Italy	Girls	47 (1.1)	544 (2.7)	39 (1.0)	540 (3.6)	14 (0.9)	531 (4.2)	
	Boys	35 (1.2)	536 (3.3)	45 (1.2)	532 (2.8)	20 (0.8)	534 (3.3)	
South Africa ⋈	Girls	56 (1.8)	336 (5.4)	35 (1.5)	304 (5.6)	9 (0.7)	282 (11.4)	
	Boys	43 (1.6)	281 (4.9)	44 (1.4)	252 (6.3)	13 (0.8)	248 (14.0)	
Serbia	Girls	51 (1.9)	521 (5.0)	37 (1.8)	516 (4.8)	12 (1.3)	517 (6.0)	
	Boys	39 (1.7)	510 (4.9)	42 (1.7)	512 (3.8)	19 (1.5)	502 (6.4)	
Georgia	Girls	65 (1.3)	508 (3.5)	30 (1.2)	507 (3.9)	5 (0.6)	508 (8.5)	
	Boys	53 (1.4)	486 (3.8)	39 (1.1)	483 (3.5)	8 (0.9)	501 (11.2)	
France	Girls	43 (1.3)	529 (3.4)	45 (1.1)	522 (3.5)	12 (0.8)	495 (4.8)	
	Boys	30 (1.2)	522 (3.8)	48 (1.2)	507 (3.2)	22 (1.1)	487 (4.3)	
Slovak Republic	Girls	36 (1.5)	535 (3.9)	44 (1.7)	539 (3.7)	20 (1.3)	521 (4.7)	
	Boys	23 (1.1)	522 (5.2)	46 (1.3)	529 (4.4)	31 (1.5)	524 (4.2)	
Jordan	Girls	62 (2.1)	410 (7.2)	30 (1.6)	383 (8.7)	8 (1.1)	379 (12.4)	
	Boys	48 (2.0)	373 (8.0)	38 (1.5)	358 (9.7)	13 (1.8)	343 (20.1)	
Saudi Arabia	Girls	67 (1.5)	476 (4.3)	28 (1.3)	448 (7.6)	6 (0.7)	446 (10.5)	
	Boys	52 (1.9)	437 (5.6)	39 (1.8)	416 (7.2)	9 (0.6)	431 (8.6)	
Cyprus	Girls	45 (1.2)	520 (3.4)	41 (0.9)	513 (4.5)	14 (0.9)	506 (5.5)	
	Boys	30 (1.2)	512 (4.8)	42 (1.0)	510 (4.0)	28 (1.3)	499 (4.1)	
International Average	**Girls**	**46 (0.2)**	**521 (0.6)**	**39 (0.2)**	**508 (0.7)**	**15 (0.1)**	**496 (1.1)**	
	Boys	**37 (0.2)**	**504 (0.7)**	**42 (0.2)**	**494 (0.6)**	**21 (0.1)**	**484 (1.0)**	
Benchmarking Participants								
Quebec, Canada	Girls	37 (1.5)	565 (3.5)	46 (1.5)	555 (3.9)	16 (1.1)	541 (5.9)	
	Boys	34 (1.3)	551 (4.0)	44 (1.1)	548 (3.5)	22 (1.3)	533 (4.2)	
Moscow City, Russian Federation	Girls	33 (1.1)	609 (2.7)	46 (0.9)	605 (2.9)	21 (1.0)	596 (3.4)	
	Boys	28 (1.3)	600 (3.7)	48 (1.0)	592 (2.8)	24 (1.0)	585 (3.1)	
Alberta, Canada	Girls	43 (1.9)	556 (5.4)	42 (1.7)	548 (4.5)	15 (1.0)	523 (7.6)	
	Boys	38 (1.7)	538 (5.2)	44 (1.6)	536 (5.4)	18 (1.3)	524 (7.3)	
British Columbia, Canada	Girls	41 (1.6)	554 (4.3)	43 (1.4)	542 (4.7)	16 (1.3)	518 (5.6)	
	Boys	34 (1.1)	539 (4.3)	47 (1.2)	531 (5.6)	20 (1.1)	512 (5.6)	
Dubai, UAE	Girls	55 (1.4)	559 (3.3)	37 (1.0)	559 (3.7)	8 (0.7)	543 (6.0)	
	Boys	46 (1.6)	551 (3.3)	41 (1.3)	545 (3.7)	13 (0.7)	557 (5.2)	
Newfoundland & Labrador, Canada	Girls	41 (1.9)	542 (4.1)	42 (1.8)	532 (4.3)	17 (1.2)	509 (6.8)	
	Boys	31 (1.9)	519 (6.3)	44 (1.4)	524 (4.3)	24 (1.6)	505 (7.0)	
Abu Dhabi, UAE	Girls	52 (0.9)	485 (4.3)	37 (0.9)	433 (4.9)	11 (0.5)	422 (8.1)	
	Boys	40 (1.4)	459 (6.6)	45 (1.0)	401 (5.6)	15 (0.7)	408 (8.5)	
South Africa (6) ⋈	Girls	54 (1.3)	431 (3.9)	37 (0.9)	387 (6.8)	9 (0.8)	370 (14.6)	
	Boys	39 (1.5)	385 (4.5)	48 (1.2)	342 (6.0)	14 (0.9)	353 (11.9)	



Students Confident in Reading

The PIRLS 2021 *Students Confident in Reading* scale asked students how much they agreed with six statements about how well they can read. Based on their responses, students were classified according to the degree of confidence they had in their own reading ability—"very confident in reading," "somewhat confident in reading," or "not confident in reading" (see "About the Scale").

For the PIRLS 2021 countries, Exhibit 7.3 presents the percentages of students in each of the three categories of confidence in reading along with their average reading achievement. Internationally on average, 43 percent of students reported being "very confident in reading," 35 percent of students were "somewhat confident in reading," and 22 percent were "not confident in reading."

The results of the PIRLS 2021 *Students Confident in Reading* scale show that the fourth grade students have an accurate self-assessment of their own level of reading skills as measured by PIRLS. Fourth grade students who reported being "very confident in reading" had relatively high average achievement (541), similar to almost reaching the High International Benchmark (550) of reading achievement (see report section on International Benchmarks). Those who were "somewhat confident in reading" had mid-range achievement on average (498), and those who were "not confident in reading" had an average achievement of 449, which falls short of reaching the Intermediate International Benchmark (475).

Exhibit 7.3: Students Confident in Reading

Students' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

☐ ***Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade***

Country	Very Confident in Reading		Somewhat Confident in Reading		Not Confident in Reading		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Bulgaria	61 (1.0)	567 (2.6)	26 (0.9)	521 (3.8)	13 (0.9)	460 (7.8)	10.5 (0.05)
Kosovo	59 (1.0)	445 (2.8)	25 (0.9)	412 (4.9)	16 (0.8)	360 (5.3)	10.7 (0.05)
Serbia	58 (1.2)	537 (2.9)	29 (1.1)	500 (4.0)	14 (0.7)	452 (5.4)	10.4 (0.05)
Finland	57 (0.8)	574 (2.3)	30 (0.6)	534 (2.5)	13 (0.6)	488 (4.8)	10.5 (0.03)
Albania	56 (1.4)	535 (2.8)	26 (1.1)	502 (5.4)	18 (0.9)	467 (4.9)	10.5 (0.06)
Sweden	56 (0.9)	573 (2.3)	32 (0.7)	526 (2.2)	12 (0.6)	478 (3.9)	10.5 (0.04)
Montenegro	56 (0.7)	515 (2.0)	28 (0.7)	477 (2.6)	16 (0.6)	430 (3.5)	10.3 (0.03)
North Macedonia	56 (1.9)	473 (4.8)	26 (1.2)	437 (5.6)	19 (1.3)	382 (8.9)	10.5 (0.08)
Poland	55 (1.2)	572 (2.1)	34 (1.2)	539 (2.7)	11 (0.7)	482 (5.3)	10.5 (0.05)
Cyprus	55 (0.8)	537 (2.8)	30 (0.6)	496 (3.2)	15 (0.7)	449 (4.5)	10.4 (0.04)
Germany r	53 (1.0)	561 (2.2)	31 (0.8)	513 (2.9)	16 (0.6)	469 (3.6)	10.3 (0.04)
Austria	51 (0.9)	560 (2.2)	34 (0.7)	514 (2.4)	15 (0.7)	469 (3.1)	10.3 (0.04)
Singapore	51 (0.9)	622 (2.6)	33 (0.7)	574 (3.1)	16 (0.7)	514 (4.8)	10.3 (0.04)
Iran, Islamic Rep. of ⋈	50 (1.2)	454 (4.0)	31 (1.0)	391 (6.5)	19 (1.2)	346 (7.6)	10.2 (0.06)
Italy	49 (1.0)	560 (2.2)	36 (0.8)	529 (2.6)	15 (0.7)	489 (2.8)	10.2 (0.04)
Ireland	49 (1.2)	609 (2.6)	34 (1.0)	564 (3.0)	17 (0.7)	516 (3.6)	10.1 (0.05)
Turkiye	48 (1.0)	529 (3.3)	36 (0.9)	484 (3.8)	17 (0.7)	435 (4.5)	10.0 (0.04)
Uzbekistan	47 (1.4)	461 (3.1)	32 (1.1)	440 (3.3)	21 (0.9)	384 (4.1)	10.1 (0.06)
Northern Ireland	47 (1.1)	603 (3.0)	37 (1.0)	550 (2.8)	16 (0.6)	501 (4.4)	10.1 (0.04)
Netherlands	47 (1.0)	556 (2.5)	32 (1.0)	516 (2.9)	21 (0.8)	482 (3.5)	9.9 (0.04)
Slovenia	46 (0.7)	550 (2.0)	37 (0.7)	512 (2.5)	17 (0.6)	462 (2.9)	10.2 (0.03)
Croatia	46 (1.0)	583 (2.8)	38 (0.9)	552 (2.6)	16 (0.9)	503 (4.1)	10.0 (0.04)
Qatar	46 (1.0)	533 (3.3)	32 (0.9)	480 (4.3)	23 (1.0)	423 (3.9)	10.1 (0.05)
Denmark	45 (0.9)	576 (2.1)	36 (0.9)	530 (2.8)	19 (0.8)	479 (3.4)	10.1 (0.04)
England ⋈	45 (1.2)	594 (2.6)	34 (1.0)	544 (3.2)	21 (0.7)	504 (3.7)	9.9 (0.05)
Israel ⋈	45 (1.0)	561 (2.0)	30 (0.8)	501 (2.5)	25 (0.9)	449 (3.2)	9.9 (0.04)
Norway (5)	44 (0.9)	575 (2.1)	36 (0.8)	530 (2.2)	19 (0.7)	484 (3.2)	10.0 (0.04)
United Arab Emirates	44 (0.5)	552 (1.7)	30 (0.3)	483 (2.1)	26 (0.5)	404 (2.8)	9.9 (0.02)
United States	44 (2.4)	594 (5.4)	36 (2.0)	542 (4.7)	21 (1.4)	486 (9.8)	9.9 (0.09)
Belgium (French)	44 (0.9)	531 (2.4)	36 (0.9)	483 (3.7)	20 (0.8)	439 (3.6)	9.9 (0.04)
Slovak Republic	43 (1.0)	559 (2.3)	33 (1.1)	530 (3.1)	24 (1.0)	486 (4.8)	9.8 (0.05)
France	43 (0.9)	543 (2.9)	40 (0.9)	509 (2.5)	17 (0.7)	458 (4.0)	9.9 (0.03)
Kazakhstan	43 (0.9)	526 (2.7)	34 (0.8)	509 (2.9)	24 (0.8)	465 (3.5)	9.9 (0.04)
Hungary	43 (0.9)	579 (2.8)	35 (0.8)	533 (3.4)	23 (0.9)	481 (4.9)	9.9 (0.04)
Australia ⋈	43 (1.0)	582 (2.2)	38 (0.8)	528 (2.5)	19 (0.8)	477 (4.5)	9.9 (0.04)
Georgia	42 (0.9)	531 (2.7)	33 (0.8)	487 (3.0)	24 (0.9)	456 (4.5)	9.8 (0.04)
Belgium (Flemish)	42 (1.0)	540 (2.5)	34 (0.8)	507 (2.5)	23 (0.8)	466 (2.6)	9.9 (0.04)
Portugal	42 (0.8)	554 (2.2)	37 (0.7)	513 (2.5)	21 (0.7)	465 (3.0)	9.8 (0.04)
Bahrain	42 (1.1)	510 (3.5)	35 (0.9)	455 (4.1)	23 (0.7)	386 (4.1)	9.9 (0.04)
Malta	40 (1.1)	557 (2.2)	36 (1.0)	508 (3.3)	23 (0.8)	464 (3.8)	9.8 (0.04)
Czech Republic	39 (0.8)	571 (2.4)	39 (0.8)	539 (2.2)	21 (0.6)	494 (4.1)	9.7 (0.03)
Spain	39 (0.9)	554 (2.3)	41 (0.9)	517 (2.7)	20 (0.7)	474 (3.0)	9.7 (0.03)
Azerbaijan	39 (1.3)	475 (4.0)	35 (1.0)	443 (4.2)	26 (1.0)	406 (4.4)	9.7 (0.06)
Russian Federation	39 (1.0)	596 (3.3)	40 (0.8)	569 (3.6)	21 (1.0)	520 (4.5)	9.7 (0.04)
Saudi Arabia r	38 (1.4)	498 (3.6)	31 (0.8)	458 (4.0)	30 (1.2)	425 (5.1)	9.7 (0.07)
Lithuania	38 (0.9)	590 (2.6)	38 (0.9)	552 (2.2)	25 (0.8)	503 (2.7)	9.7 (0.03)
Oman	36 (1.1)	478 (4.7)	37 (0.9)	427 (3.8)	27 (1.0)	382 (4.7)	9.6 (0.05)
New Zealand	34 (0.9)	577 (2.4)	38 (0.7)	527 (2.9)	28 (0.8)	466 (3.1)	9.5 (0.03)
Hong Kong SAR	32 (1.0)	605 (2.9)	39 (0.9)	573 (3.0)	29 (0.9)	539 (3.7)	9.4 (0.04)
Chinese Taipei	31 (0.9)	580 (2.0)	38 (0.7)	545 (2.4)	31 (0.7)	506 (3.0)	9.4 (0.04)
Morocco	31 (1.4)	420 (4.6)	42 (1.5)	378 (6.8)	27 (1.5)	312 (5.7)	9.4 (0.05)
Brazil ⋈	29 (1.2)	496 (4.4)	37 (1.3)	445 (4.5)	34 (1.3)	357 (6.8)	9.2 (0.06)
Jordan	27 (1.3)	425 (6.6)	39 (1.4)	390 (7.0)	33 (1.5)	341 (7.5)	9.2 (0.06)
Latvia	24 (0.9)	567 (2.9)	43 (0.9)	539 (2.3)	32 (1.0)	489 (3.5)	9.1 (0.04)
Macao SAR	22 (0.6)	575 (2.0)	43 (0.8)	542 (1.9)	35 (0.7)	503 (1.7)	9.0 (0.02)
Egypt	22 (1.2)	435 (5.4)	37 (1.0)	385 (5.9)	41 (1.4)	359 (6.9)	9.0 (0.05)
South Africa ⋈	18 (0.9)	402 (6.4)	35 (0.6)	301 (5.1)	47 (1.0)	247 (4.6)	8.8 (0.04)
International Average	**43 (0.1)**	**541 (0.4)**	**35 (0.1)**	**498 (0.5)**	**22 (0.1)**	**449 (0.6)**	
Benchmarking Participants							
British Columbia, Canada	51 (1.1)	568 (3.3)	32 (1.0)	525 (4.1)	17 (1.0)	475 (5.2)	10.2 (0.05)
Dubai, UAE	51 (0.7)	591 (1.8)	31 (0.6)	544 (2.2)	18 (0.6)	478 (3.4)	10.3 (0.03)
Alberta, Canada	50 (1.3)	575 (2.8)	33 (1.1)	527 (3.7)	17 (0.9)	478 (5.4)	10.2 (0.06)
Newfoundland & Labrador, Canada	48 (0.9)	561 (3.4)	34 (1.0)	513 (3.3)	18 (0.9)	462 (5.1)	10.1 (0.05)
Moscow City, Russian Federation	44 (0.9)	624 (2.2)	39 (0.7)	593 (2.1)	17 (0.7)	548 (2.6)	9.9 (0.03)
Quebec, Canada	43 (1.2)	579 (3.0)	35 (0.7)	545 (3.0)	22 (0.9)	510 (3.7)	9.9 (0.06)
Abu Dhabi, UAE	37 (0.8)	542 (3.6)	31 (0.7)	444 (3.9)	33 (0.8)	365 (4.3)	9.6 (0.04)
South Africa (6) ⋈	25 (0.9)	490 (5.7)	38 (0.7)	386 (4.8)	37 (0.9)	322 (4.5)	9.1 (0.04)

This PIRLS context questionnaire scale was established in 2016 based on the combined response distribution of countries that participated in PIRLS 2016. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

Exhibit 7.3: Students Confident in Reading

Students' Reports

About the Scale

Students were scored according to their responses to six statements on the *Students Confident in Reading* scale. Cut scores divide the scale into three categories. Students **Very Confident in Reading** had a score at or above the cut score corresponding to "agreeing a lot" with three of the six statements and "agreeing a little" with the other three, on average. Students who were **Not Confident in Reading** had a score at or below the cut score corresponding to "disagreeing a little" with three of the six statements and "agreeing a little" with the other three, on average. All other students were **Somewhat Confident in Reading**.

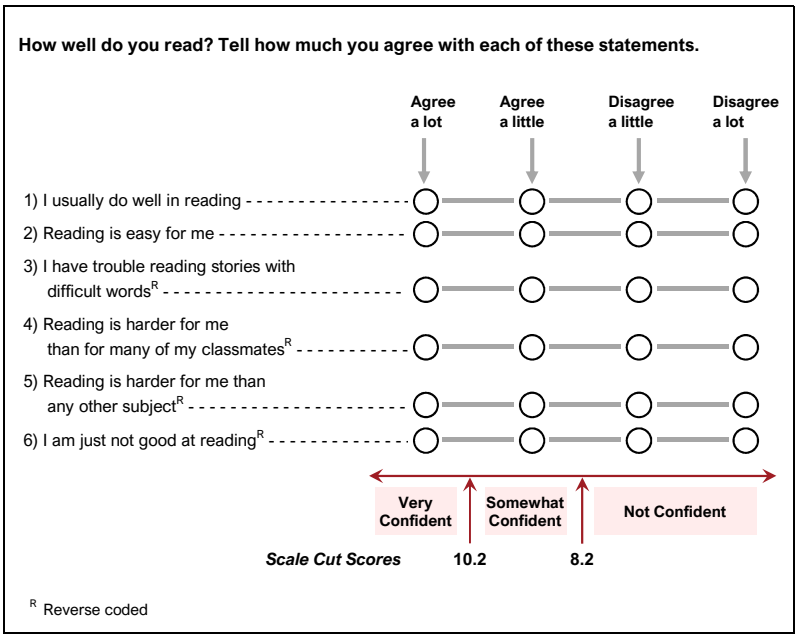


Exhibit 7.4 shows the results for the *Students Confident in Reading* scale separately for girls and for boys. On average, across countries, there was little difference between the percentages of girls and boys in each of the scale categories—46 percent of girls and 40 percent of boys reported being "very confident in reading," 34 percent of girls and 35 percent of boys were "somewhat confident," and 19 percent of girls and 25 percent of boys were "not confident." However, there was considerable variation across countries in the magnitude of the difference between the percentage of girls and the percentage of boys classified as "very confident in reading," ranging from little or no difference in Belgium (French), Hong Kong SAR, Denmark, Macao SAR, and Brazil to an 18 percentage point difference favoring girls in Saudi Arabia.

Exhibit 7.4: Students Confident in Reading by Gender

Students' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country		Very Confident in Reading		Somewhat Confident in Reading		Not Confident in Reading		Gender Difference in Percent of Students Very Confident in Reading	
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	More Girls Than Boys	More Boys Than Girls
Belgium (French)	Girls	43 (1.3)	534 (3.3)	38 (1.2)	489 (4.4)	18 (1.0)	443 (4.7)		
	Boys	44 (1.3)	527 (2.9)	34 (1.2)	477 (3.8)	22 (1.2)	436 (4.8)		
Hong Kong SAR	Girls	32 (1.3)	607 (3.9)	41 (1.1)	577 (3.2)	28 (1.2)	543 (3.7)		
	Boys	32 (1.4)	603 (3.5)	37 (1.3)	569 (4.0)	31 (1.3)	535 (4.9)		
Denmark	Girls	45 (1.2)	581 (3.0)	36 (1.1)	536 (3.1)	19 (1.1)	487 (3.8)		
	Boys	45 (1.3)	570 (2.6)	37 (1.3)	523 (3.6)	18 (1.1)	471 (5.8)		
Macao SAR	Girls	23 (0.9)	578 (2.5)	44 (1.1)	547 (2.2)	33 (1.0)	507 (2.3)		
	Boys	22 (0.8)	572 (2.8)	42 (1.1)	536 (3.0)	36 (1.0)	500 (2.6)		
Brazil ⋈	Girls	30 (1.4)	503 (6.3)	38 (1.4)	447 (6.4)	32 (1.6)	375 (8.7)		
	Boys	28 (1.4)	489 (5.7)	37 (1.6)	443 (6.7)	35 (1.5)	339 (6.9)		
Ireland	Girls	50 (1.6)	615 (3.4)	32 (1.3)	568 (4.2)	18 (1.1)	523 (4.7)		
	Boys	48 (1.6)	603 (2.9)	36 (1.4)	561 (3.8)	16 (0.9)	508 (5.1)		
Belgium (Flemish)	Girls	43 (1.2)	540 (3.3)	35 (1.1)	512 (2.8)	22 (1.1)	470 (3.6)		
	Boys	42 (1.4)	540 (3.0)	34 (1.1)	501 (3.3)	25 (1.2)	462 (3.3)		
Netherlands	Girls	47 (1.3)	560 (3.1)	33 (1.3)	521 (3.3)	20 (0.9)	490 (4.4)		
	Boys	46 (1.4)	551 (3.2)	32 (1.5)	511 (3.6)	23 (1.1)	476 (4.1)		
United States	Girls	45 (3.3)	598 (7.0)	36 (2.9)	545 (4.2)	19 (2.0)	488 (9.2)		
	Boys	43 (2.5)	589 (5.4)	35 (2.1)	539 (6.9)	22 (1.8)	485 (13.3)		
England ⋈	Girls	46 (1.4)	598 (3.6)	34 (1.3)	546 (3.5)	20 (1.0)	513 (4.5)		
	Boys	44 (1.6)	589 (3.4)	34 (1.4)	543 (4.3)	22 (1.1)	496 (5.0)		
France	Girls	44 (1.2)	548 (3.5)	39 (1.1)	517 (3.2)	17 (1.0)	465 (5.3)		
	Boys	42 (1.0)	538 (3.3)	40 (1.0)	501 (3.0)	18 (1.0)	452 (5.0)		
Czech Republic	Girls	41 (1.2)	570 (3.2)	39 (1.2)	543 (2.9)	21 (1.0)	492 (5.4)		
	Boys	38 (1.2)	572 (3.1)	39 (1.1)	535 (3.0)	22 (1.1)	496 (5.0)		
Chinese Taipei	Girls	32 (1.0)	586 (2.2)	40 (1.0)	551 (3.0)	28 (1.0)	509 (4.4)		
	Boys	30 (1.2)	574 (2.5)	37 (1.0)	540 (2.9)	33 (1.1)	504 (2.9)		
Portugal	Girls	44 (1.2)	555 (2.5)	37 (1.0)	511 (2.7)	19 (1.0)	472 (3.7)		
	Boys	41 (1.0)	554 (2.5)	37 (0.9)	515 (3.1)	22 (1.0)	460 (3.7)		
Poland	Girls	57 (1.6)	582 (2.9)	34 (1.5)	545 (3.4)	9 (0.8)	488 (7.4)		
	Boys	54 (1.5)	563 (2.7)	34 (1.5)	533 (3.5)	12 (0.9)	479 (6.6)		
New Zealand	Girls	35 (1.2)	585 (3.4)	39 (1.0)	531 (3.3)	25 (1.1)	469 (4.5)		
	Boys	32 (1.1)	569 (3.2)	38 (1.1)	522 (3.9)	30 (1.0)	464 (3.3)		
Egypt	Girls	24 (1.6)	438 (6.1)	37 (1.3)	392 (6.3)	39 (1.6)	370 (7.9)		
	Boys	20 (1.3)	430 (6.4)	36 (1.5)	378 (7.7)	44 (1.7)	349 (8.2)		
Malta	Girls	42 (1.6)	558 (3.7)	36 (1.3)	510 (4.2)	22 (1.2)	463 (4.7)		
	Boys	39 (1.3)	556 (2.6)	37 (1.0)	506 (3.9)	24 (1.1)	464 (5.2)		
Russian Federation	Girls	40 (1.3)	602 (4.0)	41 (1.0)	572 (3.7)	19 (1.2)	527 (5.1)		
	Boys	37 (1.5)	590 (3.5)	39 (1.2)	566 (4.5)	24 (1.4)	514 (5.7)		
Spain	Girls	41 (1.2)	553 (2.9)	40 (1.1)	518 (3.4)	19 (1.1)	474 (4.1)		
	Boys	38 (1.1)	555 (2.5)	42 (1.2)	516 (3.1)	20 (0.8)	474 (4.1)		
Northern Ireland	Girls	48 (1.2)	610 (3.4)	38 (1.1)	561 (3.0)	14 (0.9)	514 (5.9)		
	Boys	45 (1.6)	595 (3.8)	36 (1.5)	538 (3.9)	19 (0.9)	491 (5.8)		
Germany	Girls r	55 (1.3)	568 (2.8)	31 (1.1)	515 (3.6)	14 (0.8)	473 (5.2)		
	Boys r	51 (1.3)	554 (2.9)	31 (1.1)	511 (3.8)	18 (1.0)	466 (4.6)		
Slovak Republic	Girls	45 (1.5)	561 (3.1)	32 (1.5)	533 (3.5)	23 (1.6)	489 (6.3)		
	Boys	41 (1.4)	557 (3.0)	35 (1.4)	526 (3.9)	25 (1.3)	481 (5.0)		
Cyprus	Girls	57 (1.2)	540 (3.0)	29 (1.0)	496 (3.9)	14 (0.8)	454 (5.6)		
	Boys	53 (1.2)	534 (3.6)	31 (1.0)	495 (3.9)	17 (1.0)	446 (4.9)		
Slovenia	Girls	49 (1.2)	556 (2.3)	37 (1.2)	519 (2.7)	15 (0.8)	472 (4.0)		
	Boys	44 (1.1)	544 (2.8)	36 (1.1)	506 (3.1)	20 (0.8)	454 (3.7)		
Israel ⋈	Girls	48 (1.2)	557 (2.8)	29 (1.1)	502 (2.9)	23 (1.1)	449 (4.4)		
	Boys	42 (1.2)	565 (2.6)	31 (1.0)	500 (3.6)	27 (1.1)	448 (4.1)		
Singapore	Girls	54 (1.1)	626 (2.6)	32 (1.0)	579 (3.7)	14 (0.7)	526 (5.3)		
	Boys	48 (1.1)	617 (3.3)	33 (0.9)	569 (3.4)	18 (0.9)	506 (6.1)		
Serbia	Girls	60 (2.1)	536 (4.1)	27 (1.7)	509 (4.5)	12 (1.1)	457 (9.3)		
	Boys	55 (1.5)	537 (3.3)	30 (1.5)	493 (5.1)	15 (1.5)	448 (5.9)		
Australia ⋈	Girls	46 (1.3)	585 (3.1)	38 (1.2)	535 (3.4)	16 (1.2)	489 (4.9)		
	Boys	40 (1.3)	578 (3.5)	38 (1.1)	522 (3.4)	22 (1.1)	468 (6.0)		
Norway (5)	Girls	47 (1.2)	580 (2.6)	35 (1.0)	535 (2.6)	17 (0.8)	494 (4.0)		
	Boys	42 (1.1)	569 (2.7)	37 (0.9)	525 (3.0)	21 (1.0)	476 (3.9)		
Sweden	Girls	59 (1.2)	578 (2.7)	31 (1.1)	531 (3.2)	10 (0.8)	486 (5.5)		
	Boys	53 (0.9)	567 (2.5)	33 (0.9)	521 (3.4)	14 (0.8)	472 (4.8)		
United Arab Emirates	Girls	47 (0.7)	552 (2.4)	30 (0.5)	490 (3.5)	23 (0.5)	413 (2.9)		
	Boys	41 (0.9)	552 (3.0)	29 (0.5)	475 (4.0)	30 (0.9)	396 (4.3)		
Qatar	Girls	48 (1.2)	533 (3.8)	32 (0.9)	484 (4.8)	20 (0.9)	429 (6.1)		
	Boys	43 (1.7)	532 (4.5)	31 (1.5)	474 (5.8)	26 (1.5)	419 (5.0)		

This PIRLS context questionnaire scale was established in 2016 based on the combined response distribution of countries that participated in PIRLS 2016. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

Exhibit 7.4: Students Confident in Reading by Gender

Students' Reports

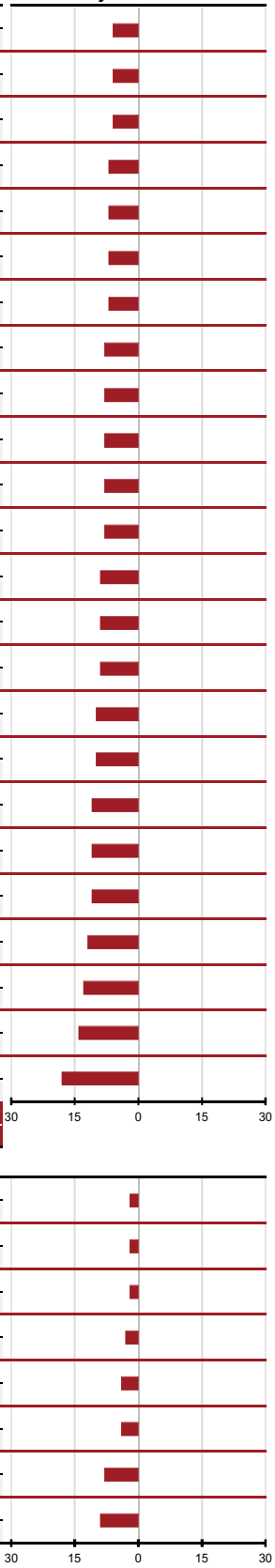
Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

Country		Very Confident in Reading		Somewhat Confident in Reading		Not Confident in Reading		Gender Difference in Percent of Students Very Confident in Reading
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	More Girls Than Boys / More Boys Than Girls
Iran, Islamic Rep. of ⋈	Girls	53 (2.1)	461 (6.0)	30 (1.4)	397 (8.8)	17 (1.7)	349 (9.6)	
	Boys	47 (1.7)	447 (5.3)	33 (1.4)	387 (7.7)	20 (1.7)	343 (8.9)	
Montenegro	Girls	60 (1.1)	521 (2.2)	28 (1.0)	483 (3.3)	13 (0.9)	445 (5.0)	
	Boys	53 (1.0)	508 (2.8)	28 (0.9)	471 (3.5)	19 (0.9)	420 (4.5)	
South Africa ⋈	Girls	22 (1.0)	414 (6.2)	36 (0.8)	329 (5.6)	43 (1.1)	270 (4.6)	
	Boys	15 (1.1)	385 (10.2)	34 (1.0)	270 (5.4)	51 (1.3)	228 (5.3)	
Latvia	Girls	28 (1.3)	575 (4.0)	43 (1.3)	551 (3.1)	29 (1.2)	499 (4.3)	
	Boys	21 (1.0)	557 (4.0)	44 (1.2)	527 (2.7)	35 (1.4)	481 (4.6)	
Finland	Girls	60 (1.0)	579 (2.5)	27 (0.9)	542 (3.6)	12 (0.8)	498 (4.9)	
	Boys	53 (1.0)	568 (2.8)	33 (0.8)	527 (2.9)	13 (0.8)	478 (6.6)	
Lithuania	Girls	41 (1.3)	594 (3.1)	38 (1.4)	561 (2.8)	21 (1.2)	512 (4.0)	
	Boys	34 (1.2)	584 (3.2)	38 (1.0)	543 (3.1)	28 (0.9)	496 (3.3)	
Hungary	Girls	46 (1.2)	583 (3.2)	35 (1.0)	535 (4.2)	18 (0.9)	483 (5.7)	
	Boys	39 (1.4)	574 (3.5)	34 (1.1)	531 (4.5)	27 (1.2)	481 (5.4)	
Kosovo	Girls	63 (1.3)	450 (2.7)	24 (1.1)	423 (5.7)	13 (0.9)	368 (7.4)	
	Boys	56 (1.2)	438 (3.8)	25 (1.3)	401 (6.2)	19 (1.0)	355 (6.1)	
Austria	Girls	55 (1.4)	565 (2.5)	32 (1.3)	519 (3.1)	13 (0.9)	471 (4.9)	
	Boys	48 (1.2)	554 (3.0)	35 (1.0)	510 (2.9)	17 (1.0)	468 (3.3)	
Turkiye	Girls	52 (1.1)	535 (3.5)	35 (1.2)	487 (4.7)	14 (0.8)	442 (5.9)	
	Boys	44 (1.2)	521 (4.1)	37 (1.1)	482 (4.1)	19 (1.0)	431 (4.9)	
Italy	Girls	53 (1.2)	562 (2.4)	34 (1.0)	529 (3.1)	13 (0.7)	486 (4.0)	
	Boys	45 (1.2)	556 (2.7)	37 (1.0)	529 (2.9)	17 (0.9)	491 (3.6)	
Croatia	Girls	50 (1.4)	586 (3.5)	36 (1.4)	556 (3.4)	14 (1.2)	506 (6.3)	
	Boys	42 (1.4)	581 (3.5)	40 (1.4)	548 (2.9)	18 (1.2)	501 (4.7)	
Morocco	Girls	36 (1.6)	431 (5.1)	42 (1.7)	391 (6.8)	22 (1.6)	324 (6.9)	
	Boys	27 (1.5)	406 (5.7)	42 (1.9)	366 (7.8)	31 (1.6)	305 (6.2)	
North Macedonia	Girls	60 (2.2)	481 (5.2)	25 (1.4)	445 (6.5)	14 (1.5)	391 (9.2)	
	Boys	51 (2.3)	462 (5.3)	26 (1.8)	428 (7.9)	23 (1.8)	376 (12.3)	
Bahrain	Girls	46 (1.6)	523 (3.9)	35 (1.2)	475 (5.4)	19 (1.0)	409 (7.0)	
	Boys	37 (1.1)	494 (4.8)	35 (1.1)	434 (4.8)	28 (1.0)	370 (4.8)	
Oman	Girls	41 (1.4)	486 (5.1)	36 (1.3)	438 (4.8)	23 (1.2)	401 (5.9)	
	Boys	31 (1.3)	468 (5.8)	37 (1.1)	416 (4.8)	32 (1.2)	368 (5.8)	
Bulgaria	Girls	66 (1.2)	571 (2.8)	23 (1.2)	528 (5.1)	11 (1.0)	455 (9.0)	
	Boys	56 (1.3)	562 (4.1)	29 (1.2)	516 (4.3)	16 (1.2)	463 (9.5)	
Jordan	Girls	32 (1.8)	429 (8.0)	39 (1.6)	406 (8.0)	29 (1.8)	360 (8.0)	
	Boys	22 (1.7)	417 (8.5)	41 (2.3)	373 (10.8)	38 (2.4)	326 (11.4)	
Uzbekistan	Girls	53 (1.6)	470 (3.2)	31 (1.3)	449 (4.1)	16 (1.0)	394 (5.1)	
	Boys	42 (1.6)	450 (4.2)	34 (1.3)	432 (4.1)	25 (1.2)	378 (5.0)	
Kazakhstan	Girls	48 (1.1)	530 (2.9)	34 (1.0)	515 (3.0)	18 (0.9)	471 (4.7)	
	Boys	37 (1.3)	522 (3.5)	33 (1.2)	502 (3.8)	29 (1.1)	461 (3.9)	
Georgia	Girls	49 (1.3)	535 (2.9)	31 (1.1)	494 (3.6)	20 (1.0)	470 (5.6)	
	Boys	37 (1.0)	526 (4.2)	35 (1.1)	481 (3.8)	28 (1.2)	446 (4.9)	
Albania	Girls	63 (1.8)	542 (3.2)	22 (1.4)	512 (6.1)	15 (1.1)	474 (7.3)	
	Boys	50 (1.7)	526 (3.5)	30 (1.6)	495 (6.6)	20 (1.3)	463 (5.7)	
Azerbaijan	Girls	46 (1.4)	480 (4.4)	33 (1.2)	448 (5.6)	21 (1.2)	413 (6.1)	
	Boys	33 (1.7)	468 (5.1)	37 (1.3)	439 (5.6)	30 (1.4)	402 (4.9)	
Saudi Arabia	Girls r	45 (2.0)	501 (4.5)	32 (1.0)	465 (5.7)	23 (1.6)	436 (7.3)	
	Boys r	27 (1.8)	490 (5.4)	30 (1.2)	445 (5.8)	43 (1.6)	416 (6.6)	
International Average	**Girls**	**46 (0.2)**	**545 (0.5)**	**34 (0.2)**	**504 (0.6)**	**19 (0.1)**	**457 (0.8)**	
	Boys	**40 (0.2)**	**535 (0.5)**	**35 (0.2)**	**492 (0.6)**	**25 (0.2)**	**444 (0.8)**	
Benchmarking Participants								
Moscow City, Russian Federation	Girls	45 (1.2)	627 (2.5)	40 (1.0)	598 (2.4)	15 (0.8)	556 (3.0)	
	Boys	43 (1.2)	621 (2.6)	37 (1.1)	588 (2.6)	19 (1.0)	541 (3.5)	
British Columbia, Canada	Girls	53 (1.5)	574 (3.5)	32 (1.2)	528 (4.5)	15 (1.2)	479 (6.4)	
	Boys	50 (1.5)	562 (4.0)	31 (1.4)	523 (5.4)	18 (1.2)	472 (8.0)	
Quebec, Canada	Girls	44 (1.7)	584 (3.9)	35 (1.1)	548 (3.8)	21 (1.1)	515 (5.1)	
	Boys	42 (1.3)	574 (3.0)	35 (1.1)	542 (3.7)	23 (1.1)	505 (4.7)	
Dubai, UAE	Girls	53 (1.0)	594 (2.6)	32 (0.8)	543 (3.6)	16 (0.7)	477 (4.3)	
	Boys	50 (1.0)	588 (2.7)	31 (0.8)	545 (3.0)	20 (0.9)	479 (5.3)	
Alberta, Canada	Girls	52 (1.6)	583 (4.0)	31 (1.6)	529 (4.6)	17 (1.2)	479 (7.0)	
	Boys	48 (1.8)	566 (3.5)	34 (1.5)	525 (5.0)	18 (1.4)	477 (7.4)	
Abu Dhabi, UAE	Girls	38 (1.0)	542 (4.2)	32 (0.9)	453 (5.2)	29 (0.9)	376 (4.6)	
	Boys	34 (1.3)	542 (5.7)	29 (0.9)	433 (5.7)	36 (1.2)	355 (6.3)	
South Africa (6) ⋈	Girls	29 (1.3)	496 (6.5)	38 (0.9)	404 (5.3)	33 (1.2)	343 (5.0)	
	Boys	21 (1.1)	481 (6.7)	38 (1.1)	366 (6.2)	41 (1.3)	303 (5.4)	
Newfoundland & Labrador, Canada	Girls	53 (1.4)	565 (3.6)	32 (1.1)	516 (3.9)	15 (1.0)	464 (6.8)	
	Boys	44 (1.4)	557 (4.7)	36 (1.5)	510 (5.0)	20 (1.2)	460 (6.9)	



Students Use Digital Devices to Find and Read Information

Students participating in PIRLS 2021 were asked to indicate how much time they spent using a computer, tablet, or smartphone to find and read information for schoolwork on a normal school day. Interpreting the results depends on a number of factors, including the regularity of schoolwork that involves searching for information, the difficulty of the searches, students' personal interests, and their inclination to not become distracted by extraneous information.

Exhibit 7.5 presents the countries' results in alphabetic order together with average achievement for three categories of time spent—"more than 30 minutes per school day," "30 minutes or less per school day," and "no time per school day."

On average, about half the students (52%) were in the middle category of time spent, spending "30 minutes or less per school day" using digital devices to find and read information, and these students had the highest average reading achievement (512). Relatively fewer students reported spending either "more than 30 minutes" (25%) or "no time" (23%) per school day finding and reading digital information. The students who reported spending the most time, "more than 30 minutes per school day," had somewhat lower achievement (502) than those that spent "30 minutes or less," which could indicate a number of situations (e.g., they were assigned extra practice work, were just slower readers, or spent more time becoming distracted). The students who reported spending "no time" had the lowest average achievement (486). This finding about the distribution of digital device use and associated achievement is consistent with other research (e.g., Bundsgaard & Gerick, 2017[1]).

[1] Bundsgaard, J., & Gerrick, J. (2017). Patterns of students' computer use and relations to their computer and information literacy: results of a latent class analysis and implications for teaching and learning. *Large-scale Assessments in Education, 5*(16), 1-15.

Exhibit 7.5: Students Use Digital Devices to Find and Read Information

Students' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	More Than 30 Minutes per School Day		30 Minutes or Less per School Day		No Time per School Day	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Albania	29 (1.4)	513 (4.1)	57 (1.2)	521 (3.8)	14 (1.0)	489 (5.3)
Australia ⋈	27 (1.1)	545 (2.9)	57 (1.1)	547 (2.3)	17 (1.0)	516 (5.2)
Austria	17 (0.6)	508 (3.5)	46 (1.0)	533 (2.8)	36 (1.1)	538 (2.6)
Azerbaijan	25 (0.8)	443 (4.2)	46 (1.0)	456 (4.4)	29 (1.0)	422 (3.8)
Bahrain	38 (0.9)	464 (3.6)	50 (0.8)	473 (3.0)	12 (0.6)	412 (7.1)
Belgium (Flemish)	16 (0.6)	506 (3.7)	55 (1.0)	508 (2.4)	30 (1.0)	519 (2.9)
Belgium (French)	14 (0.7)	478 (4.4)	35 (1.4)	491 (3.3)	51 (1.6)	502 (3.7)
Brazil ⋈	25 (1.0)	420 (6.7)	47 (1.1)	456 (5.5)	29 (1.4)	395 (5.5)
Bulgaria	25 (1.3)	542 (4.3)	50 (1.4)	554 (3.7)	25 (1.4)	515 (5.0)
Chinese Taipei	16 (0.6)	542 (3.1)	52 (1.0)	549 (2.5)	32 (1.1)	539 (2.5)
Croatia	25 (0.9)	545 (4.4)	64 (1.4)	566 (2.4)	12 (1.0)	536 (4.7)
Cyprus	16 (0.9)	508 (4.7)	51 (1.4)	521 (2.8)	33 (1.6)	499 (4.1)
Czech Republic	19 (0.7)	531 (3.3)	49 (1.0)	548 (2.6)	32 (1.2)	537 (2.9)
Denmark	24 (1.1)	534 (3.7)	57 (1.0)	543 (2.4)	19 (1.1)	541 (3.8)
Egypt	25 (1.0)	392 (4.4)	36 (1.5)	389 (6.4)	39 (1.4)	376 (7.3)
England ⋈	23 (1.1)	554 (3.8)	61 (1.1)	565 (2.7)	17 (1.0)	543 (4.2)
Finland	18 (0.8)	538 (4.3)	60 (0.9)	556 (2.3)	22 (0.9)	544 (3.8)
France	11 (0.6)	496 (5.1)	38 (1.6)	517 (2.8)	52 (1.8)	517 (3.3)
Georgia	32 (1.0)	496 (3.5)	57 (1.2)	505 (2.6)	11 (0.8)	459 (7.5)
Germany r	17 (0.7)	513 (3.8)	48 (1.0)	530 (2.7)	35 (1.1)	535 (2.8)
Hong Kong SAR	21 (0.8)	576 (3.7)	66 (0.9)	578 (2.6)	13 (0.6)	541 (5.4)
Hungary	24 (0.8)	530 (4.5)	53 (1.1)	552 (3.3)	23 (0.9)	528 (5.1)
Iran, Islamic Rep. of ⋈	24 (1.2)	415 (6.5)	40 (1.4)	426 (5.1)	36 (1.5)	400 (8.0)
Ireland	16 (0.8)	565 (4.1)	57 (1.4)	580 (2.9)	27 (1.6)	582 (3.5)
Israel ⋈	26 (0.9)	506 (3.2)	50 (0.9)	520 (2.5)	24 (0.9)	504 (3.8)
Italy	17 (0.7)	523 (3.1)	32 (1.0)	531 (2.7)	51 (1.2)	548 (2.3)
Jordan	30 (1.3)	390 (6.1)	43 (1.5)	395 (6.7)	26 (1.4)	357 (8.8)
Kazakhstan	40 (0.8)	503 (2.4)	46 (1.0)	517 (3.1)	14 (0.6)	467 (5.0)
Kosovo	40 (1.0)	430 (3.2)	47 (1.1)	428 (3.5)	13 (0.7)	388 (6.0)
Latvia	26 (1.0)	524 (3.7)	63 (1.0)	535 (2.7)	11 (0.7)	504 (6.7)
Lithuania	24 (0.8)	547 (4.1)	63 (0.9)	559 (2.2)	13 (0.7)	536 (3.9)
Macao SAR	21 (0.6)	541 (2.4)	62 (0.8)	542 (1.5)	16 (0.5)	506 (3.4)
Malta	28 (0.9)	514 (3.4)	58 (1.1)	523 (2.9)	14 (0.7)	495 (7.0)
Montenegro	27 (0.9)	486 (2.6)	51 (0.9)	498 (2.2)	22 (0.8)	476 (3.5)
Morocco	26 (1.1)	381 (4.8)	46 (1.4)	387 (5.3)	28 (1.5)	346 (8.1)
Netherlands	23 (1.0)	527 (3.5)	57 (1.1)	529 (3.0)	20 (1.1)	523 (3.2)
New Zealand	28 (0.9)	528 (3.2)	53 (0.8)	531 (2.7)	19 (0.8)	499 (3.1)
North Macedonia	33 (1.3)	441 (6.2)	53 (1.7)	461 (4.1)	14 (1.6)	398 (9.1)
Northern Ireland	20 (0.9)	562 (3.7)	66 (1.0)	572 (2.2)	13 (0.9)	547 (6.3)
Norway (5)	29 (1.3)	540 (3.1)	61 (1.2)	545 (2.0)	10 (0.7)	516 (5.2)
Oman	33 (1.0)	437 (5.1)	52 (0.9)	444 (3.7)	15 (0.7)	398 (6.0)
Poland	30 (0.9)	537 (2.9)	59 (0.9)	559 (2.5)	11 (0.6)	535 (4.6)
Portugal	23 (0.7)	511 (2.7)	53 (0.9)	524 (2.6)	24 (0.9)	522 (3.6)
Qatar	35 (0.9)	495 (4.2)	51 (0.8)	495 (4.0)	15 (0.6)	450 (5.0)
Russian Federation	26 (0.6)	563 (4.4)	54 (0.9)	578 (3.5)	20 (0.8)	549 (5.3)
Saudi Arabia	31 (0.9)	457 (3.8)	48 (1.0)	461 (3.9)	21 (0.9)	429 (5.3)
Serbia	33 (1.2)	512 (3.2)	49 (1.1)	520 (3.6)	17 (0.9)	503 (6.2)
Singapore	28 (0.6)	594 (3.4)	57 (0.7)	592 (3.2)	15 (0.5)	561 (5.0)
Slovak Republic	19 (0.7)	532 (3.8)	58 (1.1)	542 (2.7)	23 (1.1)	504 (6.1)
Slovenia	22 (0.7)	509 (3.3)	53 (0.8)	529 (2.0)	25 (0.7)	512 (3.4)
South Africa ⋈	27 (0.8)	325 (6.4)	34 (0.8)	313 (6.0)	39 (1.0)	262 (4.3)
Spain	25 (0.7)	518 (3.0)	57 (0.7)	526 (2.1)	18 (0.7)	517 (3.6)
Sweden	27 (0.9)	543 (2.9)	62 (1.0)	549 (2.5)	12 (0.8)	534 (5.9)
Turkiye	32 (1.0)	495 (3.6)	56 (1.0)	509 (3.4)	12 (1.0)	450 (7.2)
United Arab Emirates	36 (0.5)	504 (2.1)	51 (0.5)	498 (2.1)	13 (0.3)	409 (3.8)
United States	23 (1.3)	545 (8.1)	60 (1.5)	555 (7.4)	17 (1.3)	535 (11.4)
Uzbekistan	22 (0.9)	434 (3.6)	35 (1.1)	448 (3.6)	43 (1.6)	433 (3.2)
International Average	**25 (0.1)**	**502 (0.5)**	**52 (0.1)**	**512 (0.5)**	**23 (0.1)**	**486 (0.7)**
Benchmarking Participants						
Alberta, Canada	30 (1.3)	540 (3.9)	56 (1.4)	545 (3.4)	14 (1.0)	529 (7.4)
British Columbia, Canada	27 (1.0)	536 (3.4)	55 (1.1)	543 (4.1)	18 (1.0)	524 (5.4)
Newfoundland & Labrador, Canada	26 (1.2)	522 (3.9)	56 (1.4)	533 (3.1)	18 (0.8)	510 (7.9)
Quebec, Canada	25 (1.0)	552 (3.4)	55 (1.2)	554 (2.9)	20 (1.0)	544 (4.7)
Moscow City, Russian Federation	23 (0.6)	594 (2.9)	58 (0.8)	604 (2.0)	19 (0.7)	589 (3.5)
South Africa (6) ⋈	35 (0.9)	409 (5.4)	43 (1.0)	392 (5.4)	22 (1.3)	347 (5.5)
Abu Dhabi, UAE	33 (0.6)	468 (4.2)	50 (0.8)	460 (4.1)	16 (0.6)	367 (5.5)
Dubai, UAE	38 (0.7)	561 (2.0)	54 (0.7)	560 (1.7)	8 (0.4)	482 (5.8)

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
An "r" indicates data are available for at least 70% but less than 85% of the students.

Exhibit 7.5: Students Use Digital Devices to Find and Read Information

Students' Reports

About the Item

How much time do you spend using a computer, tablet, or smartphone to *find and read information* for your schoolwork on a normal school day?

- No time - - - - ◯
- 30 minutes or less - - - - ◯
- More than 30 minutes - - - - ◯

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

Exhibit 7.6 shows that on average, the results for the time spent using digital devices to find and read information on a normal school day were similar for girls and boys, but with somewhat more girls in the middle time spent category—"30 minutes or less per school day" (56% vs. 49%). On average, 24 percent of girls reported spending "more than 30 minutes" per school day using digital devices to find and read information, 56 percent reported "30 minutes or less," and 21 percent reported "no time." In comparison, 27 percent of boys reported spending "more than 30 minutes" per school day, 49 percent reported spending "30 minutes or less," and 25 percent reported spending "no time."

Exhibit 7.6: Students Use Digital Devices to Find and Read Information by Gender

Students' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country		More Than 30 Minutes per School Day		30 Minutes or Less per School Day		No Time per School Day	
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Albania	Girls	26 (1.8)	524 (6.0)	60 (1.6)	532 (3.9)	14 (1.2)	492 (7.1)
	Boys	32 (1.6)	505 (4.6)	54 (1.5)	509 (4.7)	14 (1.2)	487 (7.4)
Australia ⋈	Girls	24 (1.3)	551 (4.6)	61 (1.3)	554 (3.2)	16 (1.2)	531 (6.4)
	Boys	30 (1.4)	541 (3.9)	53 (1.4)	538 (3.0)	17 (1.3)	502 (6.3)
Austria	Girls	15 (0.8)	510 (5.0)	54 (1.4)	539 (3.7)	31 (1.4)	548 (3.2)
	Boys	19 (1.0)	507 (4.7)	40 (1.3)	524 (3.1)	41 (1.3)	530 (3.5)
Azerbaijan	Girls	22 (1.0)	451 (5.5)	49 (1.5)	468 (5.0)	29 (1.4)	429 (5.7)
	Boys	27 (1.0)	437 (5.0)	43 (1.2)	445 (5.0)	30 (1.2)	417 (5.2)
Bahrain	Girls	37 (1.3)	483 (4.6)	53 (1.2)	494 (4.2)	10 (0.5)	448 (12.4)
	Boys	39 (1.3)	445 (4.5)	46 (1.2)	449 (3.6)	15 (1.1)	387 (6.6)
Belgium (Flemish)	Girls	14 (0.8)	504 (4.9)	57 (1.5)	512 (2.7)	29 (1.5)	525 (3.4)
	Boys	18 (1.0)	507 (4.2)	52 (1.2)	504 (3.4)	30 (1.1)	514 (3.8)
Belgium (French)	Girls	12 (0.9)	479 (6.2)	37 (1.8)	497 (3.9)	51 (2.0)	507 (4.8)
	Boys	15 (1.0)	476 (5.5)	33 (1.5)	484 (4.1)	52 (1.6)	498 (3.9)
Brazil ⋈	Girls	23 (1.4)	429 (7.6)	51 (1.4)	468 (6.0)	26 (1.7)	397 (7.5)
	Boys	26 (1.5)	412 (7.8)	43 (1.5)	442 (7.1)	31 (1.7)	393 (7.1)
Bulgaria	Girls	22 (1.7)	558 (4.6)	54 (2.0)	559 (4.1)	24 (1.7)	520 (6.3)
	Boys	28 (1.5)	531 (5.9)	47 (1.5)	549 (4.5)	25 (1.4)	511 (6.7)
Chinese Taipei	Girls	14 (0.7)	553 (3.9)	57 (1.2)	556 (2.9)	29 (1.2)	541 (3.4)
	Boys	18 (0.8)	534 (3.9)	46 (1.2)	542 (2.9)	36 (1.4)	537 (2.9)
Croatia	Girls	22 (1.2)	550 (5.2)	70 (1.6)	570 (3.3)	8 (1.2)	539 (8.5)
	Boys	27 (1.4)	542 (5.2)	58 (1.8)	562 (2.9)	15 (1.2)	535 (6.4)
Cyprus	Girls	15 (0.9)	513 (5.8)	56 (1.6)	526 (3.2)	29 (1.7)	499 (4.9)
	Boys	17 (1.1)	503 (5.3)	47 (1.4)	516 (3.3)	37 (1.7)	499 (4.7)
Czech Republic	Girls	17 (1.0)	536 (3.8)	52 (1.2)	548 (3.1)	30 (1.4)	538 (4.6)
	Boys	21 (1.0)	528 (4.5)	46 (1.5)	547 (3.4)	33 (1.6)	536 (3.2)
Denmark	Girls	21 (1.4)	543 (4.3)	61 (1.3)	548 (3.0)	18 (1.5)	548 (4.1)
	Boys	26 (1.4)	526 (4.8)	53 (1.3)	538 (3.2)	21 (1.2)	534 (5.1)
Egypt	Girls	25 (1.3)	400 (5.0)	37 (1.7)	395 (7.0)	38 (1.9)	386 (8.1)
	Boys	25 (1.2)	385 (5.7)	34 (1.8)	383 (8.0)	40 (1.6)	367 (8.6)
England ⋈	Girls	22 (1.3)	559 (4.8)	65 (1.2)	569 (3.4)	14 (1.0)	547 (6.5)
	Boys	24 (1.3)	549 (5.7)	56 (1.5)	560 (3.7)	20 (1.3)	540 (4.9)
Finland	Girls	16 (0.8)	545 (4.8)	66 (1.2)	564 (2.6)	18 (1.0)	554 (4.6)
	Boys	21 (1.0)	534 (5.4)	54 (1.2)	547 (2.7)	26 (1.3)	538 (4.7)
France	Girls	10 (0.9)	507 (7.0)	40 (1.9)	525 (3.3)	50 (2.3)	522 (4.0)
	Boys	11 (0.8)	486 (6.1)	35 (1.6)	508 (3.3)	54 (1.8)	512 (3.6)
Georgia	Girls	31 (1.1)	505 (4.4)	60 (1.4)	515 (3.0)	9 (0.8)	473 (9.5)
	Boys	33 (1.4)	488 (4.1)	54 (1.5)	494 (3.5)	13 (1.1)	449 (8.0)
Germany	Girls r	15 (0.9)	515 (5.1)	51 (1.4)	538 (3.5)	33 (1.5)	543 (3.5)
	Boys r	18 (1.0)	511 (4.7)	46 (1.1)	520 (3.4)	37 (1.3)	529 (3.7)
Hong Kong SAR	Girls	20 (1.1)	577 (4.0)	70 (1.3)	582 (2.8)	9 (0.7)	546 (7.7)
	Boys	22 (1.0)	574 (4.9)	62 (1.3)	575 (3.4)	16 (1.0)	537 (6.1)
Hungary	Girls	21 (1.0)	538 (5.2)	56 (1.4)	559 (3.5)	23 (1.1)	531 (5.6)
	Boys	27 (1.1)	523 (5.5)	49 (1.2)	545 (4.2)	24 (1.1)	525 (6.0)
Iran, Islamic Rep. of ⋈	Girls	22 (1.6)	426 (7.5)	42 (2.0)	432 (8.0)	36 (2.3)	412 (10.9)
	Boys	26 (1.6)	407 (8.3)	38 (1.8)	420 (7.0)	36 (1.9)	391 (9.3)
Ireland	Girls	13 (1.0)	572 (5.9)	63 (1.7)	584 (3.6)	24 (1.8)	588 (5.7)
	Boys	19 (1.1)	559 (4.9)	51 (1.7)	574 (3.7)	30 (1.9)	578 (3.7)
Israel ⋈	Girls	26 (1.2)	506 (3.9)	54 (1.2)	523 (3.3)	20 (1.1)	500 (5.5)
	Boys	26 (1.1)	506 (4.5)	47 (1.3)	517 (2.8)	27 (1.3)	506 (4.3)
Italy	Girls	16 (0.9)	527 (4.1)	32 (1.2)	535 (3.5)	52 (1.4)	551 (2.7)
	Boys	18 (1.0)	519 (3.8)	32 (1.2)	528 (3.2)	50 (1.4)	545 (2.7)
Jordan	Girls	29 (1.8)	406 (8.2)	47 (1.8)	411 (8.1)	24 (2.1)	373 (8.0)
	Boys	32 (1.8)	374 (8.5)	39 (2.1)	374 (10.2)	29 (1.9)	344 (14.1)
Kazakhstan	Girls	41 (1.1)	511 (2.8)	47 (1.1)	525 (3.1)	12 (0.6)	471 (5.9)
	Boys	39 (1.1)	495 (3.5)	45 (1.2)	508 (3.6)	16 (0.8)	463 (6.3)
Kosovo	Girls	38 (1.1)	439 (3.7)	49 (1.3)	436 (3.5)	13 (0.9)	401 (7.1)
	Boys	42 (1.3)	421 (4.1)	44 (1.5)	417 (4.6)	14 (0.9)	375 (8.4)
Latvia	Girls	24 (1.2)	538 (4.8)	68 (1.5)	546 (3.5)	8 (1.3)	523 (7.6)
	Boys	28 (1.3)	512 (4.7)	58 (1.3)	523 (3.4)	14 (1.0)	493 (8.1)
Lithuania	Girls	22 (1.1)	559 (4.6)	67 (1.2)	567 (2.4)	11 (1.1)	555 (5.1)
	Boys	26 (1.1)	537 (5.1)	60 (1.2)	551 (2.6)	14 (0.8)	521 (4.8)
Macao SAR	Girls	21 (0.7)	549 (3.1)	66 (1.0)	545 (1.8)	13 (0.8)	507 (5.3)
	Boys	22 (0.8)	533 (3.5)	59 (1.0)	539 (2.2)	19 (0.8)	505 (3.8)
Malta	Girls	27 (1.3)	519 (5.3)	61 (1.3)	524 (4.0)	12 (1.0)	496 (10.7)
	Boys	29 (1.3)	509 (4.6)	56 (1.6)	522 (3.8)	15 (1.0)	495 (7.0)

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
An "r" indicates data are available for at least 70% but less than 85% of the students.

Exhibit 7.6: Students Use Digital Devices to Find and Read Information by Gender

Students' Reports

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

Country		More Than 30 Minutes per School Day		30 Minutes or Less per School Day		No Time per School Day	
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Montenegro	Girls	24 (1.1)	497 (4.5)	55 (1.1)	507 (2.5)	21 (1.0)	482 (4.6)
	Boys	29 (1.1)	477 (3.4)	48 (1.3)	488 (3.0)	23 (1.1)	470 (4.6)
Morocco	Girls	25 (1.5)	403 (5.5)	48 (1.8)	404 (5.5)	27 (1.7)	357 (8.7)
	Boys	27 (1.2)	362 (6.3)	45 (1.5)	369 (6.1)	29 (1.7)	337 (9.1)
Netherlands	Girls	21 (1.4)	533 (4.7)	60 (1.4)	535 (3.8)	19 (1.3)	531 (4.6)
	Boys	24 (1.3)	522 (4.4)	55 (1.3)	523 (3.6)	21 (1.2)	515 (4.3)
New Zealand	Girls	27 (0.9)	535 (4.7)	57 (1.0)	540 (3.4)	16 (0.9)	502 (4.9)
	Boys	30 (1.4)	521 (4.4)	50 (1.3)	521 (3.4)	21 (1.2)	496 (4.0)
North Macedonia	Girls	33 (1.7)	453 (6.8)	55 (2.1)	471 (5.0)	12 (1.5)	410 (12.2)
	Boys	33 (1.5)	429 (7.5)	51 (2.0)	450 (4.8)	17 (2.0)	390 (9.9)
Northern Ireland	Girls	21 (1.1)	569 (4.6)	70 (1.2)	582 (2.9)	9 (0.8)	569 (8.5)
	Boys	20 (1.2)	552 (5.1)	62 (1.4)	560 (3.1)	18 (1.3)	535 (7.9)
Norway (5)	Girls	28 (1.7)	546 (4.2)	63 (1.7)	553 (2.3)	9 (0.9)	527 (7.3)
	Boys	30 (1.3)	535 (3.7)	58 (1.1)	536 (2.6)	11 (0.9)	507 (5.0)
Oman	Girls	35 (1.3)	452 (6.2)	53 (1.4)	459 (4.5)	12 (0.9)	412 (7.0)
	Boys	32 (1.2)	420 (5.8)	51 (1.2)	427 (4.6)	18 (0.9)	388 (7.7)
Poland	Girls	24 (1.3)	553 (4.4)	65 (1.3)	565 (3.2)	10 (0.9)	546 (6.0)
	Boys	35 (1.2)	527 (3.6)	53 (1.4)	553 (3.2)	12 (0.8)	527 (5.7)
Portugal	Girls	21 (0.8)	515 (3.7)	57 (1.2)	527 (2.8)	22 (1.2)	520 (4.2)
	Boys	25 (0.9)	508 (3.3)	50 (1.1)	521 (3.0)	25 (1.0)	523 (4.8)
Qatar	Girls	32 (1.4)	501 (5.0)	55 (1.2)	502 (4.3)	13 (0.9)	455 (6.1)
	Boys	38 (1.1)	489 (5.4)	46 (1.2)	486 (5.3)	16 (0.9)	445 (7.4)
Russian Federation	Girls	25 (0.9)	569 (4.6)	58 (1.1)	585 (3.2)	17 (0.9)	554 (5.9)
	Boys	27 (0.8)	558 (5.2)	51 (1.1)	570 (5.2)	22 (1.1)	546 (6.6)
Saudi Arabia	Girls	31 (1.3)	472 (5.2)	51 (1.6)	475 (5.5)	18 (1.2)	440 (7.9)
	Boys	31 (1.4)	435 (5.3)	45 (1.2)	439 (5.2)	25 (1.2)	418 (6.8)
Serbia	Girls	31 (1.6)	518 (5.1)	52 (1.6)	523 (4.3)	17 (1.3)	510 (9.2)
	Boys	36 (1.9)	507 (3.7)	47 (1.7)	517 (4.4)	17 (1.3)	497 (7.8)
Singapore	Girls	28 (0.8)	601 (3.6)	60 (0.8)	599 (3.2)	12 (0.6)	573 (5.9)
	Boys	29 (0.9)	588 (4.5)	53 (1.0)	585 (3.8)	18 (0.7)	553 (6.1)
Slovak Republic	Girls	16 (1.0)	539 (4.7)	63 (1.6)	545 (3.1)	21 (1.5)	502 (6.6)
	Boys	23 (1.0)	526 (5.2)	51 (1.2)	538 (3.1)	26 (1.1)	505 (7.1)
Slovenia	Girls	18 (0.9)	519 (4.1)	59 (1.3)	535 (2.5)	23 (1.1)	523 (3.8)
	Boys	26 (1.0)	503 (4.2)	47 (1.2)	521 (2.7)	27 (1.2)	503 (4.7)
South Africa ⋈	Girls	28 (1.0)	354 (6.5)	34 (0.9)	342 (5.9)	39 (1.2)	285 (4.7)
	Boys	26 (1.0)	293 (7.4)	35 (1.1)	284 (7.0)	39 (1.2)	239 (5.2)
Spain	Girls	24 (0.8)	516 (4.3)	61 (1.1)	527 (2.7)	15 (0.9)	518 (4.8)
	Boys	25 (1.0)	520 (3.3)	54 (1.0)	524 (2.8)	20 (0.9)	516 (4.5)
Sweden	Girls	25 (1.2)	555 (4.0)	65 (1.2)	554 (2.9)	10 (0.9)	543 (7.3)
	Boys	28 (1.1)	533 (3.3)	59 (1.3)	543 (3.0)	13 (1.0)	527 (7.4)
Turkiye	Girls	29 (1.2)	505 (4.7)	59 (1.4)	518 (3.8)	13 (1.2)	450 (8.5)
	Boys	35 (1.2)	487 (4.4)	53 (1.1)	499 (3.9)	12 (1.0)	451 (8.6)
United Arab Emirates	Girls	34 (0.6)	512 (3.4)	56 (0.6)	507 (2.8)	11 (0.5)	424 (4.9)
	Boys	39 (0.6)	496 (3.6)	46 (0.7)	486 (4.2)	15 (0.5)	398 (5.1)
United States	Girls	22 (1.7)	538 (11.7)	63 (2.1)	560 (7.3)	15 (1.6)	543 (12.3)
	Boys	24 (1.6)	551 (7.7)	58 (1.8)	549 (9.1)	18 (2.0)	528 (13.5)
Uzbekistan	Girls	22 (1.2)	445 (4.8)	36 (1.4)	463 (3.7)	42 (1.7)	443 (3.8)
	Boys	22 (1.2)	423 (4.3)	34 (1.4)	432 (5.0)	44 (1.9)	425 (4.0)
International Average	**Girls**	**24 (0.2)**	**510 (0.7)**	**56 (0.2)**	**520 (0.5)**	**21 (0.2)**	**494 (0.9)**
	Boys	**27 (0.2)**	**494 (0.7)**	**49 (0.2)**	**503 (0.6)**	**25 (0.2)**	**479 (0.9)**
Benchmarking Participants							
Alberta, Canada	Girls	25 (1.8)	551 (5.6)	62 (2.0)	548 (3.8)	12 (1.1)	542 (9.5)
	Boys	34 (1.4)	533 (4.5)	50 (1.6)	540 (4.8)	16 (1.3)	519 (9.4)
British Columbia, Canada	Girls	25 (1.2)	544 (4.3)	59 (1.5)	550 (4.0)	16 (1.3)	530 (5.3)
	Boys	30 (1.3)	529 (4.5)	50 (1.5)	537 (5.3)	20 (1.3)	520 (7.5)
Newfoundland & Labrador, Canada	Girls	25 (1.3)	529 (5.0)	60 (1.7)	537 (4.0)	15 (1.1)	523 (7.3)
	Boys	28 (1.6)	516 (5.4)	52 (1.8)	527 (3.9)	20 (1.2)	500 (10.1)
Quebec, Canada	Girls	22 (1.3)	563 (4.2)	61 (1.4)	557 (3.4)	17 (1.0)	549 (6.8)
	Boys	29 (1.1)	544 (4.4)	49 (1.5)	550 (3.5)	22 (1.4)	541 (5.5)
Moscow City, Russian Federation	Girls	23 (0.9)	601 (3.3)	61 (1.0)	609 (2.3)	17 (0.9)	595 (3.6)
	Boys	24 (0.8)	588 (3.8)	55 (1.2)	599 (2.5)	20 (1.0)	584 (4.3)
South Africa (6) ⋈	Girls	38 (1.3)	430 (5.9)	42 (1.2)	415 (5.7)	20 (1.5)	367 (6.2)
	Boys	32 (1.0)	382 (6.8)	43 (1.2)	367 (6.5)	25 (1.4)	328 (6.4)
Abu Dhabi, UAE	Girls	31 (0.8)	478 (4.7)	55 (1.0)	472 (4.3)	13 (0.7)	377 (8.0)
	Boys	36 (0.9)	458 (6.3)	45 (1.0)	445 (6.7)	20 (0.8)	360 (7.6)
Dubai, UAE	Girls	35 (1.2)	564 (3.7)	59 (1.2)	563 (2.8)	6 (0.5)	488 (7.8)
	Boys	42 (0.9)	559 (3.4)	49 (1.0)	558 (2.9)	9 (0.6)	478 (8.5)

APPENDIX A

Population Coverage and Sample Participation Rates

Exhibit A.1: Information About the Students Assessed in PIRLS 2021

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

The PIRLS target population is the grade that represents four years of schooling counting from the first year of ISCED Level 1. In 6 countries, delayed test administration due to COVID-19 occurred a full year later at the end of the fourth year of schooling for the next cohort (⋈). In 14 Northern Hemisphere countries, delayed test administration occurred half a year later at the beginning of the fifth year of schooling ( ).

IEA has a policy that students do not fall under the minimum average age of 9.5 years old at the time of testing, so England, Malta, and New Zealand assessed students in their fifth year of formal schooling. Norway chose to assess students in the fifth year of schooling so students would be compared with similar age students in Sweden, Denmark, and Finland.

Average age at the time of testing can vary across countries by just over a year (e.g., from 9.8 to 10.9 years) depending on a country's policy on age of entry to school and dates of test administration. For information on age of entry policy and practice, see Exhibit 2 of the *PIRLS 2021 Encyclopedia.*

Country	Country's Name for Fourth Year of Schooling*	Data Collection Period	Average Age at Time of Testing (Years)
Albania	Grade 4	March–April 2021	10.0
Australia ⋈	Year 4	September–December 2021	10.0
Austria	Grade 4	April–May 2021	10.3
Azerbaijan	Grade 4	April–June 2021	10.1
Bahrain	Grade 4 or Year 5	May–June 2021 September–October 2021	10.3
Belgium (Flemish)	Grade 4	April–June 2021	10.0
Belgium (French)	Grade 4	April–May 2021	10.0
Brazil ⋈	Grade 4	November–December 2021	10.2
Bulgaria	Grade 4	March–April 2021	10.7
Chinese Taipei	Grade 4	March–May 2021	10.1
Croatia	Grade 4	October–November 2021	11.2
Cyprus	Grade 4	March–June 2021	9.8
Czech Republic	Grade 4	May–June 2021	10.4
Denmark	Grade 4	March–June 2021	10.9
Egypt	Grade 4	April 2021	10.0
England ⋈	Year 5	May–July 2022	10.3
Finland	Grade 4	March–June 2021	10.8
France	Third Cycle Year 1 (CM1)	May–June 2021	9.9
Georgia	Grade 4	October–December 2021	10.6
Germany	Grade 4	April–July 2021	10.4
Hong Kong SAR	Primary 4	April–July 2021	10.1
Hungary	Grade 4	October–November 2021	11.2
Iran, Islamic Rep. of ⋈	Grade 4	April–May 2022	10.2
Ireland	Fourth Class	September–October 2021	11.0
Israel ⋈	Grade 4	May–June 2022	10.0
Italy	Primary Grade 4	March–May 2021	9.8
Jordan	Grade 4	May 2021	10.0
Kazakhstan	Grade 4	September–October 2021	10.8
Kosovo	Grade 4	June 2021	10.1
Latvia	Grade 4	September–November 2021	11.3
Lithuania	Grade 4	September–November 2021	11.3

* Countries' names for the fourth year of formal schooling were reported by National Research Coordinators.

Exhibit A.1: Information About the Students Assessed in PIRLS 2021

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

Country	Country's Name for Fourth Year of Schooling*	Data Collection Period	Average Age at Time of Testing (Years)
Macao SAR	Primary 4	March–May 2021	9.9
Malta	Year 5	April–May 2021	9.9
Montenegro	Grade 4	April–May 2021	9.9
Morocco	Grade 4	October 2021	10.5
Netherlands	Group 6	March–June 2021 October–November 2021	10.1
New Zealand	Year 5	October–December 2020	10.0
North Macedonia	Grade 4	May 2021	9.9
Northern Ireland	Year 6	September–October 2021	10.8
Norway (5)	Grade 5	April–June 2021	10.8
Oman	Grade 4	February–May 2021	9.8
Poland	Grade 4	May–June 2021	10.9
Portugal	Grade 4	April–July 2021	10.1
Qatar	Grade 4	March–April 2021 September 2021	10.1
Russian Federation	Grade 4	April 2021	10.8
Saudi Arabia	Grade 4	November 2021	10.4
Serbia	Grade 4	March–April 2021	10.6
Singapore	Primary 4	October–November 2020	10.4
Slovak Republic	Grade 4	May–June 2021	10.5
Slovenia	Grade 4	March–June 2021	10.0
South Africa ⋈	Grade 4	August–November 2021	10.2
Spain	Grade 4	April–June 2021	9.9
Sweden	Grade 4	March–April 2021	10.7
Turkiye	Grade 4	June 2021	9.9
United Arab Emirates	Grade 4	February–March 2021 October–November 2021	10.4
United States	Grade 4	October–November 2021	10.7
Uzbekistan	Grade 4	April 2021	10.6
Benchmarking Participants			
Alberta, Canada	Grade 4	April–June 2021	9.9
British Columbia, Canada	Grade 4	April–May 2021	9.8
Newfoundland & Labrador, Canada	Grade 4	May–June 2021	9.9
Quebec, Canada	Grade 4	October–December 2021	10.7
Moscow City, Russian Federation	Grade 4	April–May 2021	10.7
South Africa (6) ⋈	Grade 6	August–October 2021	12.3
Abu Dhabi, UAE	Grade 4	October–November 2021	10.4
Dubai, UAE	Grade 4 or Year 5	February–March 2021 October–November 2021	10.2

* Countries' names for the fourth year of formal schooling were reported by National Research Coordinators.

Exhibit A.2: Coverage of PIRLS 2021 Target Population

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-Level Exclusions	Within-Sample Exclusions	Overall Exclusions
[2] Albania	100%		2.6%	6.7%	9.2%
Australia ⋈	100%		1.6%	2.8%	4.4%
Austria	100%		1.2%	3.6%	4.8%
Azerbaijan	100%		1.8%	0.7%	2.5%
Bahrain	100%		0.6%	0.4%	1.0%
Belgium (Flemish)	100%		0.5%	2.4%	2.9%
[2] Belgium (French)	100%		5.4%	2.0%	7.4%
[2] Brazil ⋈	100%		3.8%	2.5%	6.3%
Bulgaria	100%		0.6%	2.8%	3.4%
Chinese Taipei	100%		0.0%	1.1%	1.1%
Croatia	100%		1.3%	3.1%	4.4%
Cyprus	100%		1.2%	4.3%	5.5%
Czech Republic	100%		2.6%	2.9%	5.5%
[2] Denmark	100%		2.1%	7.0%	9.1%
[2] Egypt	100%		8.0%	0.0%	8.0%
England ⋈	100%		2.1%	3.3%	5.4%
Finland	100%		1.0%	1.3%	2.3%
France	100%		2.7%	2.4%	5.0%
[1] Georgia	92%	Students taught in Georgian	1.2%	1.5%	2.7%
Germany	100%		1.9%	2.0%	4.0%
[2] Hong Kong SAR	100%		6.9%	0.8%	7.7%
Hungary	100%		2.8%	2.1%	4.9%
Iran, Islamic Rep. of ⋈	100%		1.7%	0.1%	1.8%
Ireland	100%		1.9%	1.7%	3.6%
[3] Israel ⋈	100%		22.5%	3.2%	25.7%
[2] Italy	100%		0.8%	4.9%	5.7%
Jordan	100%		0.0%	1.9%	1.9%
Kazakhstan	100%		1.0%	2.8%	3.9%
[2] Kosovo	100%		5.5%	4.1%	9.5%
Latvia	100%		4.3%	0.5%	4.8%
Lithuania	100%		1.9%	2.6%	4.5%
Macao SAR	100%		1.0%	2.5%	3.5%
Malta	100%		0.3%	2.2%	2.5%
[3] Montenegro	100%		1.4%	12.0%	13.5%
Morocco	100%		1.6%	0.0%	1.6%
Netherlands	100%		4.1%	1.1%	5.1%
New Zealand	100%		1.1%	2.4%	3.5%
North Macedonia	100%		1.6%	3.7%	5.3%
[2] Northern Ireland	100%		2.2%	3.4%	5.5%
Norway (5)	100%		2.2%	2.1%	4.2%
Oman	100%		2.2%	1.4%	3.6%
Poland	100%		1.9%	2.9%	4.8%
[2] Portugal	100%		1.3%	5.1%	6.4%
Qatar	100%		1.9%	1.2%	3.1%
Russian Federation	100%		1.7%	3.7%	5.4%
[3] Saudi Arabia	100%		10.4%	0.4%	10.8%
[3] Serbia	100%		4.6%	7.4%	12.0%
[3] Singapore	100%		14.1%	0.4%	14.5%
Slovak Republic	100%		1.5%	0.9%	2.4%
Slovenia	100%		1.8%	1.0%	2.8%
South Africa ⋈	100%		1.6%	0.1%	1.7%
Spain	100%		1.8%	2.8%	4.6%
[2] Sweden	100%		1.2%	4.3%	5.5%
[2] Turkiye	100%		2.3%	6.7%	8.9%
United Arab Emirates	100%		1.1%	3.0%	4.1%
[2] United States	100%		0.0%	5.8%	5.8%
Uzbekistan	100%		1.8%	1.1%	2.9%
Benchmarking Participants					
[3] Alberta, Canada	100%		5.7%	4.9%	10.6%
[2] British Columbia, Canada	100%		0.9%	5.9%	6.7%
[2] Newfoundland & Labrador, Canada	100%		4.2%	5.6%	9.8%
Quebec, Canada	100%		3.1%	1.6%	4.7%
Moscow City, Russian Federation	100%		0.5%	3.3%	3.9%
South Africa (6) ⋈	100%		1.2%	0.0%	1.2%
Abu Dhabi, UAE	100%		0.8%	1.8%	2.7%
[2] Dubai, UAE	100%		2.5%	7.4%	10.0%

1 National Target Population does not include all of the International Target Population.
2 National Defined Population covers 90% to 95% of National Target Population.
3 National Defined Population covers less than 90% of National Target Population (but at least 77%).

Exhibit A.3: School Sample Sizes

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Number of Schools in Original Sample	Number of Eligible Schools in Original Sample	Number of Schools in Original Sample that Participated	Number of Replacement Schools that Participated	Total Number of Schools that Participated
Albania	180	179	177	0	177
Australia ⋈	290	288	278	3	281
Austria	160	160	156	4	160
Azerbaijan	200	200	184	0	184
Bahrain	186	186	186	0	186
Belgium (Flemish)	168	167	134	7	141
Belgium (French)	158	158	146	12	158
Brazil ⋈	244	240	156	31	187
Bulgaria	151	151	151	0	151
Chinese Taipei	184	184	182	2	184
Croatia	166	162	150	4	154
Cyprus	162	162	160	0	160
Czech Republic	197	197	196	0	196
Denmark	218	217	166	31	197
Egypt	192	192	192	0	192
England ⋈	170	169	148	14	162
Finland	221	219	219	0	219
France	190	190	184	0	184
Georgia	194	194	187	3	190
Germany	261	261	248	4	252
Hong Kong SAR	152	151	120	24	144
Hungary	165	164	147	10	157
Iran, Islamic Rep. of ⋈	220	218	218	0	218
Ireland	151	148	148	0	148
Israel ⋈	196	195	193	1	194
Italy	169	165	155	9	164
Jordan	221	217	216	0	216
Kazakhstan	268	267	267	0	267
Kosovo	150	150	150	0	150
Latvia	160	158	153	3	156
Lithuania	204	199	190	0	190
Macao SAR	64	64	63	0	63
Malta	78	78	78	0	78
Montenegro	140	140	140	0	140
Morocco	266	266	266	0	266
Netherlands	164	162	72	59	131
New Zealand	205	205	155	29	184
North Macedonia	150	150	147	1	148
Northern Ireland	160	160	120	23	143
Norway (5)	161	160	157	1	158
Oman	224	222	214	1	215
Poland	150	150	140	10	150
Portugal	198	196	162	34	196
Qatar	263	262	259	0	259
Russian Federation	204	204	202	2	204
Saudi Arabia	190	143	122	20	142
Serbia	170	169	169	0	169
Singapore	183	183	183	0	183
Slovak Republic	186	186	140	29	169
Slovenia	166	166	157	3	160
South Africa ⋈	330	327	319	2	321
Spain	452	452	449	3	452
Sweden	156	151	144	2	146
Turkiye	192	192	192	0	192
United Arab Emirates	684	664	663	0	663
United States	122	118	61	17	78
Uzbekistan	182	180	178	2	180
Benchmarking Participants					
Alberta, Canada	179	178	96	20	116
British Columbia, Canada	181	180	176	3	179
Newfoundland & Labrador, Canada	136	134	133	0	133
Quebec, Canada	172	171	100	12	112
Moscow City, Russian Federation	174	174	173	1	174
South Africa (6) ⋈	255	255	249	4	253
Abu Dhabi, UAE	267	262	262	0	262
Dubai, UAE	204	191	190	0	190

Exhibit A.4: Student Sample Sizes

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Within-School Student Participation (Weighted Percentage)	Number of Students Sampled in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Students Eligible	Number of Students Absent	Number of Students Assessed
Albania	95%	4,539	26	55	4,458	245	4,213
Australia ⋈	92%	6,333	196	177	5,960	473	5,487
Austria	96%	5,201	28	192	4,981	175	4,806
Azerbaijan	92%	5,753	41	23	5,689	480	5,209
Bahrain	91%	5,786	136	22	5,628	420	5,208
Belgium (Flemish)	96%	5,479	42	104	5,333	219	5,114
Belgium (French)	95%	4,595	12	80	4,503	224	4,279
Brazil ⋈	86%	6,314	330	158	5,826	885	4,941
Bulgaria	92%	4,584	59	105	4,420	377	4,043
Chinese Taipei	98%	5,737	39	55	5,643	88	5,555
Croatia	84%	5,020	137	134	4,749	812	3,937
Cyprus	95%	5,044	9	213	4,822	233	4,589
Czech Republic	91%	7,353	41	93	7,219	598	6,621
Denmark	94%	5,466	53	289	5,124	303	4,821
Egypt	94%	8,681	142	0	8,539	560	7,979
England ⋈	92%	4,682	5	156	4,521	371	4,150
Finland	97%	7,368	33	67	7,268	250	7,018
France	94%	5,879	65	155	5,659	320	5,339
Georgia	94%	5,808	92	79	5,637	396	5,241
Germany	88%	5,296	12	71	5,213	602	4,611
Hong Kong SAR	91%	4,518	238	33	4,247	417	3,830
Hungary	95%	5,813	97	102	5,614	302	5,312
Iran, Islamic Rep. of ⋈	97%	6,262	79	6	6,177	215	5,962
Ireland	94%	5,160	130	53	4,977	314	4,663
Israel ⋈	89%	5,591	26	37	5,528	638	4,890
Italy	94%	6,149	25	313	5,811	371	5,440
Jordan	96%	6,776	290	98	6,388	238	6,150
Kazakhstan	97%	7,666	299	121	7,246	223	7,023
Kosovo	97%	4,874	38	113	4,723	166	4,557
Latvia	91%	4,903	38	13	4,852	483	4,369
Lithuania	87%	5,451	7	131	5,313	690	4,623
Macao SAR	92%	5,685	19	144	5,522	429	5,093
Malta	90%	3,475	15	79	3,381	351	3,030
Montenegro	95%	4,972	22	202	4,748	259	4,489
Morocco	96%	8,121	749	0	7,372	355	7,017
Netherlands	95%	4,604	23	42	4,539	226	4,313
New Zealand	91%	6,392	82	150	6,160	603	5,557
North Macedonia	89%	3,323	8	31	3,284	355	2,929
Northern Ireland	90%	4,698	42	150	4,506	456	4,050
Norway (5)	95%	5,819	58	113	5,648	266	5,382
Oman	89%	6,183	123	59	6,001	680	5,321
Poland	87%	5,086	51	159	4,876	697	4,179
Portugal	96%	6,791	75	324	6,392	281	6,111
Qatar	89%	6,161	228	77	5,856	598	5,258
Russian Federation	97%	5,585	13	168	5,404	187	5,217
Saudi Arabia	93%	5,293	136	28	5,129	351	4,778
Serbia	87%	4,870	25	146	4,699	662	4,037
Singapore	97%	6,921	21	0	6,900	181	6,719
Slovak Republic	92%	5,303	27	23	5,253	412	4,841
Slovenia	95%	5,456	6	67	5,383	273	5,110
South Africa ⋈	87%	14,833	210	47	14,576	2,150	12,422
Spain	92%	9,539	20	277	9,242	691	8,551
Sweden	93%	5,822	48	207	5,567	392	5,175
Turkiye	90%	7,621	361	466	6,794	762	6,032
United Arab Emirates	91%	31,032	436	575	30,021	2,573	27,448
United States	95%	1,826	22	64	1,740	83	1,657
Uzbekistan	99%	5,986	33	22	5,931	85	5,846
Benchmarking Participants							
Alberta, Canada	91%	3,492	41	146	3,305	285	3,020
British Columbia, Canada	91%	5,546	91	304	5,151	476	4,675
Newfoundland & Labrador, Canada	93%	2,806	25	153	2,628	183	2,445
Quebec, Canada	95%	4,015	12	51	3,952	213	3,739
Moscow City, Russian Federation	98%	6,048	25	127	5,896	151	5,745
South Africa (6) ⋈	90%	10,776	199	0	10,577	1,260	9,317
Abu Dhabi, UAE	89%	11,864	74	224	11,566	1,185	10,381
Dubai, UAE	92%	8,978	329	211	8,438	727	7,711

Students attending a sampled class at the time the sample was chosen but leaving the class before the assessment was administered were classified as “withdrawn.”

Students with a disability or language barrier that prevented them from participating in the assessment were classified as “excluded.”

Students not present when the assessment was administered, and not subsequently assessed in a make-up session, were classified as “absent.”

Exhibit A.5: Participation Rates (Weighted)

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Albania	99%	99%	100%	95%	94%	94%
Australia ⋈	98%	98%	100%	92%	90%	90%
Austria	98%	100%	100%	96%	95%	96%
Azerbaijan	92%	92%	100%	92%	84%	84%
Bahrain	100%	100%	100%	91%	91%	91%
Belgium (Flemish)	80%	84%	100%	96%	77%	81%
Belgium (French)	92%	100%	100%	95%	87%	95%
† Brazil ⋈	67%	85%	100%	86%	58%	73%
Bulgaria	100%	100%	100%	92%	92%	92%
Chinese Taipei	99%	100%	100%	98%	97%	98%
† Croatia	92%	95%	97%	84%	74%	77%
Cyprus	99%	99%	100%	95%	94%	94%
Czech Republic	99%	99%	100%	91%	91%	91%
† Denmark	76%	90%	100%	94%	72%	85%
Egypt	100%	100%	100%	94%	94%	94%
England ⋈	88%	96%	100%	92%	81%	88%
Finland	100%	100%	100%	97%	97%	97%
France	97%	97%	99%	94%	91%	91%
Georgia	97%	98%	99%	94%	91%	91%
Germany	95%	97%	100%	88%	84%	85%
† Hong Kong SAR	79%	96%	100%	91%	72%	87%
Hungary	90%	96%	100%	95%	86%	91%
Iran, Islamic Rep. of ⋈	100%	100%	100%	97%	97%	97%
Ireland	100%	100%	100%	94%	94%	94%
Israel ⋈	99%	99%	100%	89%	88%	88%
Italy	93%	99%	99%	94%	87%	92%
Jordan	99%	99%	100%	96%	96%	96%
Kazakhstan	100%	100%	100%	97%	97%	97%
Kosovo	100%	100%	100%	97%	97%	97%
Latvia	97%	99%	100%	91%	88%	90%
Lithuania	95%	95%	99%	87%	82%	82%
Macao SAR	98%	98%	100%	92%	91%	91%
Malta	100%	100%	100%	90%	89%	89%
Montenegro	100%	100%	99%	95%	94%	94%
Morocco	100%	100%	100%	96%	96%	96%
≡ Netherlands	44%	79%	100%	95%	41%	75%
† New Zealand	78%	92%	100%	91%	71%	83%
North Macedonia	98%	99%	96%	89%	84%	85%
† Northern Ireland	74%	90%	100%	90%	67%	81%
Norway (5)	98%	99%	100%	95%	93%	94%
Oman	97%	97%	100%	89%	86%	86%
Poland	93%	100%	99%	87%	81%	87%
Portugal	82%	100%	100%	96%	78%	96%
Qatar	99%	99%	100%	89%	88%	88%
Russian Federation	99%	100%	100%	97%	96%	97%
Saudi Arabia	95%	100%	100%	93%	89%	93%
Serbia	100%	100%	99%	87%	86%	86%
Singapore	100%	100%	100%	97%	97%	97%
† Slovak Republic	80%	94%	100%	92%	73%	87%
Slovenia	95%	97%	100%	95%	90%	92%
South Africa ⋈	97%	98%	98%	87%	83%	84%
Spain	100%	100%	100%	92%	92%	92%
Sweden	95%	97%	100%	93%	88%	90%
Turkiye	100%	100%	100%	90%	90%	90%
United Arab Emirates	100%	100%	100%	91%	90%	90%
≡ United States	54%	67%	100%	95%	51%	64%
Uzbekistan	99%	100%	100%	99%	97%	99%
Benchmarking Participants						
≡ Alberta, Canada	55%	68%	91%	91%	46%	57%
British Columbia, Canada	97%	99%	97%	91%	86%	88%
Newfoundland & Labrador, Canada	99%	99%	100%	93%	92%	92%
≡ Quebec, Canada	62%	69%	99%	95%	57%	64%
Moscow City, Russian Federation	100%	100%	100%	98%	97%	98%
South Africa (6) ⋈	98%	99%	99%	90%	88%	89%
Abu Dhabi, UAE	100%	100%	99%	89%	88%	88%
Dubai, UAE	99%	99%	100%	92%	92%	92%

PIRLS guidelines for sampling participation: The minimum acceptable participation rates were 85 percent of schools, 95 percent of classes, and 85 percent of students, or a combined rate (the product of school, class, and student participation) of 75 percent.

Participants not meeting these guidelines were annotated as follows:

† Met guidelines for sample participation rates only after replacement schools were included

‡ Nearly satisfied guidelines for sample participation rates after replacement schools were included

≡ Did not satisfy guidelines for sample participation rates

Exhibit A.6: Trends in Student Populations

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Australia ⋈				
2021	4	10.0	4.4%	90%
2016	4	10.0	4.8%	94%
2011	4	10.0	4.4%	93%
Austria				
2021	4	10.3	4.8%	96%
2 2016	4	10.3	5.6%	98%
2011	4	10.3	5.1%	98%
2006	4	10.3	5.1%	97%
Azerbaijan				
2021	4	10.1	2.5%	84%
2016	4	10.1	2.1%	96%
2 2011	4	10.2	7.2%	100%
Bahrain				
2021	4	10.3	1.0%	91%
2016	4	9.9	2.7%	98%
Belgium (Flemish)				
2021	4	10.0	2.9%	81%
2016	4	10.1	1.6%	92%
2 † 2006	4	10.0	7.1%	91%
Belgium (French)				
2 2021	4	10.0	7.4%	95%
2 2016	4	10.0	6.0%	97%
2 † 2011	4	10.1	5.6%	82%
2006	4	9.9	3.9%	95%
Bulgaria				
2021	4	10.7	3.4%	92%
2016	4	10.8	4.3%	95%
2011	4	10.7	2.5%	95%
2 2006	4	10.9	6.4%	94%
2001	4	10.9	2.7%	93%
Chinese Taipei				
2021	4	10.1	1.1%	98%
2016	4	10.1	0.9%	98%
2011	4	10.2	1.4%	99%
2006	4	10.1	2.9%	99%
Croatia				
† 2021	4	11.2	4.4%	77%
2 2011	4	10.7	7.9%	95%
Cyprus				
2021	4	9.8	5.5%	94%
2001	4	9.7	2.0%	97%
Czech Republic				
2021	4	10.4	5.5%	91%
2016	4	10.3	3.4%	95%
2011	4	10.4	5.1%	94%
2001	4	10.5	5.0%	90%
Denmark				
2 † 2021	4	10.9	9.1%	85%
2 2016	4	10.8	9.8%	90%
2 2011	4	10.9	7.3%	95%
2 2006	4	10.9	6.2%	96%
Egypt				
2 Ψ 2021	4	10.0	8.0%	94%
+ 2016	4	10.0	1.2%	97%
England ⋈				
2021	5	10.3	5.4%	88%
2016	5	10.3	3.7%	96%
† 2011	5	10.3	2.4%	82%
2006	5	10.3	2.4%	92%
2 † 2001	5	10.2	5.7%	82%
Finland				
2021	4	10.8	2.3%	97%
2016	4	10.8	2.4%	96%
2011	4	10.8	3.1%	95%
France				
2021	4	9.9	5.0%	91%
2016	4	9.8	5.4%	96%
2011	4	10.0	5.2%	97%
2006	4	10.0	3.8%	95%
2001	4	10.1	5.3%	94%

* Represents years of schooling counting from the first year of ISCED Level 1.
Trend data are included only for assessment years reported in PIRLS 2021.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
See Exhibit A.2 for population coverage notes 1, 2, and 3. See Exhibit A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
\+ Participated in Literacy version of PIRLS 2016.

Exhibit A.6: Trends in Student Populations

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Georgia				
[1] 2021	4	10.6	2.7%	91%
[1] 2016	4	9.7	3.8%	96%
[1] 2011	4	10.0	4.9%	96%
[1 2] 2006	4	10.1	7.3%	98%
Germany				
2021	4	10.4	4.0%	85%
2016	4	10.3	4.2%	95%
2011	4	10.4	1.9%	95%
2006	4	10.5	0.7%	92%
2001	4	10.5	1.8%	86%
Hong Kong SAR				
[2 †] 2021	4	10.1	7.7%	87%
[2 †] 2016	4	9.9	10.1%	79%
[3] 2011	4	10.1	11.8%	83%
2006	4	10.0	3.9%	97%
2001	4	10.2	2.8%	97%
Hungary				
2021	4	11.2	4.9%	91%
2016	4	10.6	4.5%	97%
2011	4	10.7	4.2%	96%
2006	4	10.7	3.7%	97%
2001	4	10.7	2.1%	95%
Iran, Islamic Rep. of ⋈				
2021	4	10.2	1.8%	97%
[±] 2016	4	10.2	4.1%	99%
2011	4	10.2	4.5%	99%
2006	4	10.2	3.8%	99%
2001	4	10.4	0.5%	98%
Ireland				
2021	4	11.0	3.6%	94%
2016	4	10.5	3.1%	96%
2011	4	10.3	2.5%	95%
Israel ⋈				
[3] 2021	4	10.0	25.7%	88%
[3] 2016	4	10.0	24.9%	94%
[3] 2011	4	10.1	24.6%	93%
Italy				
[2] 2021	4	9.8	5.7%	92%
2016	4	9.7	4.9%	95%
2011	4	9.7	3.7%	95%
2006	4	9.7	5.3%	97%
2001	4	9.8	2.9%	98%
Kazakhstan				
2021	4	10.8	3.9%	97%
2016	4	10.3	4.9%	99%
Latvia				
2021	4	11.3	4.8%	90%
[2] 2016	4	10.9	7.8%	91%
2006	4	11.0	4.7%	92%
2001	4	11.0	4.6%	89%
Lithuania				
2021	4	11.3	4.5%	82%
2016	4	10.8	4.2%	95%
[1 2] 2011	4	10.7	5.6%	94%
[1] 2006	4	10.7	5.1%	92%
[1] 2001	4	10.9	3.8%	83%
Macao SAR				
2021	4	9.9	3.5%	91%
2016	4	10.0	3.6%	98%
Morocco				
2021	4	10.5	1.6%	96%
[±] 2016	4	10.2	1.7%	99%
[Ж] 2011	4	10.5	2.0%	95%
Netherlands				
[≡] 2021	4	10.1	5.1%	75%
[†] 2016	4	10.1	3.1%	86%
[†] 2011	4	10.2	3.7%	89%
[†] 2006	4	10.3	3.6%	90%
[†] 2001	4	10.3	3.7%	87%

* Represents years of schooling counting from the first year of ISCED Level 1.
Trend data are included only for assessment years reported in PIRLS 2021.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
See Exhibit A.2 for population coverage notes 1, 2, and 3. See Exhibit A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
Georgia assessed students taught in Georgian and in Azerbaijani in PIRLS 2016.
± Participated in both regular and Literacy versions of PIRLS 2016.

Exhibit A.6: Trends in Student Populations

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
New Zealand				
† 2021	4.5 - 5.5	10.0	3.5%	83%
2016	4.5 - 5.5	10.1	3.7%	92%
2011	4.5 - 5.5	10.1	3.3%	93%
2006	4.5 - 5.5	10.0	5.3%	95%
2001	4.5 - 5.5	10.1	3.2%	96%
North Macedonia				
2021	4	9.9	5.3%	85%
2006	4	10.6	4.9%	96%
2001	4	10.7	4.2%	94%
Northern Ireland				
2 † 2021	4	10.8	5.5%	81%
2016	4	10.4	3.0%	84%
† 2011	4	10.4	3.5%	79%
Norway (5)				
2021	5	10.8	4.2%	94%
2016	5	10.8	5.3%	95%
Norway (4)				
2016	4	9.8	5.1%	95%
‡ 2011	4	9.7	4.2%	71%
‡ 2006	4	9.8	3.8%	71%
2001	4	10.0	2.8%	82%
Oman				
2021	4	9.8	3.6%	86%
2016	4	9.7	0.6%	98%
Ψ 2011	4	9.9	1.5%	96%
Poland				
2021	4	10.9	4.8%	87%
2016	4	10.7	3.9%	90%
Portugal				
2 2021	4	10.1	6.4%	96%
2 2016	4	9.8	7.5%	93%
2011	4	10.0	2.5%	93%
Qatar				
2021	4	10.1	3.1%	88%
2016	4	10.0	3.9%	97%
2 2011	4	10.0	6.2%	99%
Russian Federation				
2021	4	10.8	5.4%	97%
2016	4	10.8	4.1%	98%
2011	4	10.8	5.3%	98%
2 2006	4	10.8	5.9%	97%
2 2001	3 or 4	10.3	6.6%	97%
Saudi Arabia				
3 2021	4	10.4	10.8%	93%
2016	4	9.9	2.3%	96%
2011	4	10.0	1.6%	98%
Singapore				
3 2021	4	10.4	14.5%	97%
3 2016	4	10.4	11.1%	97%
2 2011	4	10.4	6.3%	96%
2006	4	10.4	0.9%	95%
2001	4	10.1	0.1%	98%
Slovak Republic				
† 2021	4	10.5	2.4%	87%
2016	4	10.4	4.8%	97%
2011	4	10.4	4.6%	96%
2006	4	10.4	3.6%	94%
2001	4	10.3	2.0%	96%
Slovenia				
2021	4	10.0	2.8%	92%
2016	4	9.9	2.4%	90%
2011	4	9.9	2.6%	94%
2006	3 or 4	9.9	0.8%	93%
2001	3	9.8	0.3%	94%
South Africa ⋈				
Ж 2021	4	10.2	1.7%	84%
+ 2016	4	10.6	2.5%	94%

* Represents years of schooling counting from the first year of ISCED Level 1.
Trend data are included only for assessment years reported in PIRLS 2021.
Ψ Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 15% but does not exceed 25%.
Ж Reservations about reliability because the percentage of students with achievement too low for estimation exceeds 25%.
See Exhibit A.2 for population coverage notes 1, 2, and 3. See Exhibit A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.
\+ Participated in Literacy version of PIRLS 2016.
Singapore's increased exclusions in 2016 resulted from increased enrollment in private schools, which predominantly serve international students and are different from public schools in many respects (e.g., different language of instruction and calendar year).

Exhibit A.6: Trends in Student Populations

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled – six year trend from PIRLS 2016

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

(Continued)

Country	Years of Formal Schooling*	Average Age at Time of Testing	Overall Exclusion Rates	Overall Participation Rates (After Replacement)
Spain				
2021	4	9.9	4.6%	92%
2016	4	9.9	4.8%	97%
2011	4	9.8	5.4%	96%
2006	4	9.9	5.3%	97%
Sweden				
[2] 2021	4	10.7	5.5%	90%
2016	4	10.7	5.2%	95%
2011	4	10.7	4.1%	91%
2006	4	10.9	3.9%	96%
2001	4	10.8	5.0%	92%
Turkiye				
[2] 2021	4	9.9	8.9%	90%
2001	4	10.2	3.9%	97%
United Arab Emirates				
2021	4	10.4	4.1%	90%
2016	4	9.8	3.3%	95%
2011	4	9.8	3.3%	97%
United States				
[2 ≡] 2021	4	10.7	5.8%	64%
[†] 2016	4	10.1	4.8%	86%
[2] 2011	4	10.2	7.2%	81%
[2 †] 2006	4	10.1	5.9%	82%
[†] 2001	4	10.2	5.3%	83%
Benchmarking Participants				
Alberta, Canada				
[3 ≡] 2021	4	9.9	10.6%	57%
[2] 2011	4	9.9	6.8%	94%
[2] 2006	4	9.9	7.1%	96%
British Columbia, Canada				
[2] 2021	4	9.8	6.7%	88%
[2] 2006	4	9.8	7.6%	94%
Quebec, Canada				
[≡] 2021	4	10.7	4.7%	64%
[≡] 2016	4	10.1	5.1%	64%
2011	4	10.1	3.7%	92%
2006	4	10.1	3.6%	81%
2001	4	10.2	3.3%	89%
Moscow City, Russian Federation				
2021	4	10.7	3.9%	98%
2016	4	10.8	3.3%	97%
Abu Dhabi, UAE				
2021	4	10.4	2.7%	88%
2016	4	9.7	3.9%	96%
2011	4	9.7	2.7%	96%
Dubai, UAE				
[2] 2021	4	10.2	10.0%	92%
2016	4	9.9	3.2%	95%
2011	4	9.8	5.1%	94%

* Represents years of schooling counting from the first year of ISCED Level 1.
Trend data are included only for assessment years reported in PIRLS 2021.
See Exhibit A.2 for population coverage notes 1, 2, and 3. See Exhibit A.5 for sampling guidelines and sampling participation notes †, ‡, and ≡.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2021
Downloaded from https://pirls2021.org/results

APPENDIX B

Percentiles and Standard Deviations of Reading Achievement

Exhibit B.1: Percentiles of Reading Achievement

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
Albania	381 (7.1)	411 (4.6)	461 (4.2)	516 (4.0)	567 (4.1)	610 (3.3)	637 (5.1)
Australia ⋈	393 (6.8)	432 (6.7)	492 (3.6)	546 (2.7)	596 (2.9)	639 (3.4)	663 (4.2)
Austria	407 (4.3)	438 (3.6)	486 (2.8)	534 (2.9)	578 (2.3)	614 (2.9)	636 (4.4)
Azerbaijan	288 (6.2)	321 (5.1)	378 (4.4)	444 (4.4)	506 (5.6)	554 (3.3)	579 (4.1)
Bahrain	267 (5.4)	310 (5.0)	385 (4.8)	466 (3.8)	534 (4.2)	594 (5.0)	628 (6.5)
Belgium (Flemish)	395 (4.5)	422 (3.6)	467 (2.6)	514 (2.1)	558 (2.7)	593 (3.4)	614 (3.1)
Belgium (French)	368 (6.5)	397 (5.2)	446 (3.9)	498 (3.4)	545 (2.5)	585 (3.6)	608 (4.5)
Brazil ⋈	192 (10.1)	239 (10.4)	339 (9.7)	437 (5.4)	509 (4.9)	563 (4.4)	592 (5.5)
Bulgaria	379 (8.7)	422 (7.0)	486 (4.8)	548 (3.2)	601 (3.0)	645 (2.7)	672 (3.2)
Chinese Taipei	420 (4.1)	454 (3.9)	502 (3.0)	550 (2.4)	591 (2.2)	627 (1.9)	647 (2.6)
Croatia	435 (5.6)	466 (5.0)	513 (3.8)	561 (2.8)	605 (2.3)	641 (2.6)	662 (2.7)
Cyprus	378 (5.7)	410 (4.5)	461 (3.8)	514 (3.3)	566 (2.4)	608 (3.7)	633 (4.7)
Czech Republic	409 (5.8)	441 (5.1)	493 (3.0)	545 (2.7)	591 (2.3)	629 (2.8)	651 (3.7)
Denmark	409 (5.8)	440 (4.5)	493 (2.8)	545 (2.6)	590 (2.5)	628 (2.7)	649 (3.1)
Egypt	189 (8.6)	230 (8.3)	303 (7.4)	384 (6.4)	457 (5.2)	515 (5.8)	549 (6.9)
England ⋈	424 (4.3)	458 (3.8)	511 (3.3)	562 (2.8)	609 (2.6)	651 (3.5)	676 (4.4)
Finland	417 (6.5)	451 (5.3)	504 (2.8)	556 (2.7)	601 (2.3)	638 (3.4)	660 (3.5)
France	391 (5.4)	420 (3.6)	469 (3.4)	518 (2.3)	563 (2.9)	601 (3.0)	623 (3.9)
Georgia	350 (4.3)	386 (4.2)	442 (3.6)	499 (3.2)	551 (3.0)	594 (2.6)	620 (3.0)
Germany	389 (4.9)	421 (3.3)	474 (2.9)	529 (2.3)	578 (2.9)	619 (2.5)	641 (3.6)
Hong Kong SAR	454 (8.4)	488 (6.1)	536 (3.8)	579 (2.6)	617 (2.4)	651 (2.8)	670 (3.9)
Hungary	392 (8.6)	428 (7.0)	489 (5.2)	549 (3.2)	597 (3.4)	636 (2.6)	658 (3.0)
Iran, Islamic Rep. of ⋈	235 (12.7)	277 (11.7)	350 (6.4)	422 (4.3)	485 (3.9)	533 (4.3)	561 (3.7)
Ireland	442 (6.4)	480 (4.7)	532 (2.5)	582 (2.6)	629 (2.8)	671 (2.5)	693 (5.0)
Israel ⋈	352 (5.8)	389 (4.9)	452 (3.7)	517 (2.9)	574 (2.3)	617 (3.2)	642 (3.8)
Italy	421 (4.5)	449 (3.3)	495 (2.9)	541 (2.4)	583 (2.8)	619 (2.6)	640 (3.0)
Jordan	181 (10.2)	223 (8.8)	301 (7.5)	390 (6.8)	464 (5.7)	522 (5.5)	554 (5.3)
Kazakhstan	371 (4.4)	404 (4.0)	456 (3.8)	509 (3.0)	555 (2.5)	596 (3.1)	619 (3.4)
Kosovo	271 (7.1)	307 (5.2)	367 (4.1)	426 (3.7)	479 (3.0)	523 (4.2)	549 (4.9)
Latvia	395 (4.5)	428 (5.5)	482 (3.7)	533 (3.3)	580 (2.6)	619 (2.9)	641 (3.6)
Lithuania	426 (4.5)	458 (5.0)	509 (2.7)	558 (2.3)	601 (2.5)	638 (3.2)	659 (4.1)
Macao SAR	409 (5.4)	443 (2.9)	494 (2.0)	541 (1.0)	584 (2.2)	620 (2.8)	641 (2.4)
Malta	364 (7.0)	401 (5.3)	460 (4.3)	521 (2.9)	575 (2.8)	616 (2.1)	641 (3.4)
Montenegro	352 (4.7)	385 (3.5)	439 (2.5)	492 (2.2)	541 (2.0)	581 (3.6)	605 (4.0)
Morocco	197 (6.9)	233 (6.9)	297 (5.0)	374 (4.3)	446 (5.6)	510 (7.4)	548 (10.5)
Netherlands	412 (5.2)	441 (3.9)	484 (3.5)	530 (2.6)	572 (2.8)	610 (3.0)	633 (4.1)
New Zealand	361 (5.2)	399 (4.6)	464 (3.2)	530 (3.0)	586 (2.7)	630 (2.9)	654 (3.4)
North Macedonia	283 (10.9)	321 (8.2)	385 (7.5)	448 (5.9)	507 (5.7)	552 (4.8)	579 (5.0)
Northern Ireland	424 (7.2)	461 (5.1)	516 (3.4)	571 (2.8)	621 (3.5)	665 (3.9)	690 (4.8)
Norway (5)	408 (5.7)	439 (4.0)	492 (3.3)	545 (2.3)	590 (2.3)	628 (2.3)	651 (3.1)
Oman	241 (5.8)	284 (6.2)	358 (4.6)	435 (5.0)	507 (5.2)	566 (5.2)	599 (5.6)
Poland	425 (6.4)	456 (4.5)	504 (3.3)	552 (2.4)	599 (2.4)	637 (2.6)	660 (3.3)
Portugal	393 (5.7)	425 (4.2)	475 (2.5)	525 (2.6)	570 (2.2)	607 (2.4)	630 (3.8)
Qatar	310 (5.0)	350 (6.9)	421 (4.8)	493 (4.4)	555 (4.5)	605 (4.2)	633 (4.8)
Russian Federation	441 (7.2)	471 (7.0)	522 (4.9)	573 (3.7)	616 (3.1)	654 (3.4)	676 (3.5)
Saudi Arabia	292 (7.2)	326 (5.3)	387 (5.4)	455 (4.3)	513 (4.0)	560 (3.4)	587 (5.0)
Serbia	381 (6.6)	416 (7.1)	470 (4.2)	519 (3.5)	565 (2.5)	602 (2.8)	625 (2.9)
Singapore	426 (8.1)	473 (6.1)	539 (4.5)	597 (3.4)	646 (2.9)	686 (2.1)	710 (3.6)
Slovak Republic	386 (10.1)	427 (6.9)	488 (3.6)	538 (2.6)	581 (3.0)	618 (3.1)	639 (3.3)
Slovenia	395 (3.9)	425 (3.2)	475 (2.7)	525 (2.3)	568 (2.4)	605 (2.5)	626 (2.8)
South Africa ⋈	87 (5.9)	126 (5.3)	194 (4.9)	281 (5.5)	373 (6.0)	462 (8.1)	517 (9.3)
Spain	402 (5.8)	430 (3.9)	477 (3.1)	525 (2.4)	570 (2.4)	607 (2.8)	628 (3.3)
Sweden	402 (6.3)	436 (4.0)	494 (2.9)	549 (3.1)	600 (2.2)	641 (3.7)	663 (4.3)
Turkiye	342 (7.5)	380 (5.6)	440 (4.9)	503 (3.6)	559 (2.5)	602 (3.1)	627 (3.7)
United Arab Emirates	249 (3.7)	299 (3.5)	400 (3.4)	500 (2.5)	577 (1.7)	634 (1.9)	665 (2.2)
United States	395 (17.8)	435 (14.1)	495 (8.7)	555 (7.0)	606 (5.5)	652 (6.1)	680 (10.3)
Uzbekistan	292 (5.9)	327 (5.5)	387 (4.1)	443 (3.3)	494 (2.8)	537 (3.4)	559 (4.1)
Benchmarking Participants							
Alberta, Canada	399 (10.2)	433 (5.7)	492 (5.4)	546 (4.2)	593 (3.3)	630 (4.8)	656 (4.1)
British Columbia, Canada	394 (7.6)	430 (6.3)	487 (5.1)	541 (3.7)	589 (3.9)	630 (3.4)	654 (5.3)
Newfoundland & Labrador, Canada	382 (8.9)	416 (6.1)	473 (4.8)	531 (3.7)	579 (3.7)	618 (4.0)	641 (5.4)
Quebec, Canada	440 (5.8)	468 (3.6)	509 (3.5)	554 (2.8)	595 (3.2)	630 (4.0)	651 (4.6)
Moscow City, Russian Federation	488 (4.6)	516 (2.7)	560 (2.6)	602 (2.1)	641 (2.5)	674 (2.6)	693 (2.3)
South Africa (6) ⋈	185 (6.4)	221 (6.7)	289 (5.2)	379 (5.0)	474 (6.2)	558 (6.8)	603 (8.3)
Abu Dhabi, UAE	205 (3.7)	242 (5.1)	324 (5.5)	453 (5.9)	553 (4.0)	617 (3.7)	651 (4.1)
Dubai, UAE	364 (5.0)	416 (4.3)	495 (3.2)	565 (2.7)	621 (2.1)	668 (2.4)	694 (2.9)

Percentiles are defined in terms of percentages of students at or below a point on the scale.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit B.2: Standard Deviations of Reading Achievement

Assessed Fourth Grade Students at the End of the School Year

⋈ Assessed one year later than originally scheduled

Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Overall		Girls		Boys	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Albania	513 (3.1)	78 (1.4)	523 (3.5)	77 (1.9)	503 (3.4)	78 (1.8)
Australia ⋈	540 (2.2)	82 (1.4)	549 (2.5)	79 (2.0)	532 (2.8)	84 (1.9)
Austria	530 (2.2)	69 (1.1)	537 (2.6)	69 (1.5)	523 (2.6)	67 (1.3)
Azerbaijan	440 (3.6)	89 (1.6)	450 (4.1)	88 (2.0)	432 (4.0)	90 (2.0)
Bahrain	458 (2.9)	109 (2.0)	483 (3.9)	99 (2.0)	434 (3.2)	113 (2.7)
Belgium (Flemish)	511 (2.3)	67 (1.1)	515 (2.6)	65 (1.3)	507 (2.8)	68 (1.6)
Belgium (French)	494 (2.7)	73 (1.2)	499 (3.2)	72 (1.6)	489 (2.9)	73 (1.6)
Brazil ⋈	419 (5.3)	123 (3.0)	431 (6.0)	119 (4.1)	408 (6.1)	125 (3.0)
Bulgaria	540 (3.0)	88 (2.5)	548 (3.0)	87 (2.4)	533 (4.0)	89 (3.3)
Chinese Taipei	544 (2.2)	69 (1.3)	551 (2.5)	68 (1.8)	537 (2.4)	69 (1.5)
Croatia	557 (2.5)	69 (1.4)	562 (3.0)	69 (1.7)	551 (3.0)	68 (1.9)
Cyprus	511 (2.9)	78 (1.3)	515 (3.2)	78 (1.7)	506 (3.1)	78 (1.6)
Czech Republic	540 (2.3)	73 (1.3)	541 (2.8)	71 (1.7)	538 (2.7)	75 (1.5)
Denmark	539 (2.2)	73 (1.4)	545 (2.5)	72 (1.3)	533 (2.8)	74 (2.0)
Egypt	378 (5.4)	110 (2.5)	386 (5.7)	106 (3.0)	370 (6.4)	113 (2.8)
England ⋈	558 (2.5)	76 (1.3)	562 (3.1)	75 (1.6)	553 (3.1)	77 (1.8)
Finland	549 (2.4)	74 (1.5)	558 (2.7)	72 (1.5)	541 (2.7)	75 (1.8)
France	514 (2.5)	71 (1.4)	521 (3.0)	69 (1.7)	507 (2.7)	72 (2.0)
Georgia	494 (2.6)	82 (1.7)	506 (2.8)	78 (1.9)	483 (3.1)	84 (1.9)
Germany	524 (2.1)	77 (1.1)	532 (2.5)	76 (1.5)	516 (2.5)	77 (1.6)
Hong Kong SAR	573 (2.7)	67 (2.1)	577 (2.8)	64 (2.4)	569 (3.3)	69 (2.4)
Hungary	539 (3.4)	81 (2.3)	547 (3.7)	78 (2.5)	532 (4.0)	84 (2.7)
Iran, Islamic Rep. of ⋈	413 (4.9)	100 (3.5)	422 (7.5)	99 (4.6)	405 (5.9)	100 (4.0)
Ireland	577 (2.5)	77 (1.4)	583 (3.3)	78 (2.0)	572 (2.8)	75 (1.5)
Israel ⋈	510 (2.2)	88 (1.6)	512 (2.8)	87 (1.8)	508 (2.6)	90 (2.0)
Italy	537 (2.2)	66 (1.0)	541 (2.4)	66 (1.1)	534 (2.4)	67 (1.4)
Jordan	381 (5.4)	114 (2.9)	398 (6.8)	107 (3.5)	362 (7.9)	118 (3.8)
Kazakhstan	504 (2.7)	75 (1.1)	512 (2.8)	71 (1.4)	495 (3.3)	79 (1.5)
Kosovo	421 (3.1)	84 (1.6)	431 (3.1)	80 (2.3)	410 (3.8)	86 (2.0)
Latvia	528 (2.6)	75 (2.0)	542 (2.6)	72 (2.4)	514 (3.3)	75 (2.4)
Lithuania	552 (2.3)	71 (1.3)	563 (2.5)	68 (1.4)	542 (2.7)	73 (1.8)
Macao SAR	536 (1.3)	71 (0.8)	540 (1.5)	69 (1.2)	531 (1.9)	72 (1.3)
Malta	515 (2.7)	84 (1.9)	518 (3.6)	83 (2.3)	512 (3.2)	85 (2.3)
Montenegro	487 (1.6)	77 (1.0)	497 (2.0)	75 (1.4)	478 (2.2)	79 (1.5)
Morocco	372 (4.5)	106 (2.9)	390 (4.5)	103 (3.1)	356 (5.2)	106 (3.6)
Netherlands	527 (2.5)	67 (1.5)	534 (2.9)	66 (2.0)	521 (2.8)	67 (1.6)
New Zealand	521 (2.3)	89 (1.3)	531 (2.9)	87 (1.7)	512 (2.7)	90 (1.6)
North Macedonia	442 (5.3)	90 (2.2)	454 (5.8)	89 (2.9)	429 (6.0)	90 (2.9)
Northern Ireland	566 (2.5)	81 (1.4)	578 (2.9)	77 (1.9)	553 (3.1)	84 (1.8)
Norway (5)	539 (2.0)	74 (1.2)	547 (2.3)	71 (1.6)	531 (2.4)	75 (1.6)
Oman	429 (3.7)	109 (1.9)	447 (4.2)	102 (2.3)	412 (4.1)	113 (2.5)
Poland	549 (2.2)	72 (1.5)	560 (2.5)	70 (1.7)	540 (2.7)	72 (2.1)
Portugal	520 (2.3)	72 (1.3)	523 (2.3)	68 (1.3)	517 (2.7)	75 (1.8)
Qatar	485 (3.7)	98 (1.4)	493 (4.2)	93 (1.8)	476 (4.8)	101 (2.3)
Russian Federation	567 (3.6)	71 (1.8)	574 (3.4)	70 (2.0)	561 (4.5)	72 (2.3)
Saudi Arabia	449 (3.6)	90 (1.8)	464 (5.0)	88 (2.6)	428 (4.9)	89 (2.2)
Serbia	514 (2.8)	74 (1.6)	518 (3.4)	72 (2.5)	509 (3.2)	74 (2.1)
Singapore	587 (3.1)	86 (2.1)	596 (3.0)	81 (1.8)	578 (3.7)	89 (2.5)
Slovak Republic	529 (2.7)	77 (2.2)	533 (2.9)	76 (2.3)	525 (3.2)	78 (2.4)
Slovenia	520 (1.9)	70 (1.1)	529 (2.1)	65 (1.2)	511 (2.3)	73 (1.6)
South Africa ⋈	288 (4.4)	129 (2.8)	317 (4.4)	122 (2.9)	260 (5.0)	130 (3.2)
Spain	521 (2.2)	69 (1.3)	522 (2.6)	68 (1.8)	520 (2.5)	69 (1.6)
Sweden	544 (2.1)	79 (1.5)	551 (2.5)	77 (2.1)	536 (2.3)	81 (1.5)
Turkiye	496 (3.4)	88 (1.7)	505 (3.8)	85 (2.2)	488 (3.6)	89 (1.8)
United Arab Emirates	483 (1.8)	127 (1.4)	497 (2.7)	118 (1.6)	468 (3.6)	134 (1.9)
United States	548 (6.8)	87 (4.4)	551 (7.2)	87 (4.9)	544 (7.1)	87 (4.8)
Uzbekistan	437 (2.9)	81 (1.4)	449 (3.1)	77 (1.6)	425 (3.5)	83 (1.7)
Benchmarking Participants						
Alberta, Canada	539 (3.6)	77 (1.9)	546 (4.1)	76 (2.5)	531 (4.2)	78 (2.4)
British Columbia, Canada	535 (3.5)	78 (2.0)	542 (3.5)	77 (2.4)	529 (4.3)	79 (2.4)
Newfoundland & Labrador, Canada	523 (3.2)	79 (1.6)	530 (3.1)	76 (2.2)	516 (4.3)	81 (2.2)
Quebec, Canada	551 (2.7)	64 (1.4)	556 (3.3)	63 (1.7)	546 (2.9)	64 (1.9)
Moscow City, Russian Federation	598 (2.1)	63 (1.0)	604 (2.2)	60 (1.2)	593 (2.5)	64 (1.3)
South Africa (6) ⋈	384 (4.5)	128 (2.8)	408 (4.5)	122 (3.1)	359 (5.2)	130 (3.2)
Abu Dhabi, UAE	440 (3.5)	142 (1.9)	457 (3.9)	133 (2.4)	422 (5.3)	148 (2.7)
Dubai, UAE	552 (1.5)	100 (1.5)	557 (2.7)	97 (1.7)	547 (2.5)	103 (2.3)

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

APPENDIX C

Organizations and Individuals Responsible for PIRLS 2021

Introduction

PIRLS 2021 was a collaborative effort involving hundreds of individuals around the world. This appendix acknowledges the key individuals and organizations for their contributions. Given that the work on PIRLS 2021 spanned more than five years and involved so many people and organizations, this is not a comprehensive list of everyone who contributed. PIRLS 2021 also acknowledges the students, parents, teachers, and school principals who contributed their time and effort to the study. This report would not be possible without them.

Management and Coordination

PIRLS is a major undertaking of IEA, and together with the Trends in International Science and Mathematics Study (TIMSS), comprises the core of IEA's regular cycles of studies. The PIRLS assessment at the fourth grade complements TIMSS, which regularly assesses mathematics and science achievement at the fourth and eighth grades.

PIRLS 2021 was conducted by IEA's TIMSS & PIRLS International Study Center, which is responsible for the overall direction and management of TIMSS and PIRLS, including design, development, and implementation. Headed by Executive Directors Drs. Ina V.S. Mullis and Matthias von Davier, the study center is located in the Lynch School of Education and Human Development at Boston College. The TIMSS & PIRLS International Study Center worked closely with IEA Amsterdam, which was responsible for country participation, verification of all translations produced by the participating countries, and coordinating school visits for the International Quality Control Monitors. In addition, staff at IEA Hamburg worked with participating countries to organize sampling and data management operations and to check all data for accuracy and consistency within and across countries. Statistics Canada in Ottawa was responsible for school and student sampling activities.

The Project Management Team, comprising the study directors and representatives from the TIMSS & PIRLS International Study Center, IEA Amsterdam, IEA Hamburg, and Statistics Canada met twice a year throughout the study to discuss the study's progress, procedures, and schedule. In addition, the study directors met with members of IEA's Technical Executive Group twice each year to review technical issues.

To work with the international team and coordinate within-country activities, each participating country designates an individual to be the PIRLS National Research Coordinator (NRC). The NRCs have the challenging task of implementing PIRLS in their countries in accordance with the PIRLS guidelines and procedures. In addition, the NRCs contribute to the development of PIRLS and provide input throughout the course of the project. The quality of the PIRLS assessment and data depends on the work of the NRCs and their colleagues in carrying out the complex sampling, data collection, and scoring tasks. The PIRLS 2021 NRCs worked tirelessly to support PIRLS 2021 data collection despite the difficult circumstances presented by the COVID-19 pandemic. They performed their many tasks with dedication, competence, energy, and goodwill. PIRLS 2021 owes its success to the commitment and determination of the NRCs and their colleagues.

Funding

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