


PROGRESS IN INTERNATIONAL READING LITERACY STUDY

PIRLS



PIRLS 2016

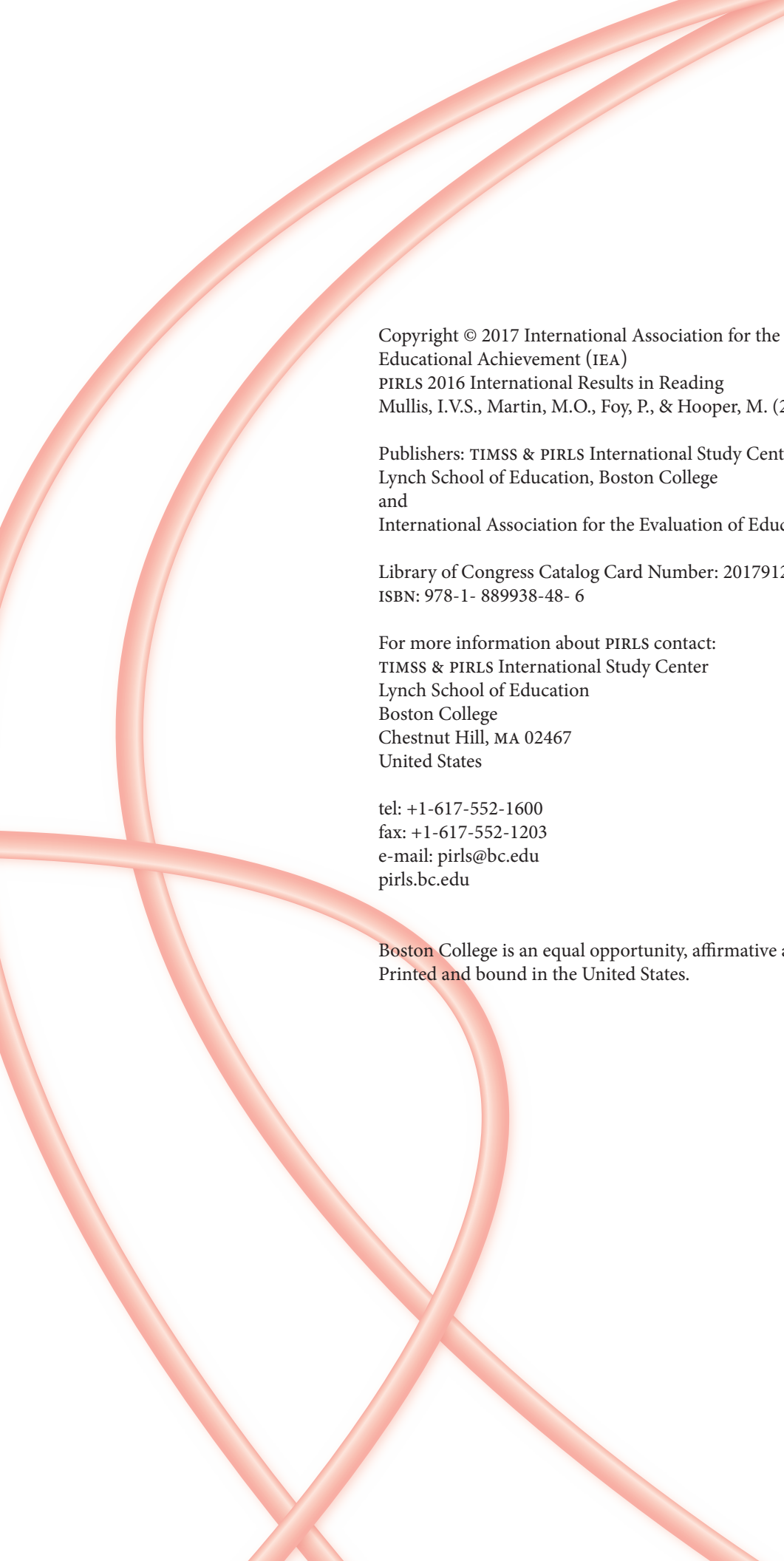
International Results in Reading



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Educational Achievement (IEA)
PIRLS 2016 International Results in Reading
Mullis, I.V.S., Martin, M.O., Foy, P., & Hooper, M. (2017).

Publishers: TIMSS & PIRLS International Study Center,
Lynch School of Education, Boston College
and
International Association for the Evaluation of Educational Achievement (IEA)

Library of Congress Catalog Card Number: 2017912121
ISBN: 978-1- 889938-48- 6

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Printed and bound in the United States.

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What Makes a Good Reader: International Findings from PIRLS 2016

Students in the Russian Federation and Singapore Had the Highest Reading Achievement

Fifty countries from around the world participated in the PIRLS 2016 international assessment of reading comprehension at the fourth grade, and in every country there was a wide range of reading achievement from basic skills to advanced comprehension. The fourth grade students in the Russian Federation and Singapore had the highest reading achievement on average. These two countries also had more than one-fourth of their students reaching the PIRLS Advanced International Benchmark. Students reaching this level interpreted, integrated, and evaluated story plots and information in relatively complex texts. Hong Kong SAR, Ireland, Finland, Poland, and Northern Ireland also performed very well, with approximately one-fifth of their students reaching the Advanced Benchmark.



In terms of basic reading literacy, it is noteworthy that in more than half of the PIRLS 2016 countries almost all of the students (more than 95 percent) demonstrated fundamental reading skills. These students could locate and reproduce ideas and information from text and make straightforward inferences.

PIRLS 2016 Trends Indicate an Increase in Good Readers Internationally

PIRLS countries with both long term and short term gains

- Hungary
- Italian Federation
- Italy
- Slovenia
- Norway

There are internationally more good readers than there were 15 years ago. The trends over time since the inception of PIRLS in 2001 show more increases than decreases in achievement. Eleven countries improved over the long term (2001 to 2016) and only 2 declined; 18 improved over the short term (2011 to 2016), compared to 10 declining.

More Girls Than Boys Are Good Readers

Girls had higher average achievement than boys in 48 of the 50 PIRLS 2016 countries, and boys did not have higher achievement in any countries. The gender gap in reading achievement has favored girls since 2001 and does not appear to be closing.



Good Readers Have Home Environments That Support Literacy Learning



Across countries, higher reading achievement was related to:

- More home resources that support learning (books in the home, study supports, and educated parents with professional/technical occupations)
- More digital devices in the home
- Parents who like to read

As a matter of some concern, there was a decrease in parents' positive attitudes toward reading since 2011 in 31 countries, and only 2 countries had an increase. On average in 2016, only 32 percent of the students' parents liked to read a lot and 17 percent reported they did not like to read.

Good Readers Had an Early Start in Literacy Learning

PIRLS indicates two basic ways students get an early start in literacy learning:

- Having parents who often engage them in early literacy activities
- Attending preprimary education



Parents are students' first teachers, and 39 percent of the students had parents who reported often engaging their children in early literacy activities such as reading, talking, or singing to them as well as telling them stories and teaching them to write alphabet letters. These students had higher reading achievement than students whose parents engaged them less frequently in early literacy activities.

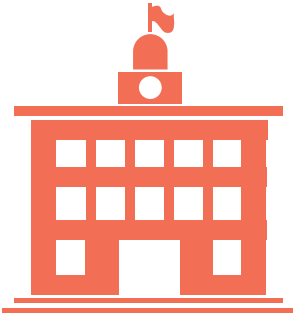
According to their parents, 59 percent of the PIRLS students had attended 3 years or more of preprimary school. There was a positive relationship between the number of years that students had attended preprimary school and higher reading achievement.

According to their parents—whether through parental encouragement of early literacy learning, attending preprimary education, or both—29 percent of the students were able to perform early literacy tasks very well when they began primary school. These students had higher reading achievement in the fourth grade than their classmates who started school with only moderate literacy skills or few skills. On a positive note, trends showed increases in 16 countries and only 1 decrease compared to 2011 in students' time spent on early literacy activities.

Good Readers Attended Well Resourced, Academically Oriented Schools

Across the countries, students had higher reading achievement on average if they attended schools:

- With more affluent than economically disadvantaged students
- Where a higher proportion of their peers had early reading and writing skills when entering first grade
- Where instruction was not affected by reading resource shortages

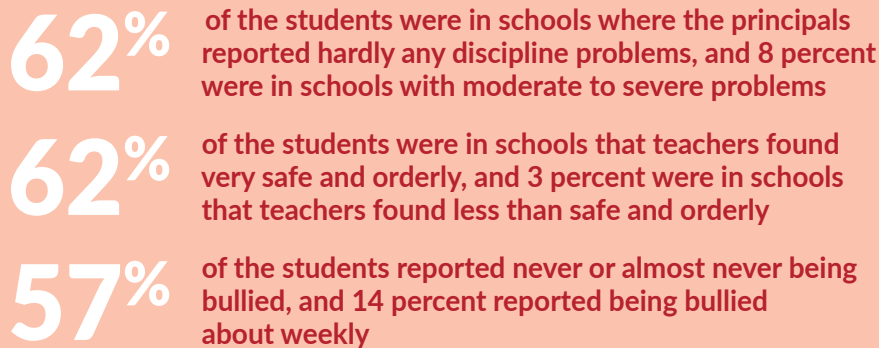


Interestingly, principals and teachers were in agreement about whether their schools emphasized academic success. On average, 8 percent of the students attended schools with very high emphasis, 54 to 55 percent were in schools with high emphasis, and 37 to 38 percent were in schools with medium emphasis. Higher reading achievement was associated with a higher degree of emphasis on academic success.

It also is worth mentioning that almost all fourth grade students reported a positive sense of school belonging, and a higher sense of school belonging was related to higher average reading achievement.

Good Readers Attended Safe Schools

Internationally, the majority of fourth grade students were in safe school environments, but those attending schools with a disorderly environment had much lower reading achievement than their counterparts. Results also showed:



Reading Instruction Was a High Priority in Primary Schools Internationally

On average, 27 percent of the available instructional time is devoted to language instruction, and 18 percent is devoted specifically to reading instruction. Also, for the most part, students have well qualified teachers and principals. Reading instruction often involves access to libraries and at least weekly computer-based activities.

Good Readers Attend School Regularly and Are Not Tired or Hungry

Despite the generally positive school climates, according to teachers and students themselves, some students are suffering from a lack of adequate nutrition or sleep and some frequently are absent. For example, 26 percent of the students said they were hungry every day or almost every day and 15 percent said they were absent at least once every two weeks. Students with these attributes had lower reading achievement than their classmates.



Good Readers Had Positive Attitudes Toward Reading

The fourth grade students were very positive about reading and their reading instruction. Positive attitudes were associated with higher reading achievement. Considerable research indicates that positive attitudes toward reading and high achievement are related, and in a bidirectional way—that is, better readers may enjoy reading more and, thus, read more often than poorer readers. This can lead to better development of reading comprehension skills and strategies. Results also showed:

95% of students were very or somewhat engaged in their reading instruction

84% liked reading very much or at least somewhat

80% were very or somewhat confident in reading

The generally positive attitudes represent good news. However, it is alarming that already by the fourth grade about one-fifth of the students were not confident about their own reading abilities.

Good Readers Had Little Difficulty Reading Online

PIRLS 2016 included the ePIRLS assessment of online reading for countries where students are familiar with using computers and the Internet to conduct research for school projects. ePIRLS is a computer-based assessment that uses an engaging, simulated Internet environment to present the fourth grade students with authentic school-like assignments involving science and social studies topics. For examples of the ePIRLS tasks, please see [Take the ePIRLS Assessment](#).



Students in the 14 countries who participated in ePIRLS reported a high degree of self-efficacy in computer use, and demonstrated that they were able to navigate to the appropriate webpages, completing the assessment in the allotted time.

The Singaporean fourth grade students had the highest ePIRLS achievement, but all participants proved to be good to excellent readers on ePIRLS. On average, 50 percent of the students reached the High International Benchmark, demonstrating the ability to integrate information across webpages and interactive features and evaluate how graphic elements support content.

PIRLS
2016

ABOUT PIRLS 2016

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016



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About PIRLS 2016

Overview

PIRLS (Progress in International Reading Literacy Study) was inaugurated in 2001 as a follow-up to IEA's 1991 Reading Literacy Study. Conducted every five years, PIRLS assesses the reading achievement of young students in their fourth year of schooling—an important transition point in their development as readers. Typically, by this time in their schooling, students have learned how to read and are now reading to learn. PIRLS is designed to complement IEA's TIMSS assessment of mathematics and science at the fourth grade.

TIMSS and PIRLS are directed by IEA's TIMSS & PIRLS International Study Center at Boston College in close cooperation with IEA Amsterdam, IEA Hamburg, and Statistics Canada. 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 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.

PIRLS 2016

PIRLS 2016 is the fourth assessment in the current trend series, following PIRLS 2001, 2006, and 2011. There were 61 participants in PIRLS 2016, including 50 countries and 11 benchmarking entities (e.g., regions of countries as well as additional grades or language groups from the participating countries) that were assessed to provide comparative data to inform policy. For countries that have participated in a previous assessment since 2001, the PIRLS 2016 results provide an opportunity to evaluate progress in reading achievement across four time points: 2001, 2006, 2011, and 2016.

The PIRLS 2016 assessment is based on the [PIRLS 2016 Assessment Framework](#) developed collaboratively with the participating countries. The framework is organized around two overarching purposes for reading—for literary experience and to acquire and use information. Four reading comprehension processes are integrated across the purposes: focus on and retrieve explicitly stated information, make straightforward inferences, interpret and integrate ideas and information, and evaluate and critique content and textual elements.

Nationally representative samples of approximately 4,000 students from 150 to 200 schools participated in PIRLS 2016. About 319,000 students, 310,000 parents, 16,000 teachers, and 12,000 schools participated in total.

All of the countries, institutions, and agencies involved in successive PIRLS assessments have worked collaboratively to improve PIRLS and build the most comprehensive and innovative measure of reading comprehension available for comparing achievement globally across countries. Depending on its educational development and students' reading level, a country can choose to participate in PIRLS Literacy (which includes some less difficult passages and items) and have its results reported on the PIRLS achievement scale and directly comparable to PIRLS. Both the PIRLS and PIRLS Literacy assessments are based on 12 passages (6 literary and 6 informational) and approximately 180 items.

As its most innovative development, PIRLS 2016 saw the debut of ePIRLS—a computer-based assessment of online reading. Designed to be responsive to the information age, ePIRLS provides important data about how well students are developing 21st century online reading skills. The ePIRLS results are presented in conjunction with the PIRLS 2016 results in *ePIRLS 2016 International Results in Online Informational Reading*.

The goal of PIRLS is to provide the best policy-relevant information about how to improve teaching and learning and to help young students become accomplished and self-sufficient readers. PIRLS always has included school, teacher, and student questionnaires as well as the Learning to Read Survey completed by students' parents or caregivers. The PIRLS 2016 questionnaire results provide a wealth of information about the home, school, and classroom contexts in which students learn to read.

As a qualitative companion to the quantitative reports produced to summarize the international achievement and questionnaire results, each PIRLS assessment has been accompanied by an encyclopedia comprising chapters written by each participating country or benchmarking entity describing its reading curriculum and instruction. The chapters are published together with the results of the PIRLS Curriculum Questionnaire completed by each participant to provide comparative information across countries. With contributions from the 61 participants, the [PIRLS 2016 Encyclopedia](#) provides a comprehensive view of reading education around the world.

Quality Assurance

PIRLS 2016 made every effort 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 National Research Coordinators on all phases of sampling activities to ensure compliance with sampling and participation requirements,

with good success even taking into account the few exceptions 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 across countries of translations of the PIRLS passages, items, and questionnaires, and to conduct an international quality assurance program of school visits to monitor and report on the administration of the assessment. IEA Hamburg worked closely with National Research Coordinators to organize data collection operations and to check all data for accuracy and consistency within and across countries.

PIRLS 2016 Results

The international results for PIRLS 2016 are published through a [report website](#) and the results for ePIRLS 2016 also can be accessed from there.

The *PIRLS 2016 International Results in Reading* includes 10 chapters or sections providing overviews in the form of infographics and numerous exhibits summarizing student achievement distributions, performance at the PIRLS International Benchmarks, achievement trends over time, and achievement in relation to students' home, school, and classroom educational contexts for learning to read. The exhibits can be downloaded and printed from the [Download Center](#).

The website includes links to:

- [PIRLS 2016 Assessment Framework, 2nd Edition](#) describes in some detail the overarching reading purposes and the reading comprehension processes to be assessed as well as the framework describing the types of learning situations and factors that were to be investigated via the questionnaire data. There also is an overview of the assessment design.
- [PIRLS 2016 Encyclopedia: Educational Policy and Curriculum in Reading](#) describes national contexts for reading instruction and learning. It contains data about educational structure and organization in the participating PIRLS countries together with a chapter written by each participant summarizing the countries' reading curricula in the primary grades, instructional approaches, teacher education requirements, and the types of examinations and assessments employed.
- [Methods and Procedures in PIRLS 2016](#) describes the methods and procedures used to develop, implement, and analyze the results from the PIRLS 2016 international assessment.
- [PIRLS 2016 International Database](#) is available to all individuals interested in analyzing the data collected as part of PIRLS 2016. The database includes student reading achievement data as well as the student, parent, teacher, school, and curricular background data for the PIRLS countries and benchmarking entities.
- [Context Questionnaires](#) provide complete text of the PIRLS 2016 questionnaires completed by students and their parents, teachers, and school principals, as well as the Curriculum Questionnaire completed by National Research Coordinators to provide information on the national and community contexts for learning.

Exhibit 1: Countries Participating in PIRLS 2016

Exhibit 1 shows the PIRLS 2016 countries and benchmarking participants. Altogether there were 61 participants in the PIRLS 2016 assessments, including 50 countries and 11 benchmarking entities. Some education systems within countries have always participated separately throughout IEA's long history (e.g., the French- and the Dutch-speaking parts of Belgium, Hong Kong SAR).

Australia	Kuwait
Austria	Latvia
Azerbaijan	Lithuania
Bahrain	Macao SAR
Belgium (Flemish)	Malta
Belgium (French)	Morocco
Bulgaria	Netherlands
Canada	New Zealand
Chile	Northern Ireland
Chinese Taipei	Norway (5)
Czech Republic	Oman
Denmark	Poland
Egypt	Portugal
England	Qatar
Finland	Russian Federation
France	Saudi Arabia
Georgia	Singapore
Germany	Slovak Republic
Hong Kong SAR	Slovenia
Hungary	South Africa
Iran, Islamic Rep. of	Spain
Ireland	Sweden
Israel	Trinidad and Tobago
Italy	United Arab Emirates
Kazakhstan	United States

Benchmarking Participants

Buenos Aires, Argentina
 Ontario, Canada
 Quebec, Canada
 Denmark (3)
 Norway (4)
 Moscow City, Russian Federation
 Eng/Afr/Zulu - RSA (5)
 Andalusia, Spain
 Madrid, Spain
 Abu Dhabi, UAE
 Dubai, UAE

Note: Norway chose to assess the fifth grade to obtain better comparisons with Sweden and Finland but also collected benchmark data at the fourth grade to maintain previous trends. The Republic of South Africa (RSA) benchmarked at the fifth grade with schools where students have instruction in English, Afrikaans, or Zulu.



Exhibit 2: Grade Assessed and Average Age of the Students Assessed in PIRLS 2016

Exhibit 2 provides the years of schooling and the average age of the students assessed for each participant. The PIRLS target population is the grade that represents four years of schooling, counting from the first year of ISCED Level 1.¹ Level 1 corresponds to primary education or the first stage of basic education, with the first year of Level 1 marking “systematic apprenticeship of reading, writing and mathematics.” However, IEA has a policy that children should be at least 9 years old before being asked to participate in a paper-and-pencil assessment such as PIRLS. Thus, as a policy, PIRLS also tries to ensure that, at the time of testing, students do not fall below the minimum average age of 9.5 years old. For example, England, Malta, and New Zealand assessed students in their fifth year of school to meet this requirement. To better interpret the average ages of students, Exhibit 2 also includes information about the countries’ policies regarding age of entry into primary school and how that tends to work in practice. If students start school at a comparatively older age, they will be comparatively older when they are assessed by PIRLS.

¹ ISCED stands for the International Standard Classification of Education developed by the UNESCO Institute for Statistics. UNESCO Institute for Statistics (2012). *International standard classification of education: ISCED 2011*. Montreal, Canada.

Exhibit 2: Grade Assessed and Average Age of the Students Assessed in PIRLS 2016

National Research Coordinators' Reports, except average ages are from PIRLS 2016 data

Country	Country's Name for Fourth Year of Formal Schooling*	Average Age at Time of Testing	Information About Policy on Students' Age of Entry to Primary School	Information About Students' Age of Entry to Primary School in Practice
Australia	Year 4	10.0	Varies by state, but generally children must begin school by age 6.	Most children begin school when they are 4.5-5 years old, but some wait until the compulsory age, either on advice from preschool staff or on the judgment of parents, usually because of maturity. It is not usual for children to skip the Foundation year and go straight to Year 1, although this is legally possible.
Austria	Grade 4	10.3	Children must begin school in the September following their 6th birthday.	Parents can request earlier admission to school for mature children who will turn 6 by March 1 of the following calendar year.
Azerbaijan	Grade 4	10.1	Children must be 6 years old by September 15 to begin school the following September. Students with birthdays between September 16 and December 31 can qualify to begin school the following September by taking an examination.	Children typically begin primary school at age 7 because their parents feel they will benefit from being more mature.
Bahrain	Grade 4	9.9	Children begin school in the calendar year of their 6th birthday.	Follows policy
Belgium (Flemish)	Grade 4	10.1	Children begin school in September of the calendar year of their 6th birthday.	Parents can decide to enroll children at the age of 5, with approval of the class council, or at age 7.
Belgium (French)	Grade 4	10.0	Children begin school during the calendar year of their 6th birthday.	Parents can extend preschool by one year or enroll students in primary school one year early after consulting with the Centre for Psychological, Medical, and Social Services and the head of the school.
Bulgaria	Grade 4	10.8	Children begin school during the calendar year of their 7th birthday.	Children may begin school at the age of 6 at the discretion of parents or guardians.
Canada	Grade 4	9.9	Varies by province, but most children begin school between ages 5 and 7.	Varies by province, but some parental discretion is typically allowed. Some parents opt to enroll children one year later or earlier and others choose to homeschool their children.
Chile	Grade 4	10.1	Children must be 6 years old by March 31 of the year they begin school.	Principals are allowed some discretion in admitting children who turn 6 after March 31 but before June 30.
Chinese Taipei	Grade 4	10.1	Children must be 6 years old in order to begin school in September.	Parents can apply for early enrollment to elementary schools. Legal representatives can apply to delay enrollment to elementary schools for children with disabilities.
Czech Republic	Grade 4	10.3	Children must be 6 years old to begin school in September.	On one hand, parents may request that children born after September 1 may be allowed to enroll at age 5 with pedagogical and psychological certification. On the other hand, about 22% of students every year receive permission to postpone enrollment for one year.
Denmark	Grade 4	10.8	Children begin preprimary education in August during the calendar year of their 6th birthday.	Parents may request early enrollment for children whose 5th birthdays are before October 1. Parents may also request a one-year postponement of enrollment. Early enrollment decisions are typically made based on recommendations from the kindergarten or a qualification test.
Egypt	Grade 4	10.0	Children must be 6 years old by the end of September in order to begin school in October.	Children typically begin primary school at age 7 because their parents feel they will benefit from being more mature.
England	Year 5	10.3	Local authorities must provide a place from September for all children turning 5 in that year. Children are required to start primary school (reception class) in the September following their 4th birthday.	Subject to parental discretion, a child can start school later in the school year or in September after the child's 5th birthday if the child was born in the summer (April 1 to August 31) and if parents think their child is not ready yet to start in the September after the child's 4th birthday.
Finland	Grade 4	10.8	Children begin school in August during the calendar year of their 7th birthday.	It is possible for parents to enroll children one year earlier or one year later than the official policy due to psychological or medical reasons.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

* The PIRLS target population is the grade that represents four years of schooling counting from the first year of ISCED Level 1. However, 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.

A dash (-) indicates comparable data not available.

Exhibit 2: Grade Assessed and Average Age of the Students Assessed in PIRLS 2016 (Continued)

Country	Country's Name for Fourth Year of Formal Schooling*	Average Age at Time of Testing	Information About Policy on Students' Age of Entry to Primary School	Information About Students' Age of Entry to Primary School in Practice
France	Grade 4	9.8	Children must begin school in the calendar year of their 6th birthday.	In rare cases, parents can request early or delayed enrollment.
Georgia	Grade 4	9.7	Children must be 6 years old by the beginning of the academic year in order to begin school.	Official policy does not allow for early admission. However, there are no regulations on late admission.
Germany	Grade 4	10.3	Varies by state, but generally children must have reached their 6th birthday before a statutory qualifying date (between June 30 and September 30) in order to begin school on August 1.	Varies by state, but generally, parents may apply to the local primary school for deferred enrollment for children with demonstrated physical or mental disabilities.
Hong Kong SAR	Primary 4	9.9	Children must reach the age of 5.75 years before September 1 in order to begin school that year.	For parents who have a particular school in mind, they can apply for a discretionary place.
Hungary	Grade 4	10.6	Children must be 6 years old by August 31 in order to begin school that year.	Children may remain in preschool for an additional year. Parents may request early entry for mature students. These decisions are made on the basis of a recommendation from a committee of experts.
Iran, Islamic Rep. of	Grade 4	10.2	Children must be 6 years old by September 21 (the beginning of the school year) in order to begin school.	Some private schools require children to be 7 years old before beginning primary school.
Ireland	Fourth Class	10.5	Children must begin school between the ages of 4 and 6.	Although not obliged to attend school until the age of 6, most children begin preprimary school in the September following their 4th birthday.
Israel	Grade 4	10.0	Children begin school in the calendar year of their 6th birthday.	Parents may apply for delayed enrollment. The request is discussed by the kindergarten teacher, an educational psychologist, and the parents, and the parents have the final say in enrollment decisions.
Italy	Grade 4	9.7	Children begin primary school during the calendar year of their 6th birthday.	Children begin primary school during the calendar year of their 6th birthday. Parents have discretion over early enrollment.
Kazakhstan	Grade 4	10.3	Children begin school when they are 6 or 7 years old.	Most children begin school at age 7.
Kuwait	Primary Grade 4	9.6	Children must be 6 years old by March 31 in order to begin school that year.	Follows policy
Latvia	Grade 4	10.9	Children begin school during the calendar year of their 7th birthday.	Parents can request early or delayed enrollment depending on the state of health and psychological preparedness of the child.
Lithuania	Grade 4	10.8	Children begin school during the calendar year of their 7th birthday.	Parents can request enrollment for children at the age of 6. Children's mental and physical maturity is determined by the municipal pedagogical psychological services. Parents may also request delayed enrollment.
Macao SAR	Primary 4	10.0	Children begin school during the calendar year of their 6th birthday.	Follows policy
Malta	Year 5	9.7	Children begin primary school during the calendar year of their 5th birthday.	Follows policy
Morocco	Grade 4	10.2	Children begin primary school at age 6. In remote areas, the age of entry may be 5.5 years.	Follows policy
Netherlands	Grade 6	10.1	Children must begin kindergarten on the first school day of the month after their 5th birthday.	Most children begin kindergarten when they turn 4. Most children are 6 years old when they enter primary education (ISCED 1).
New Zealand	Year 5	10.1	Children must attend primary school from their 6th birthday, but they have the right to be enrolled in school from age 5.	In general, children begin school on or soon after their 5th birthday.
Northern Ireland	Year 6	10.4	Children who reach the age of 4 between September 1 and July 1 must begin compulsory education the following September.	Follows policy

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2: Grade Assessed and Average Age of the Students Assessed in PIRLS 2016 (Continued)

Country	Country's Name for Fourth Year of Formal Schooling*	Average Age at Time of Testing	Information About Policy on Students' Age of Entry to Primary School	Information About Students' Age of Entry to Primary School in Practice
Norway (5)	Grade 5	10.8	Children begin school during the calendar year of their 6th birthday.	In rare cases, parents can request earlier (if born before April 1) or delayed enrollment. The decisions are made on the basis of recommendations from kindergarten and the municipal pedagogical psychological services.
Oman	Grade 4	9.7	Children must be at least 5.75 at the beginning of September to join Grade 1 in public schools, or 5.25 years to join Grade 1 in private schools.	To enroll in grade 1, students must be between 5.75 and 6.75 years old. Otherwise, students are registered in above grades according to age with a special treatment plan by the school.
Poland	Primary 4	10.7	--	--
Portugal	Grade 4	9.8	Children must be 6 years old by the beginning of the school year (mid-September) to begin school that calendar year.	Parents and guardians can request conditional enrollment for children who will turn 6 between mid-September and the end of the calendar year.
Qatar	Grade 5 for English curriculum schools; Grade 4 for other schools	10.0	Children must be 6 years old by the end of June in order to begin school the following September.	Although the official policy states that all students can enroll in school when they are 6 years old, some students enroll at age 7 because their parents believe they will benefit from being more mature.
Russian Federation	Grade 4	10.8	Children must be between the ages of 6.5 and 8 by the end of August to begin school.	Parents may request early enrollment with the consent of the school principal for children under 6.5 years of age. Parents have the right to send their children to school at age 7 or older if they want the child to be more mature or for health reasons.
Saudi Arabia	Grade 4	9.9	Children must be 6 years old by the end of August to begin school the following September.	Often, children begin school when they are 5.75 years old.
Singapore	Grade 4	10.4	According to the Compulsory Education Act, children must begin school in the calendar year of their 7th birthday.	Parents may seek a deferral of registration for medical reasons or if the child is homeschooled.
Slovak Republic	Grade 4	10.4	Children must be 6 years old by August 31 in order to begin school in September, unless granted a postponement.	Enrollment may be delayed or advanced based on psychological tests and professional recommendations.
Slovenia	Grade 4	9.9	Children begin school during the calendar year of their 6th birthday.	Enrollment may be delayed by no more than one year upon parents' or doctors' recommendations. The final decision is made by the head teacher at the recommendation of a committee (including counselors, school physicians, and teachers).
South Africa	Grade 4	10.6	Children must be 6 years old by June 30 to begin school that calendar year. Compulsory schooling begins at age 7.	Children are encouraged to begin at age 7 because schools and parents feel that they will benefit from being more mature.
Spain	Grade 4	9.9	Children begin school during the calendar year of their 6th birthday.	Follows policy
Sweden	Grade 4	10.7	Children begin school in August in the calendar year of their 7th birthday. Most students begin the voluntary preschool class during the calendar year of their 6th birthday.	Under special circumstances, the municipality may allow a child to delay enrollment for one year. Parents can also request enrollment during the year of a child's 6th birthday.
Trinidad and Tobago	Standard 3	10.2	Children begin school during the calendar year of their 5th birthday.	Children may begin school at age 4 if they are to turn 5 within the first term (September to December) of that year.
United Arab Emirates	Grade 4	9.8	Children begin school during the calendar year of their 6th birthday.	Follows policy
United States	Grade 4	10.1	Each state requires parents to send their children to a school between 5 and 8 years old, but the ages vary by state.	Children typically begin kindergarten at age 5.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Norway chose to assess the fifth grade to obtain better comparisons with Sweden and Finland but also collected benchmark data at the fourth grade to maintain previous trends.

Exhibit 2: Grade Assessed and Average Age of the Students Assessed in PIRLS 2016 (Continued)

Country	Country's Name for Fourth Year of Formal Schooling*	Average Age at Time of Testing	Information About Policy on Students' Age of Entry to Primary School	Information About Students' Age of Entry to Primary School in Practice
Benchmarking Participants				
Buenos Aires, Argentina	Grade 4	10.0	Children must be 6 years old before June 30 in order to begin school that calendar year.	Follows policy
Ontario, Canada	Grade 4	9.8	Students must begin school in September if they will turn 6 on or before September 1. However, children have the right to attend school in September if they will turn 6 any time up until December 31 of that year.	Parents may enroll their children prior to age 6, but this is not mandatory. Two years of kindergarten (ages 4 and 5) are not mandatory. In addition, some parents homeschool their children.
Quebec, Canada	Grade 4	10.1	Children must reach the age of 6 before October 1 of the current school year.	Follows policy
Denmark (3)	Grade 3	9.8	Children begin preprimary education in August during the calendar year of their 6th birthday.	Parents may request early enrollment for children whose 5th birthdays are before October 1. Parents may also request a one-year postponement of enrollment. Early enrollment decisions are typically made based on recommendations from the kindergarten or a qualification test.
Norway (4)	Grade 4	9.8	Children begin school during the calendar year of their 6th birthday.	In rare cases, parents can request earlier (if born before April 1) or delayed enrollment. The decisions are made on the basis of recommendations from kindergarten and the municipal pedagogical psychological services.
Moscow City, Russian Fed.	Grade 4	10.8	Children must be at least 6.5 years old but no older than 8 years old by September 1 in order to begin school that September if they have no medical contraindications.	Children typically begin primary school at age 7. Parents and principals have the right to advance or delay enrollment.
Eng/Afr/Zulu - RSA (5)	Grade 5	11.6	Children must be 6 years old by June 30 to begin school that calendar year. Compulsory schooling begins at age 7.	Children are encouraged to begin at age 7 because schools and parents feel that they will benefit from being more mature.
Andalusia, Spain	Grade 4	9.8	Children begin school during the calendar year of their 6th birthday.	Follows policy
Madrid, Spain	Grade 4	9.9	Children begin school during the calendar year of their 6th birthday.	Follows policy
Abu Dhabi, UAE	Grade 4	9.7	Children begin school during the calendar year of their 6th birthday.	Most parents prefer children start school as early as allowed.
Dubai, UAE	Grade 4; Year 5 for schools following UK curriculum	9.9	Children begin school during the calendar year of their 6th birthday.	Follows policy

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3: Percentages of Students Who Liked Reading the PIRLS Passages

Exhibit 3 shows the percentages of students who liked reading the PIRLS passages. Including PIRLS and PIRLS Literacy, the 2016 assessment included 20 different passages, 8 only in PIRLS, 4 in both PIRLS and PIRLS Literacy, and 8 only in PIRLS Literacy. The students participating in PIRLS were positive about the PIRLS only passages (on average, 85% liked the passages a little or a lot). For 5 of the passages (4 of which were literary passages), girls were more positive than boys. Both the PIRLS and PIRLS Literacy students reported liking the 4 passages in both assessments (91% on average). The PIRLS Literacy students were the most positive, on average, with 95 percent liking the PIRLS Literacy passages.

Exhibit 3: Percentages of Students Who Liked Reading the PIRLS Passages

Students' Reports


Passage	Percent of Students Who Liked the Passage A Lot or a Little		
	Overall	Girls	Boys
PIRLS Passages			
Shiny Straw	88 (0.2)	90 (0.3)	87 (0.3)
Macy and the Red Hen	86 (0.2)	89 (0.3)	83 (0.3)
The Empty Pot	89 (0.2)	93 (0.2)	86 (0.3)
Oliver and the Griffin	86 (0.2)	89 (0.3)	83 (0.3)
Leonardo Da Vinci	84 (0.2)	83 (0.3)	84 (0.3)
The Green Sea Turtle	89 (0.2)	90 (0.3)	89 (0.3)
Where's the Honey?	81 (0.2)	79 (0.4)	82 (0.3)
Icelandic Horses	80 (0.2)	82 (0.3)	77 (0.3)
Average Percent	85 (0.1)	87 (0.1)	84 (0.1)
Shared PIRLS/PIRLS Literacy Passages			
Flowers on the Roof	92 (0.2)	96 (0.2)	89 (0.3)
Sharks	86 (0.2)	83 (0.3)	89 (0.3)
Pemba Sherpa	92 (0.2)	94 (0.2)	90 (0.3)
How Did We Learn to Fly?	93 (0.2)	92 (0.2)	93 (0.2)
Average Percent	91 (0.1)	91 (0.1)	90 (0.1)
PIRLS Literacy Passages			
Baghita's Perfect Orange	96 (0.4)	97 (0.4)	96 (0.6)
The Pearl	96 (0.4)	97 (0.4)	95 (0.7)
The Summer My Father Was Ten	95 (0.4)	97 (0.4)	93 (0.7)
Library Mouse	95 (0.5)	97 (0.6)	94 (0.8)
Training a Deaf Polar Bear	95 (0.5)	96 (0.6)	94 (0.7)
African Rhinos & Oxpecker Birds	93 (0.5)	94 (0.6)	92 (0.8)
Ants	95 (0.4)	96 (0.5)	94 (0.7)
Hungry Plant	93 (0.5)	93 (0.7)	93 (0.7)
Average Percent	95 (0.2)	96 (0.2)	94 (0.3)


SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016


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


Example:
How much did you like reading *Shiny Straw*?

Fill one circle only.

 I liked it a lot

 I liked it a little

 I didn't like it very much

 I didn't like it at all

PIRLS
2016

CHAPTER 1: STUDENT ACHIEVEMENT

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016



IEA

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

International Achievement in Reading

Russian Federation 581	Singapore 576
Hong Kong SAR 569	Ireland 567 Finland 566
Poland 565	Northern Ireland 565
Norway (5) 559	Chinese Taipei 559 England 559
Latvia 558	Sweden 555 Hungary 554
Bulgaria 552	United States 549 Lithuania 548
Italy 548	Denmark 547 Macao SAR 546 Netherlands 545
Australia 544	Czech Republic 543 Canada 543
Slovenia 542	Austria 541 Germany 537 Kazakhstan 536
Slovak Republic 535	Israel 530 Portugal 528 Spain 528
Belgium (Fl) 525	New Zealand 523 France 511 Belgium (Fr) 497
Chile 494	Georgia 488 Trinidad and Tobago 479 Azerbaijan 472
Malta 452	United Arab Emirates 450 Bahrain 446 Qatar 442
Saudi Arabia 430	Iran, Islamic Rep. of 428 Oman 418
Kuwait 393	Morocco 358 Egypt 330 South Africa 320

Fourth grade students in the Russian Federation and Singapore were the highest performing countries, followed by Hong Kong SAR, Ireland, Finland, Poland, and Northern Ireland.



Trends at Fourth Grade Show Increases in Achievement Around the World

Trends 2011-2016: 41 Countries

18 Countries Higher Average Achievement



Australia, Austria, Bulgaria, Chinese Taipei, England, Hungary, Ireland, Italy, Lithuania, Morocco, Norway (4), Oman, Qatar, Russian Federation, Slovenia, Spain, Sweden, United Arab Emirates

13 Countries Same Average Achievement



Azerbaijan, Czech Republic, Finland, Georgia, Germany, Hong Kong SAR, Netherlands, Northern Ireland, Saudi Arabia, Singapore, Slovak Republic, South Africa, Trinidad and Tobago

10 Countries Lower Average Achievement



Belgium (French), Canada, Denmark, France, Iran, Islamic Rep. of, Israel, Malta, New Zealand, Portugal, United States

Trends 2001-2016: 20 Countries

11 Countries Higher Average Achievement



Czech Republic, Hong Kong SAR, Hungary, Iran, Islamic Rep. of, Italy, Latvia, Norway (4), Russian Federation, Singapore, Slovak Republic, Slovenia

7 Countries Same Average Achievement



Bulgaria, England, Germany, Lithuania, New Zealand, Sweden, United States

2 Countries Lower Average Achievement



France, Netherlands

Girls Had Higher Reading Achievement in More Countries Than Boys

Of the 50 PIRLS 2016 Countries:

- Girls had higher achievement in **48** countries, with an average difference of **19** points.
- **2** countries had no difference between boys and girls in average reading achievement.

CHAPTER 1

Student Achievement

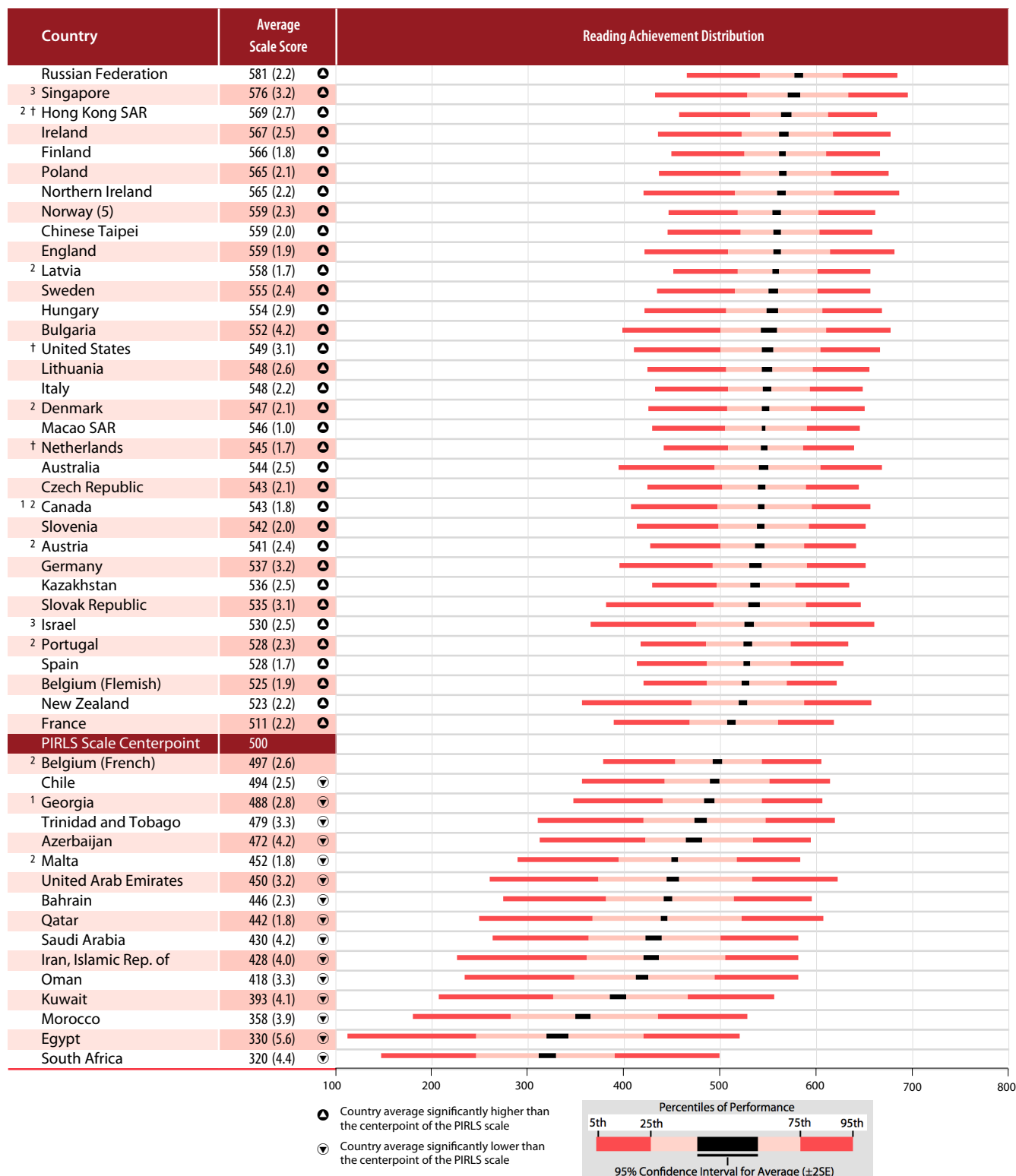
Exhibit 1.1: Distribution of Reading Achievement

Exhibit 1.1 shows distributions of student achievement for the participants in PIRLS 2016, including the average scale score with its 95 percent confidence interval and the ranges in performance for the middle half of the students (25th to 75th percentiles) as well as the extremes (5th and 95th percentiles). The PIRLS achievement scale summarizes fourth grade students' performance answering questions designed to measure their reading comprehension across two overarching purposes for reading—literary and informational purposes, as well as a range of comprehension processes. The results for countries participating in PIRLS as well as its less difficult version, PIRLS Literacy, are reported on the PIRLS reading achievement scale. Both the PIRLS and the PIRLS Literacy assessments included 12 passages (6 literary and 6 informational) with four passages in common. PIRLS included 175 items and PIRLS Literacy included 183.

The PIRLS reading achievement scale was established in PIRLS 2001, based on the achievement across all participating countries, treating each country equally. 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. Achievement data from each subsequent PIRLS assessment have been reported on this scale, so that increases or decreases in achievement may be monitored across assessments. PIRLS uses the scale centerpoint as a point of reference that remains constant from assessment to assessment.

The results show that a number of countries performed quite well in PIRLS 2016, with 34 countries having higher achievement than the centerpoint of 500. The results also reveal that although the differences from country to country were small, there was a substantial range in performance from the top-performing to the lower-performing countries.

Exhibit 1.1: Distribution of Reading Achievement



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

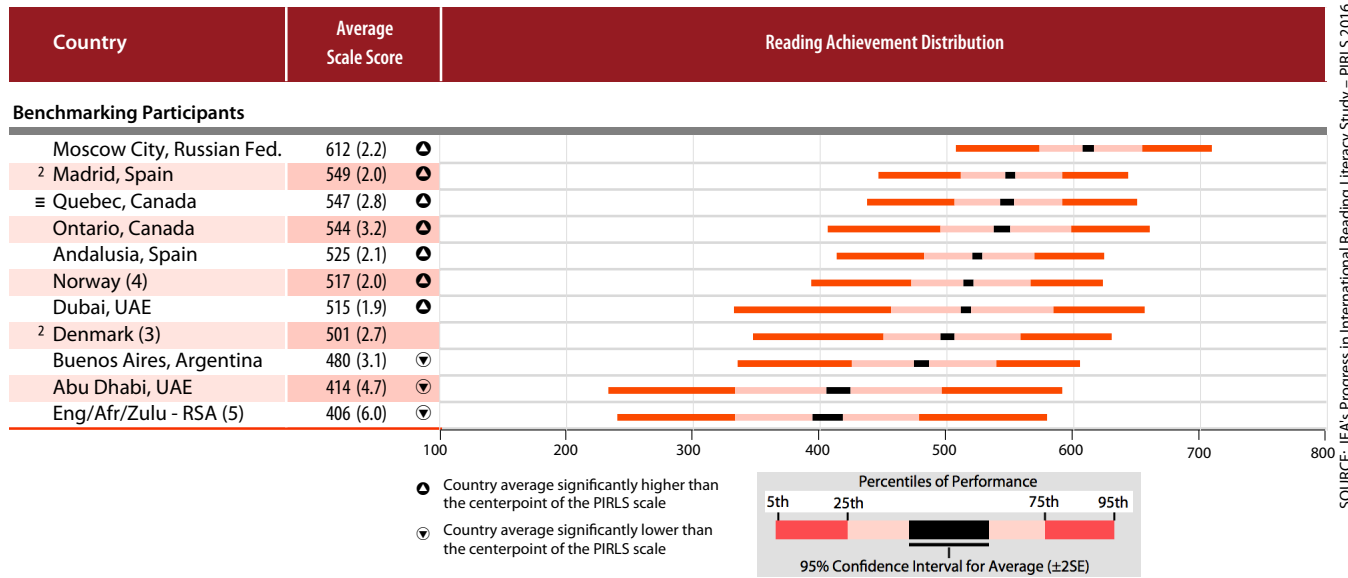
Note: Five countries and one benchmarking entity participated in the PIRLS Literacy assessment: Egypt, Iran, Kuwait, Morocco, and South Africa as well as Denmark (3). Iran and Morocco also took part in the fourth grade assessment and their results are based on an average of both assessments.

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.

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

Exhibit 1.1: Distribution of Reading Achievement (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 1.2: Multiple Comparisons of Average Reading Achievement

Because there often were relatively small differences in achievement between countries, Exhibit 1.2 shows whether the differences in average achievement among the countries are statistically significant.

The Russian Federation and Singapore were the top-performing countries, with similar achievement. Fourth grade students in the Russian Federation had higher achievement than students in all of the other countries except Singapore. In turn, Singaporean students had higher achievement than those in all of the other countries except the Russian Federation and Hong Kong SAR. Hong Kong SAR was another top performer, with achievement similar to or higher achievement than all the countries except the Russian Federation. Ireland, Finland, Poland, and Northern Ireland also performed very well, having achievement similar to or higher than than all the other countries except the Russian Federation and Singapore.

Exhibit 1.2: Multiple Comparisons of Average Reading Achievement

Instructions: Read across the row for a country to compare performance with the countries listed along the top of the chart. The symbols indicate whether the average achievement of the country in the row is significantly lower than that of the comparison country, significantly higher than that of the comparison country, or if there is no statistically significant difference between the average achievement of the two countries.

Country	Average Scale Score	Russian Federation	Singapore	Hong Kong SAR	Ireland	Finland	Poland	Northern Ireland	Norway (5)	Chinese Taipei	England	Latvia	Sweden	Hungary	Bulgaria	United States	Lithuania	Italy	Denmark	Macao SAR	Netherlands	Australia	Czech Republic	Canada	Slovenia	Austria	Germany	Kazakhstan	Slovak Republic	Israel	Portugal
Russian Federation	581 (2.2)																														
Singapore	576 (3.2)																														
Hong Kong SAR	569 (2.7)																														
Ireland	567 (2.5)																														
Finland	566 (1.8)																														
Poland	565 (2.1)																														
Northern Ireland	565 (2.2)																														
Norway (5)	559 (2.3)																														
Chinese Taipei	559 (2.0)																														
England	559 (1.9)																														
Latvia	558 (1.7)																														
Sweden	555 (2.4)																														
Hungary	554 (2.9)																														
Bulgaria	552 (4.2)																														
United States	549 (3.1)																														
Lithuania	548 (2.6)																														
Italy	548 (2.2)																														
Denmark	547 (2.1)																														
Macao SAR	546 (1.0)																														
Netherlands	545 (1.7)																														
Australia	544 (2.5)																														
Czech Republic	543 (2.1)																														
Canada	543 (1.8)																														
Slovenia	542 (2.0)																														
Austria	541 (2.4)																														
Germany	537 (3.2)																														
Kazakhstan	536 (2.5)																														
Slovak Republic	535 (3.1)																														
Israel	530 (2.5)																														
Portugal	528 (2.3)																														
Spain	528 (1.7)																														
Belgium (Flemish)	525 (1.9)																														
New Zealand	523 (2.2)																														
France	511 (2.2)																														
Belgium (French)	497 (2.6)																														
Chile	494 (2.5)																														
Georgia	488 (2.8)																														
Trinidad and Tobago	479 (3.3)																														
Azerbaijan	472 (4.2)																														
Malta	452 (1.8)																														
United Arab Emirates	450 (3.2)																														
Bahrain	446 (2.3)																														
Qatar	442 (1.8)																														
Saudi Arabia	430 (4.2)																														
Iran, Islamic Rep. of	428 (4.0)																														
Oman	418 (3.3)																														
Kuwait	393 (4.1)																														
Morocco	358 (3.9)																														
Egypt	330 (5.6)																														
South Africa	320 (4.4)																														

Benchmarking Participants

Moscow City, Russian Fed.	612 (2.2)																															
Madrid, Spain	549 (2.0)																															
Quebec, Canada	547 (2.8)																															
Ontario, Canada	544 (3.2)																															
Andalusia, Spain	525 (2.1)																															
Norway (4)	517 (2.0)																															
Dubai, UAE	515 (1.9)																															
Denmark (3)	501 (2.7)																															
Buenos Aires, Argentina	480 (3.1)																															
Abu Dhabi, UAE	414 (4.7)																															
Eng/Afr/Zulu - RSA (5)	406 (6.0)																															

▲ 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.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

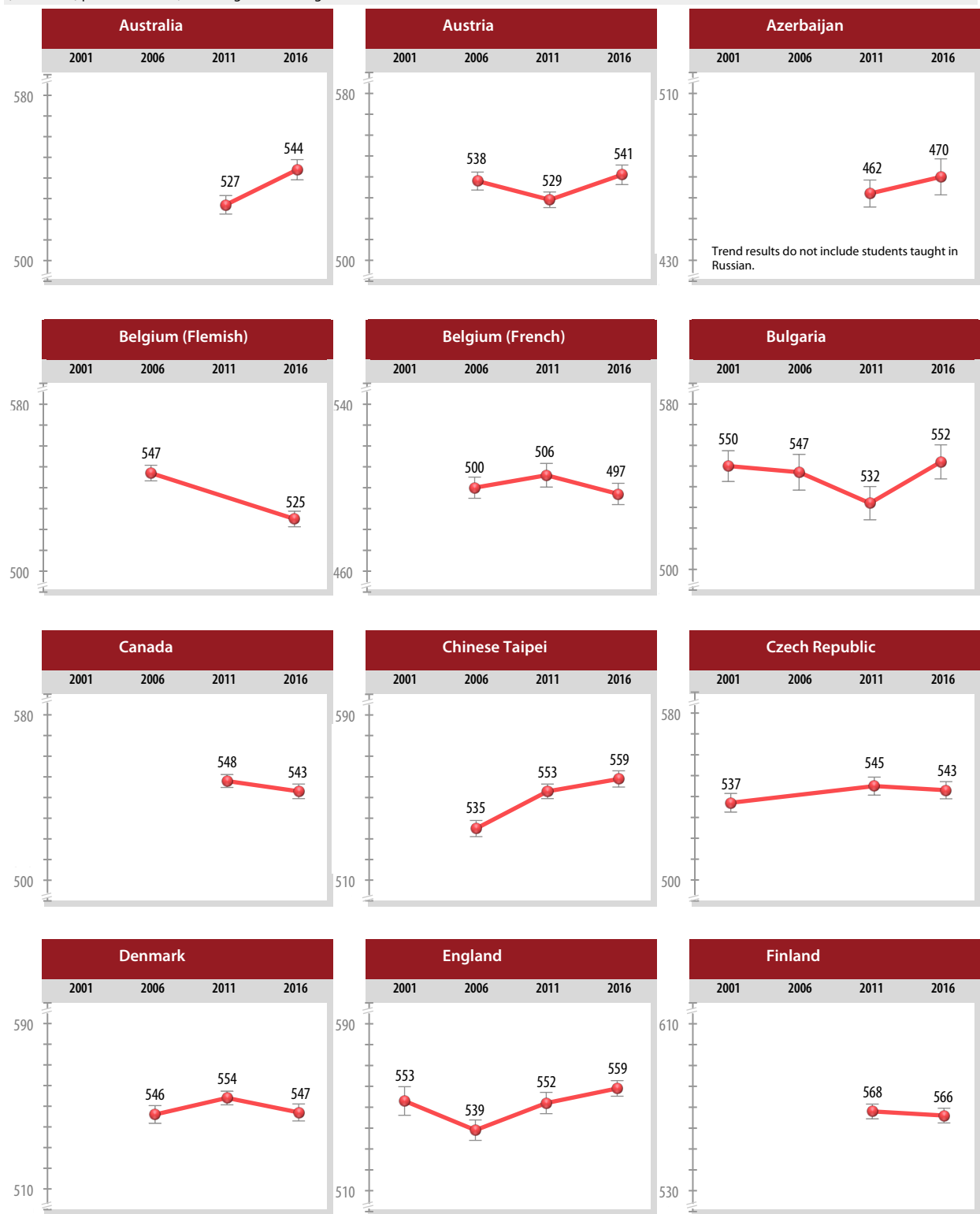
Exhibit 1.3 and 1.4: Trends in Reading Achievement

PIRLS 2016 is the fourth assessment of PIRLS. Differences in average reading achievement are presented for the countries that have comparable data from the previous assessments in 2001, 2006, and 2011. Exhibit 1.3 depicts the results graphically for the countries in alphabetical order, while Exhibit 1.4 provides the detailed results from assessment to assessment. The trends in reading achievement signal more improvements than downturns internationally in reading achievement at the fourth grade. Twenty countries have data for the 15 year period between 2001 and 2016, with 11 showing increases—including 4 with gains of more than 40 points (Hong Kong SAR, the Russian Federation, Singapore, and Slovenia). Average achievement in 7 of the 20 countries remained similar between 2001 and 2016, and it decreased in only 2 countries (France and the Netherlands).

Forty-one of the countries participated in both PIRLS 2011 and 2016, with 18 showing improvements, 13 having similar achievement, and 10 showing declines.

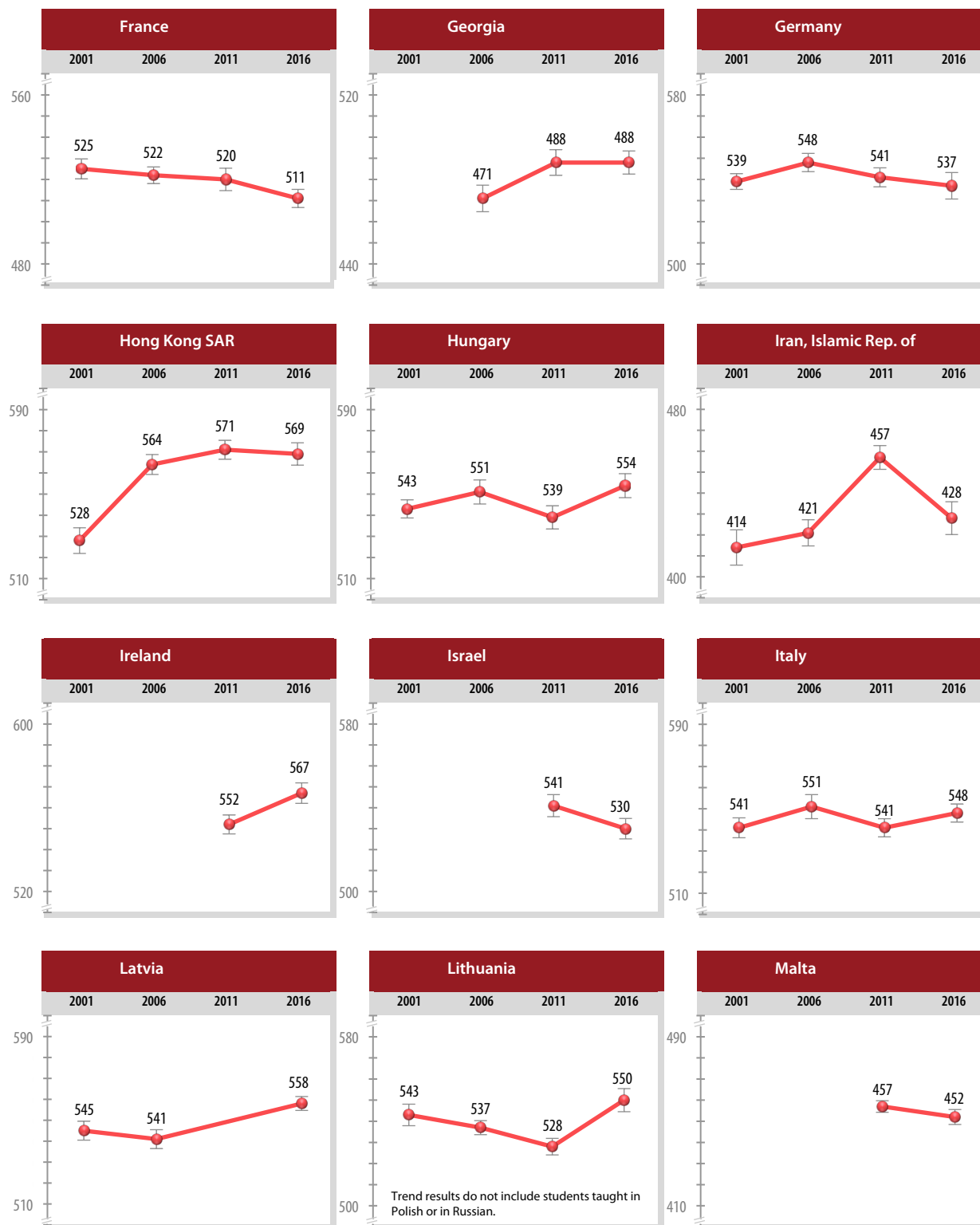
Exhibit 1.3: Trends in Reading Achievement

Displays changes in achievement for the countries and benchmarking participants that have comparable data from previous PIRLS exhibits. The same scale is used for each country (10-point intervals), but the part of the scale shown differs according to each country's average achievement. The accompanying table (Exhibit 1.4) provides details, including statistical significance.



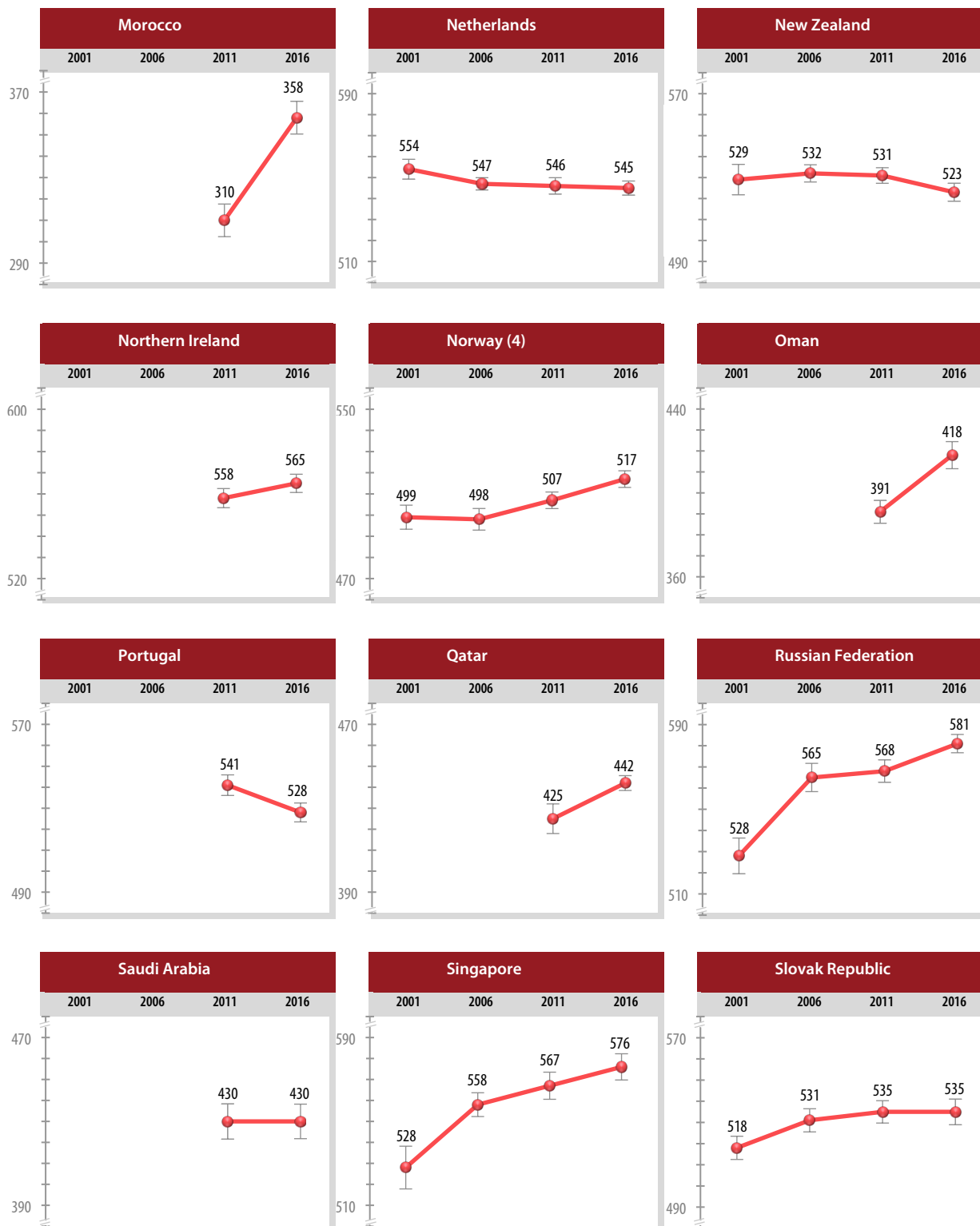
SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 1.3: Trends in Reading Achievement (Continued)



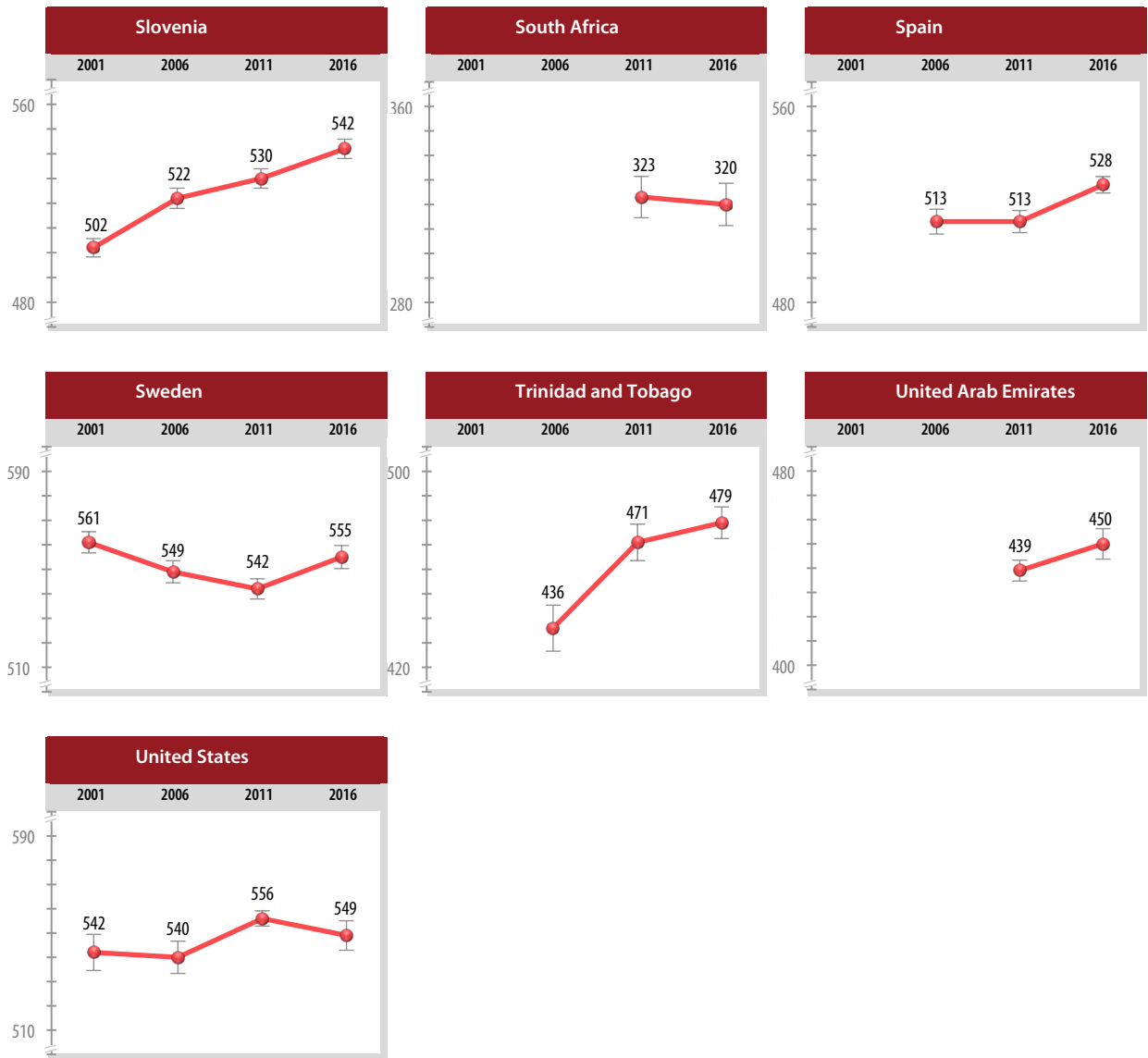
SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 1.3: Trends in Reading Achievement (Continued)



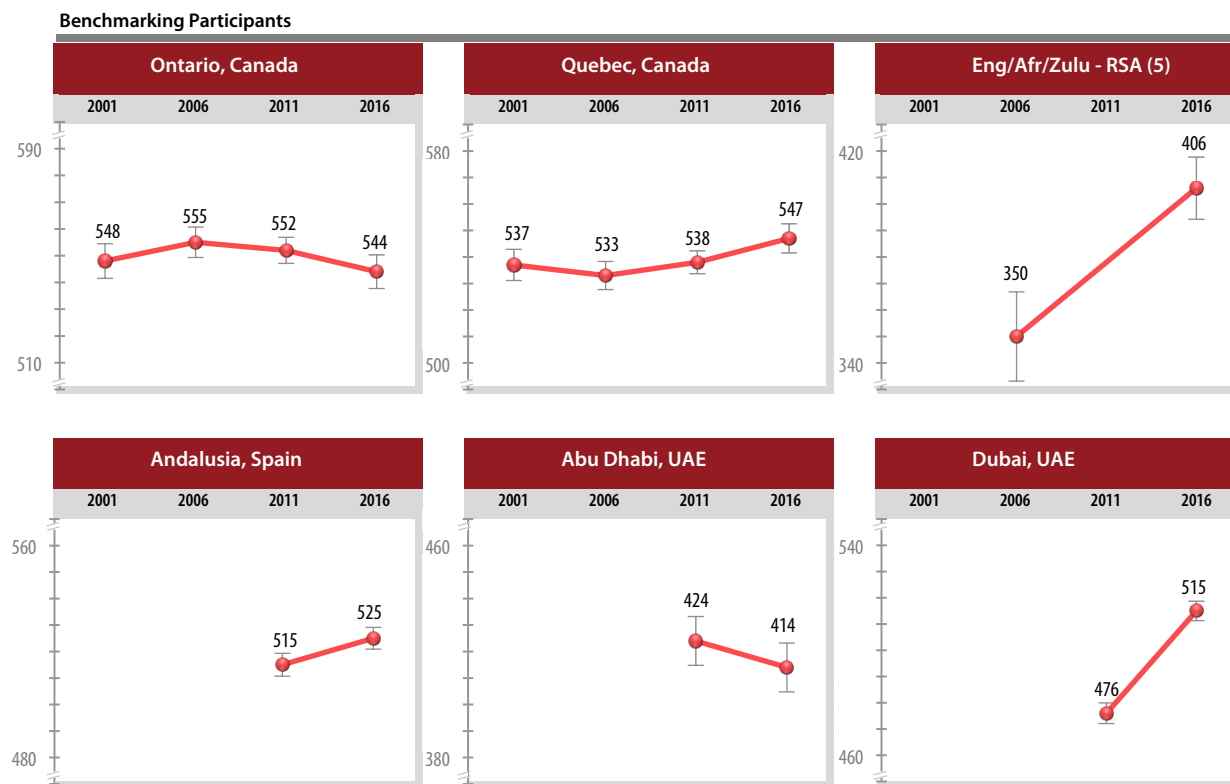
SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 1.3: Trends in Reading Achievement (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

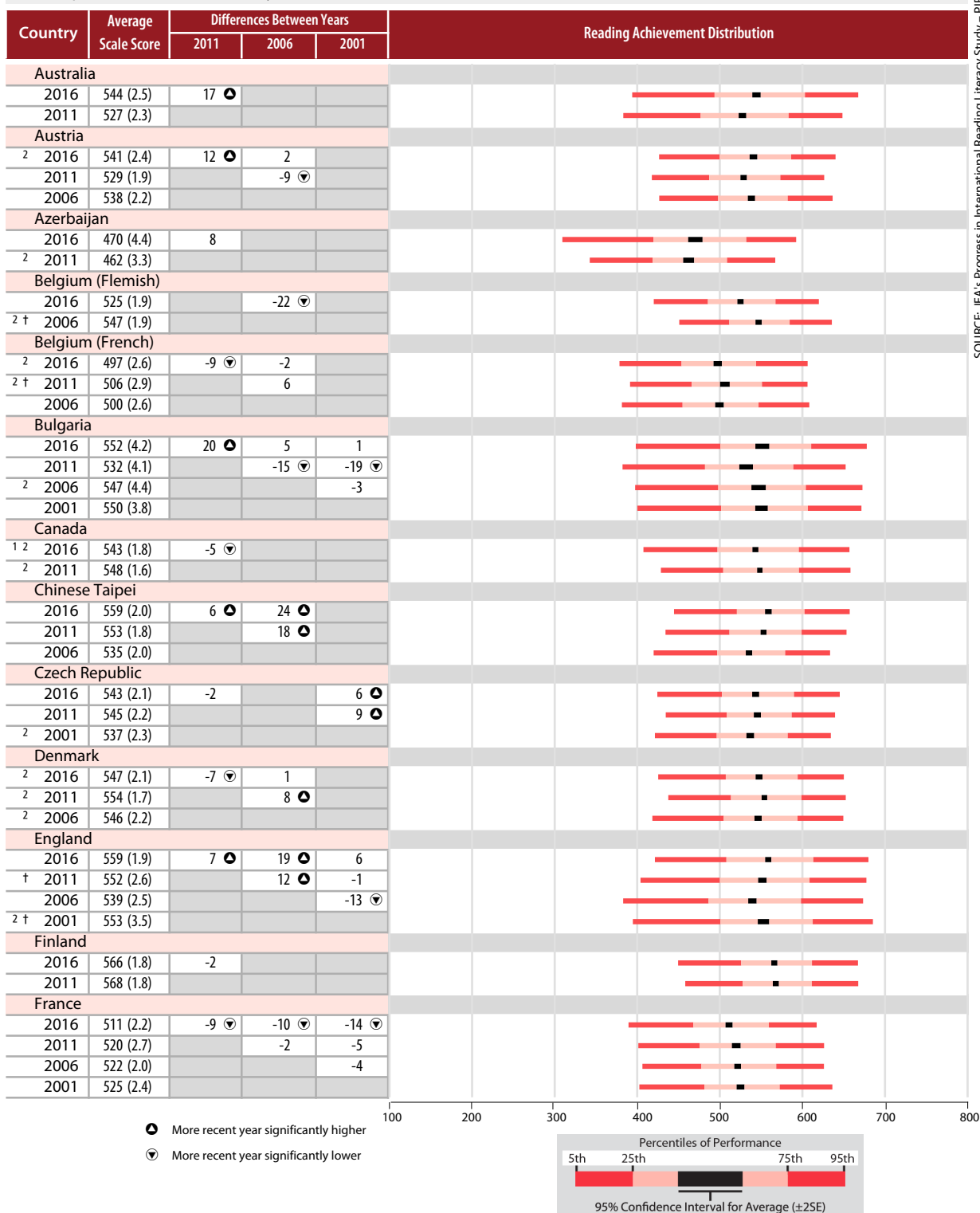
Exhibit 1.3: Trends in Reading Achievement (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 1.4: Differences in Reading Achievement Across Assessment Years

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

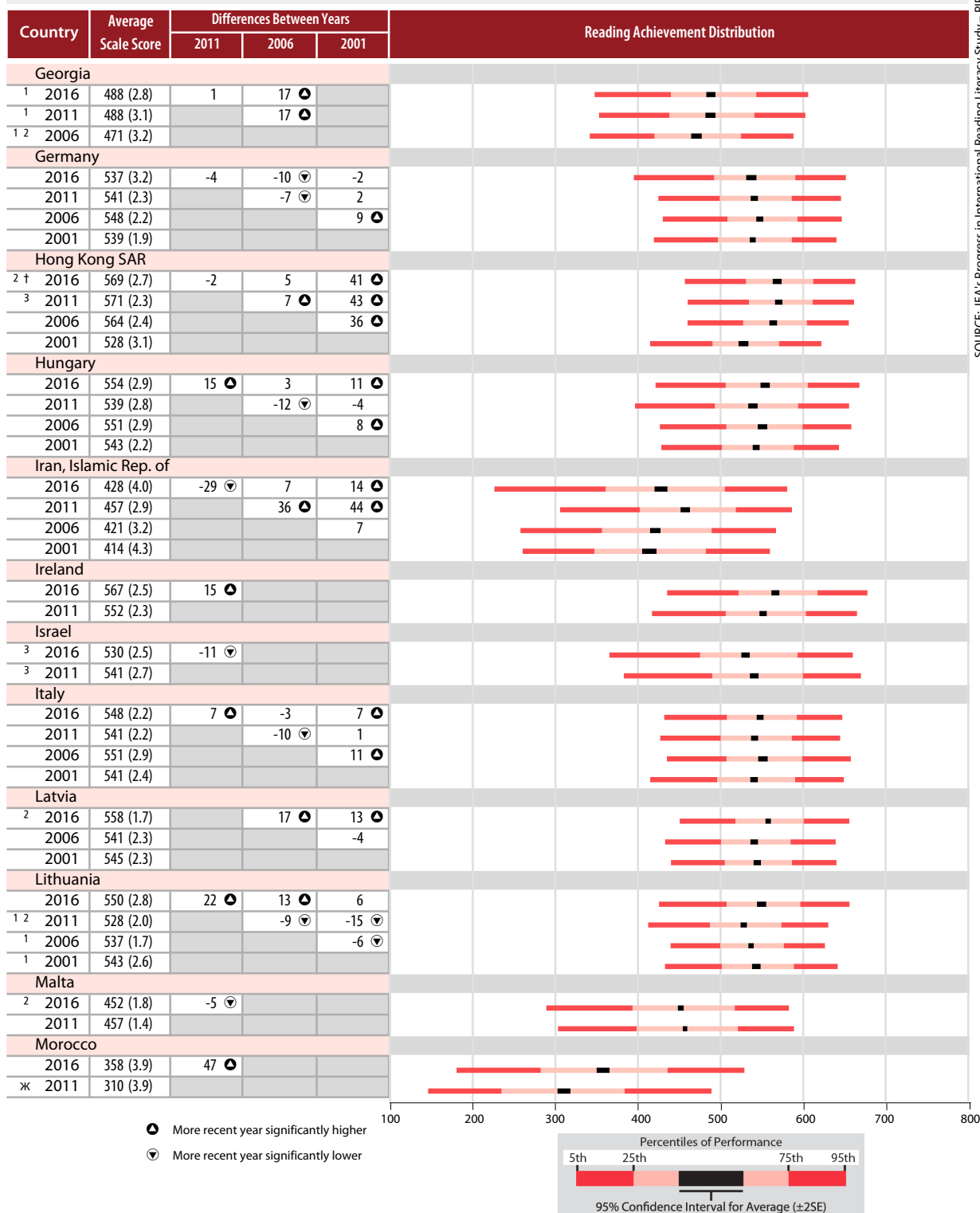


SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Trend results for Azerbaijan do not include students taught in Russian. Trend results for Lithuania do not include students taught in Polish or in Russian. See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
(†) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 1.4: Differences in Reading Achievement Across Assessment Years (Continued)

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

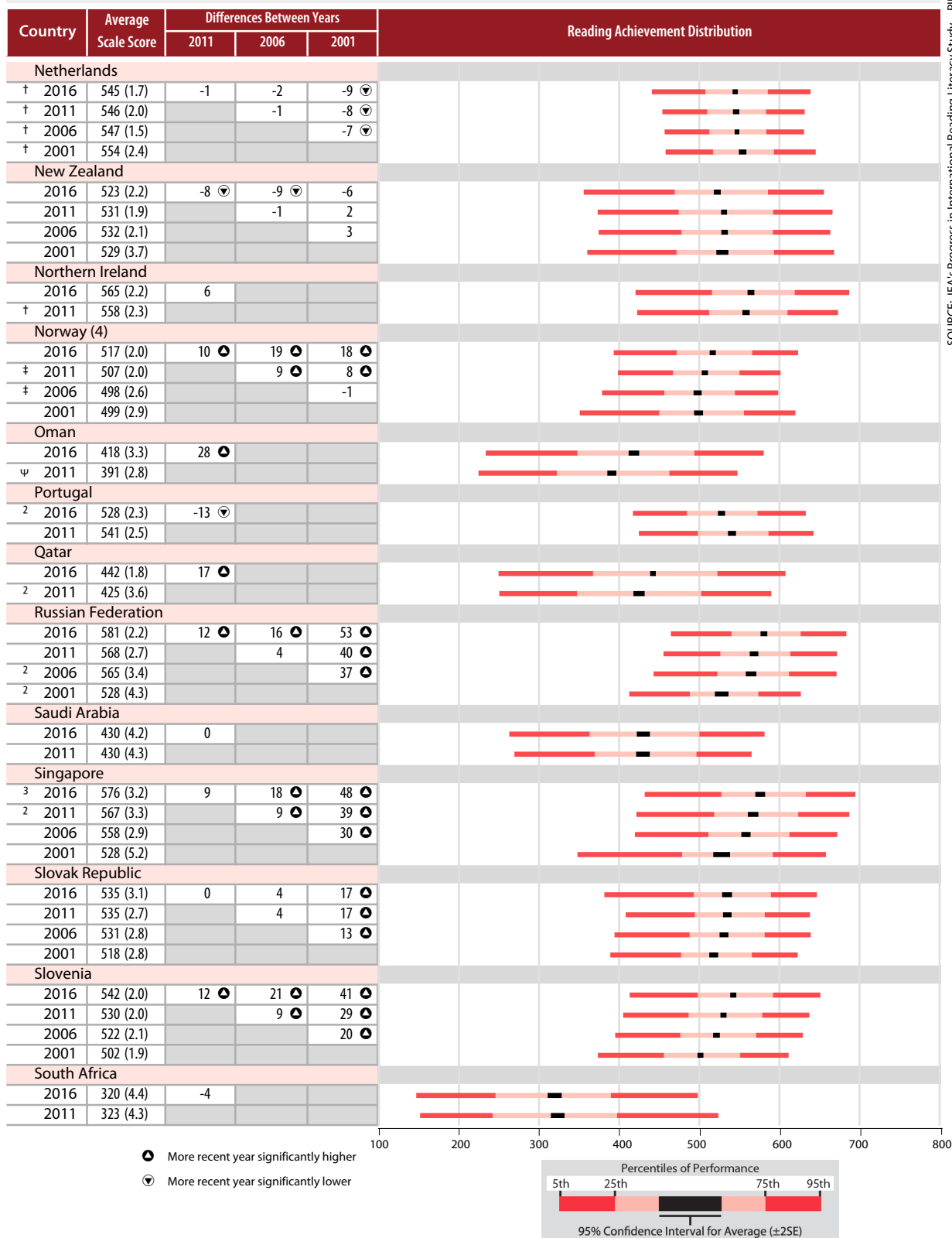


⌘ Reservations about reliability of average achievement because the percentage of students with achievement too low for estimation exceeds 25%.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 1.4: Differences in Reading Achievement Across Assessment Years (Continued)

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

Exhibit 1.4: Differences in Reading Achievement Across Assessment Years (Continued)

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

Country	Average Scale Score	Differences Between Years			Reading Achievement Distribution
		2011	2006	2001	
Spain					
2016	528 (1.7)	15 ▲	15 ▲		
2011	513 (2.3)		1		
2006	513 (2.6)				
Sweden					
2016	555 (2.4)	13 ▲	6	-6	
2011	542 (2.1)		-8 ▼	-19 ▼	
2006	549 (2.3)			-12 ▼	
2001	561 (2.2)				
Trinidad and Tobago					
2016	479 (3.3)	9	44 ▲		
2011	471 (3.8)		35 ▲		
2006	436 (4.8)				
United Arab Emirates					
2016	450 (3.2)	12 ▲			
2011	439 (2.2)				
United States					
† 2016	549 (3.1)	-7 ▼	10 ▲	7	
² 2011	556 (1.6)		16 ▲	14 ▲	
² † 2006	540 (3.4)			-2	
† 2001	542 (3.8)				

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Benchmarking Participants

Ontario, Canada					
2016	544 (3.2)	-8 ▼	-12 ▼	-4	
² 2011	552 (2.5)		-3	4	
² 2006	555 (2.9)			7	
2001	548 (3.3)				
Quebec, Canada					
≡ 2016	547 (2.8)	10 ▲	15 ▲	10 ▲	
2011	538 (2.2)		5	0	
2006	533 (2.7)			-4	
2001	537 (3.0)				
Eng/Afr/Zulu - RSA					
2016	406 (6.0)		56 ▲		
2006	350 (8.6)				
Andalusia, Spain					
2016	525 (2.1)	10 ▲			
2011	515 (2.2)				
Abu Dhabi, UAE					
2016	414 (4.7)	-10			
2011	424 (4.7)				
Dubai, UAE					
2016	515 (1.9)	39 ▲			
2011	476 (2.0)				

- ▲ More recent year significantly higher
- ▼ More recent year significantly lower

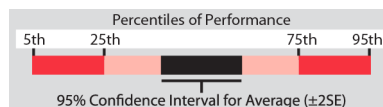
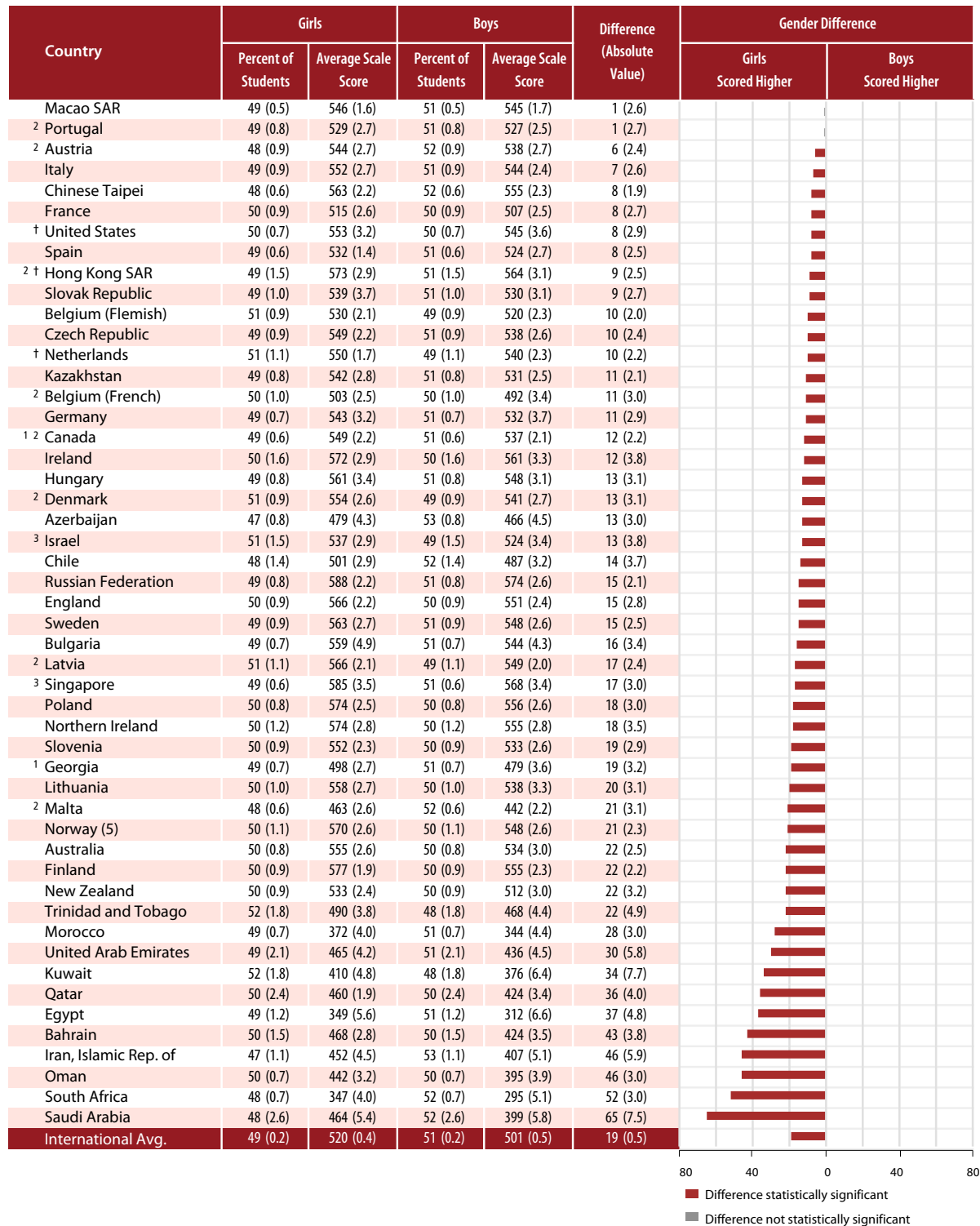


Exhibit 1.5: Average Reading Achievement by Gender

In PIRLS 2016, fourth grade girls had higher average achievement than boys in all countries except Macao SAR and Portugal, where achievement was similar for boys and girls. The average advantage for girls was 19 points across the 50 countries in PIRLS 2016.

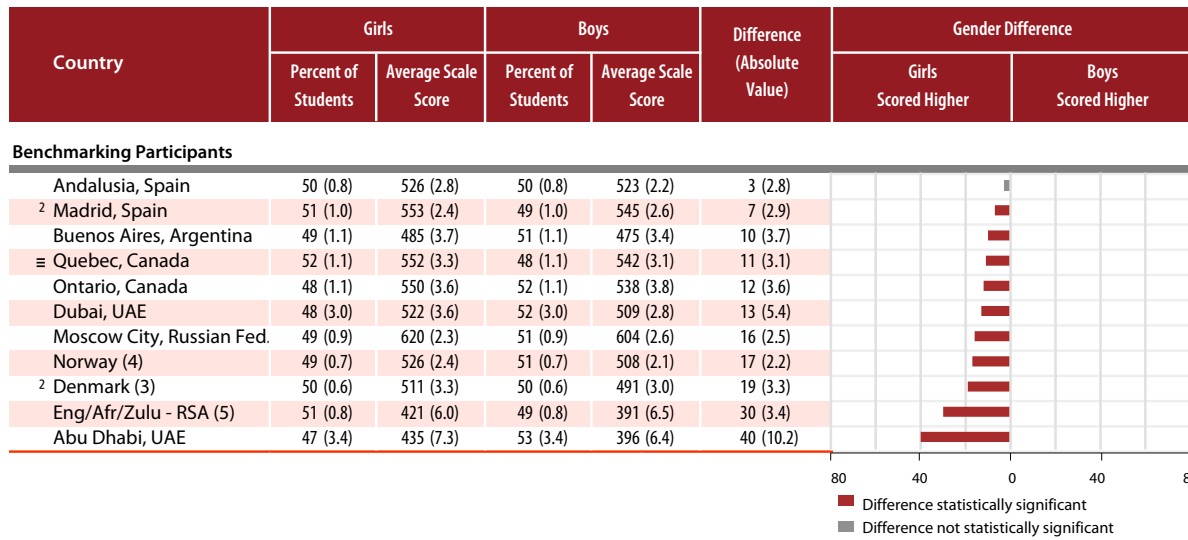
Exhibit 1.5: Average Reading Achievement by Gender



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
 () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 1.5: Average Reading Achievement by Gender (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

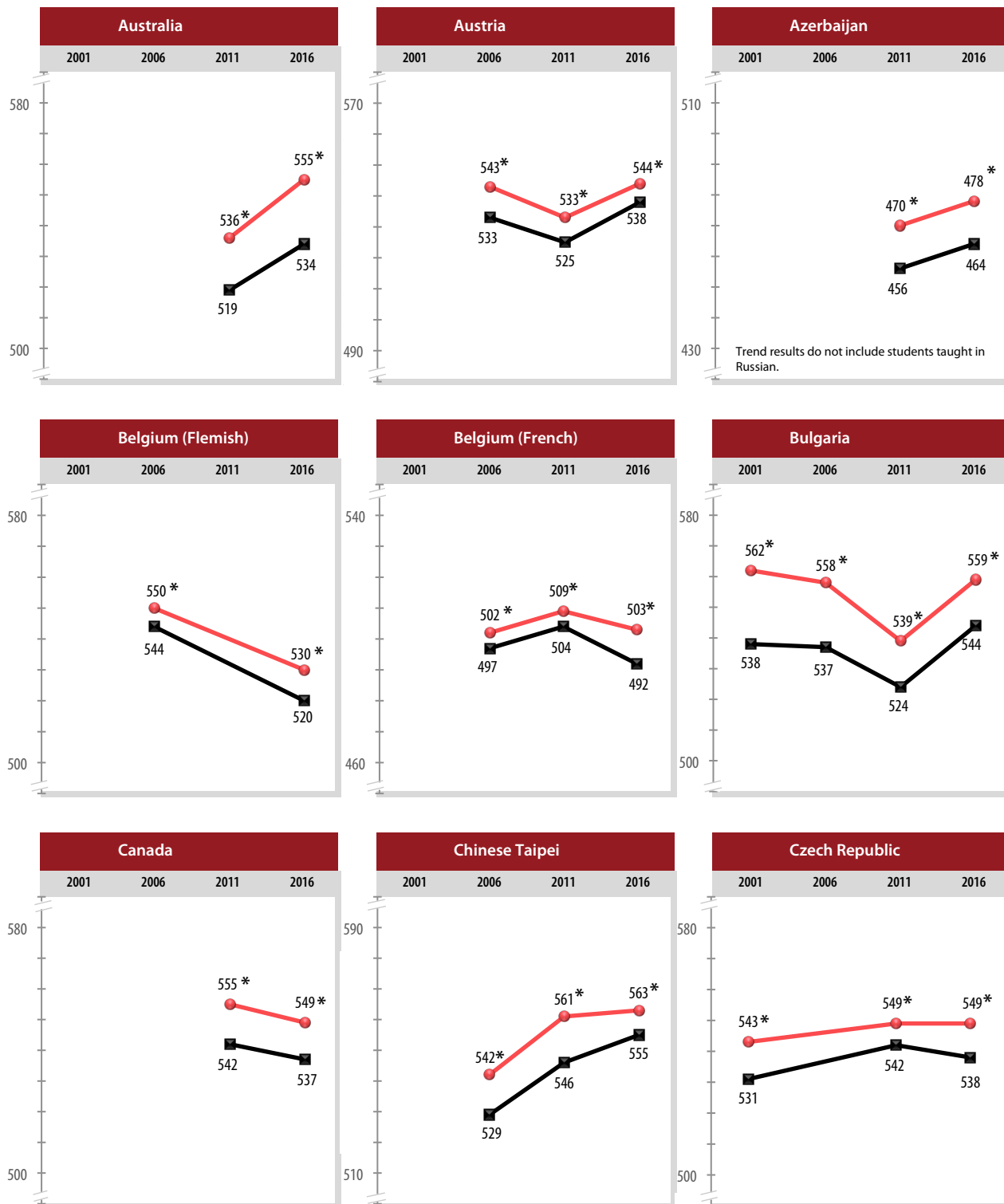
Exhibit 1.6: Trends in Reading Achievement by Gender

For the countries with trend data from previous PIRLS assessments, Exhibit 1.6 shows graphs of average achievement by gender. The countries are presented in alphabetical order. In nearly all of the countries, girls have had higher achievement than boys, historically as well as in PIRLS 2016. Portugal was the only country to close the gender gap in 2016, and this was in comparison to PIRLS 2011. Several countries narrowed the gap in 2011 (France, Israel, Italy, and Spain), but then girls once again had higher achievement than boys in PIRLS 2016.

Exhibit 1.6: Trends in Reading Achievement by Gender

Scale interval is 10 points for each country, but the part of the scale shown differs according to each country's average achievement.

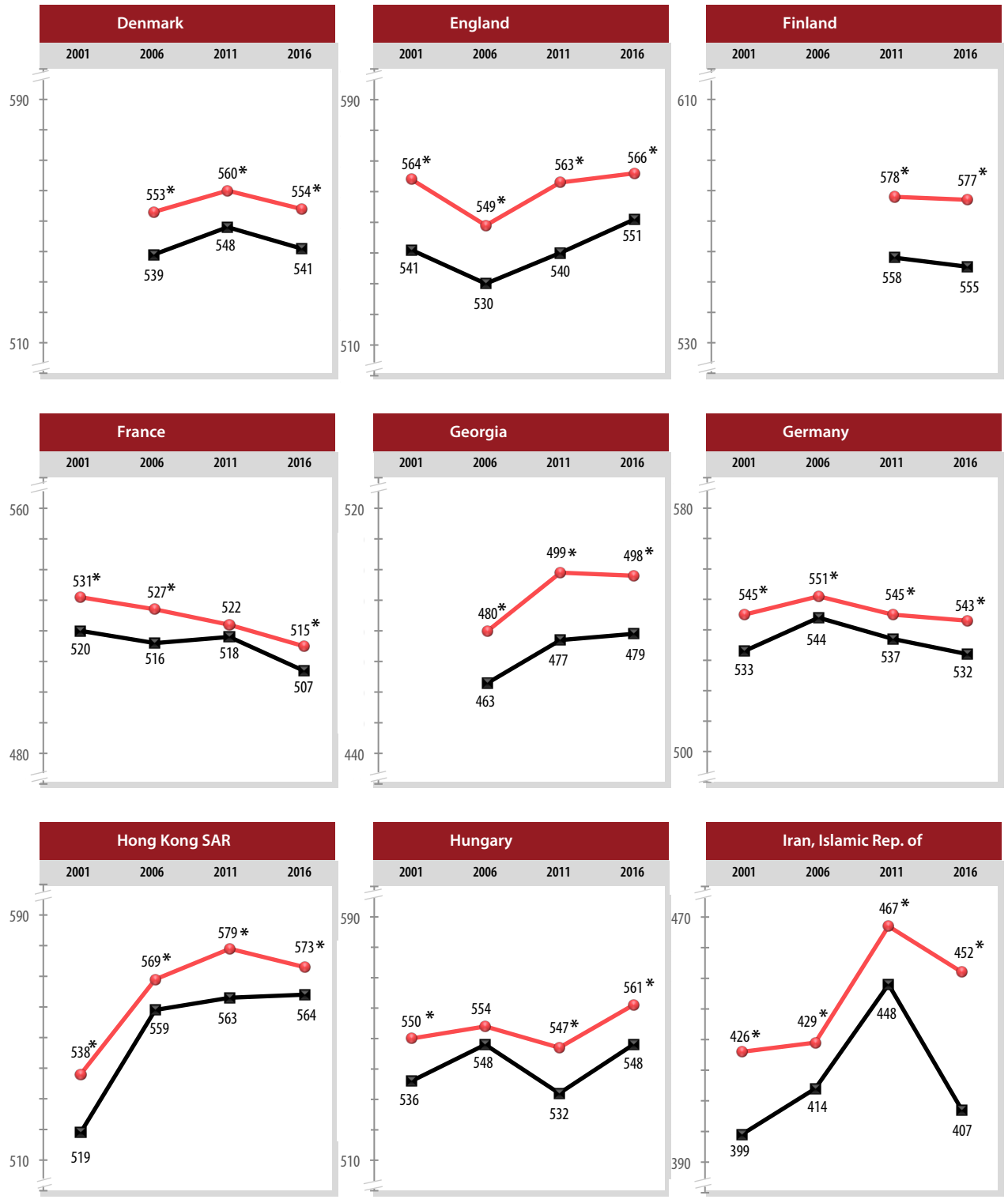
Girls ● Boys ■ * Achievement significantly higher than other gender



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 1.6: Trends in Reading Achievement by Gender (Continued)

Girls ● Boys ■ * Achievement significantly higher than other gender



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 1.6: Trends in Reading Achievement by Gender (Continued)

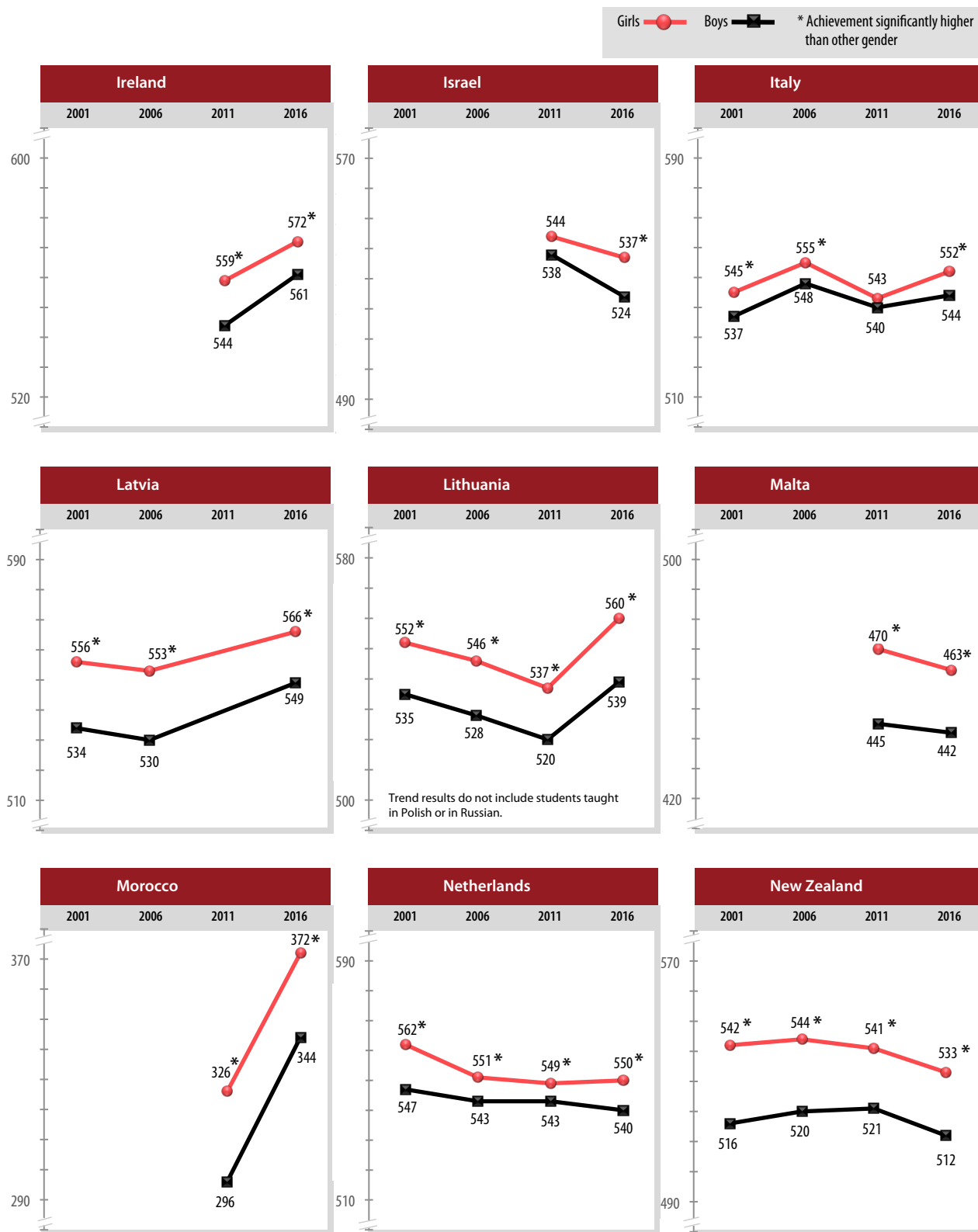
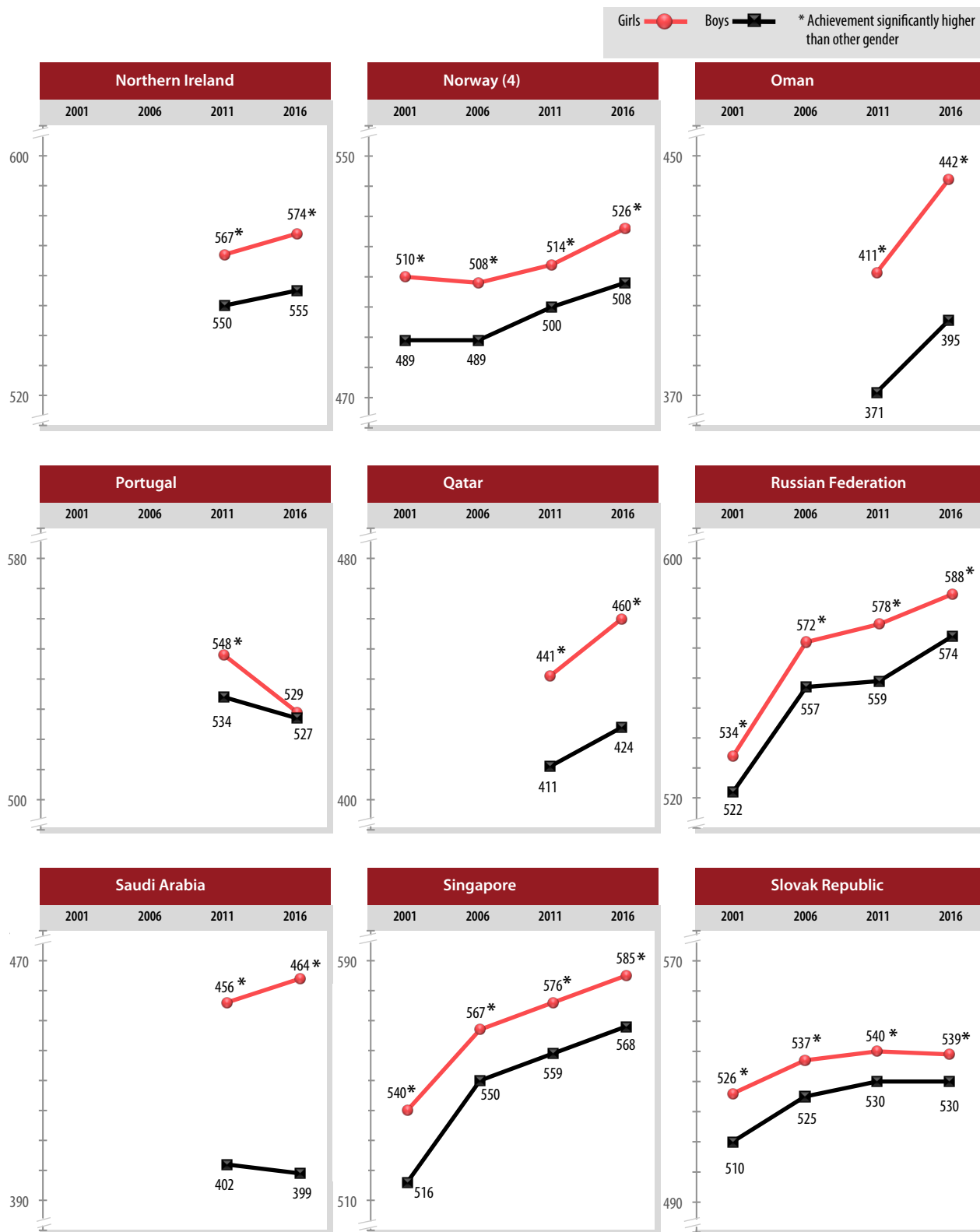


Exhibit 1.6: Trends in Reading Achievement by Gender (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 1.6: Trends in Reading Achievement by Gender (Continued)

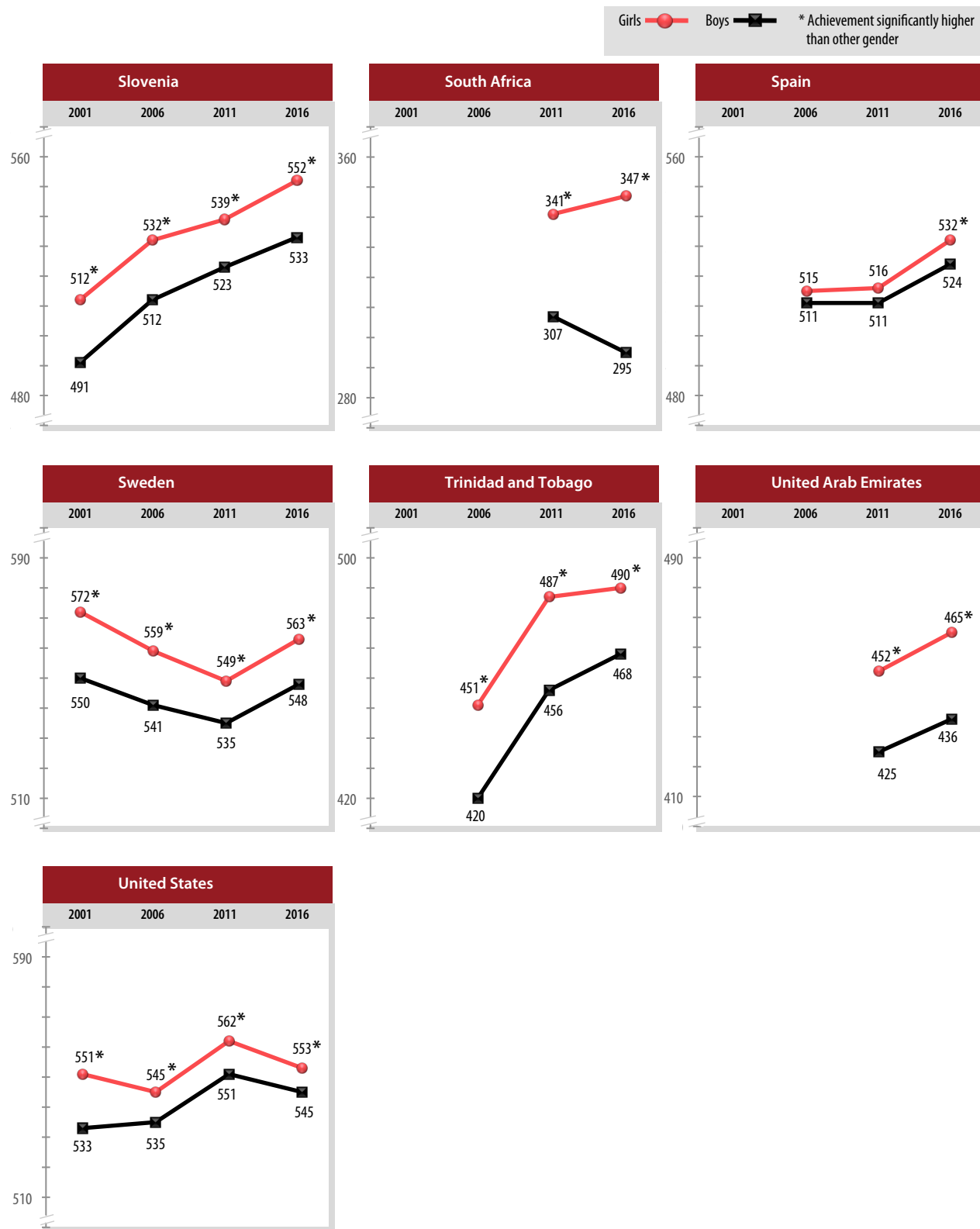
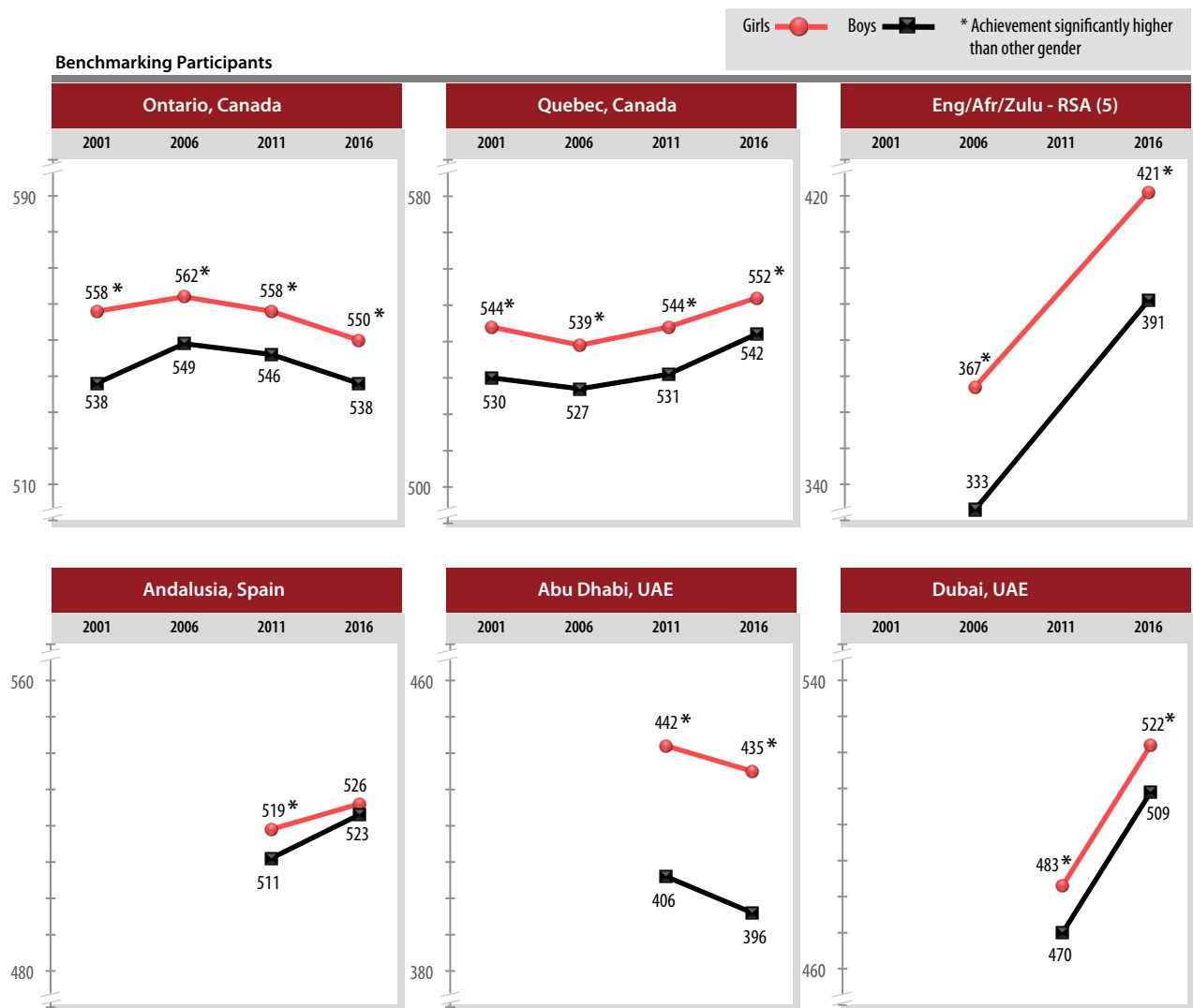


Exhibit 1.6: Trends in Reading Achievement by Gender (Continued)



PIRLS
2016

CHAPTER 2: PERFORMANCE AT INTERNATIONAL BENCHMARKS

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016



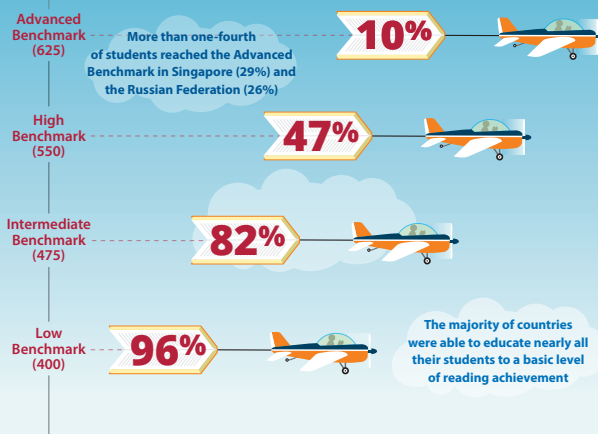
IEA

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Achievement at PIRLS 2016 International Benchmarks

PIRLS describes achievement at four International Benchmarks along the reading achievement scale: Advanced, High, Intermediate, and Low.

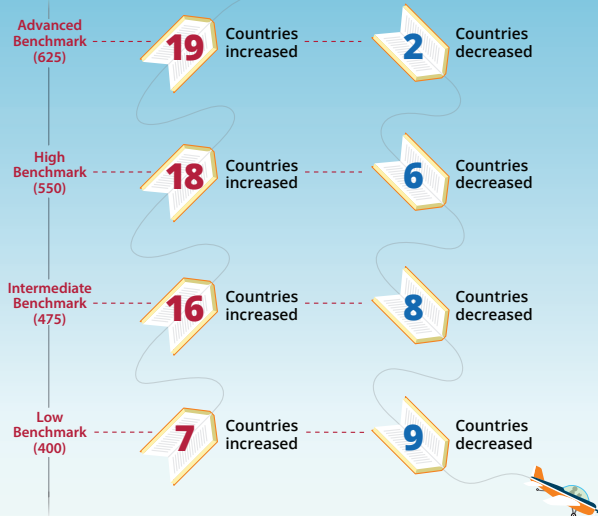
Percentage of Students Reaching Benchmarks (averaged across countries)



Short Term Trends at the PIRLS International Benchmarks

In general, there were more improvements across the Advanced, High, and Intermediate International Benchmarks than there were declines.

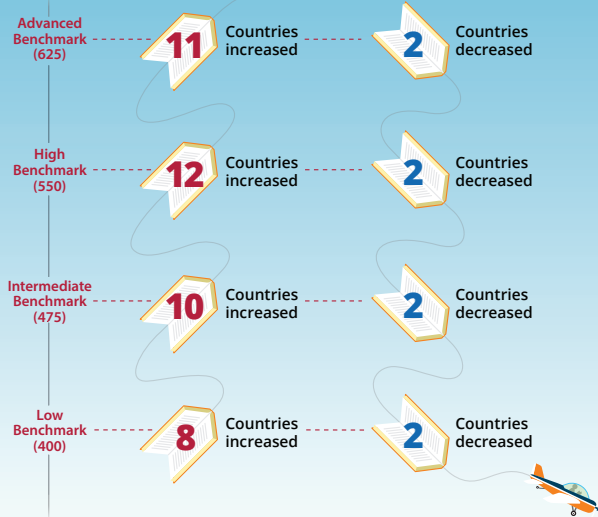
Trends 2011- 2016: 41 Countries



Long Term Trends at the PIRLS International Benchmarks

In general, there were more improvements across the International Benchmarks than there were declines.

Trends 2001- 2016: 20 Countries



CHAPTER 2

Performance at International Benchmarks

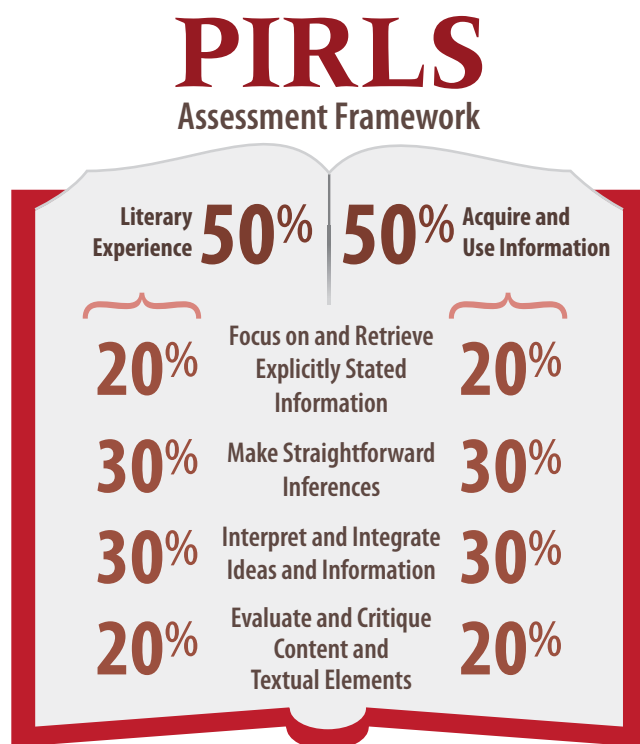
The PIRLS 2016 International Benchmarks of Reading Achievement

To provide an interpretation of the results summarized on the PIRLS achievement scale for reading comprehension at the fourth grade, PIRLS 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, the TIMSS & PIRLS International Study Center conducted a scale anchoring analysis together with the PIRLS 2016 Reading Development Group (RDG). The descriptions of achievement at the International Benchmarks are based on the reading skills and strategies demonstrated by fourth grade students achieving at each level of the scale. Further detail about the scale anchoring methodology is provided in Chapter 13 of [Methods and Procedures in PIRLS 2016](#).

Overview of the PIRLS 2016 Texts and Items

The texts and items used in PIRLS 2016 were selected and developed based on the [PIRLS 2016 Assessment Framework](#). The framework describes the PIRLS view of reading as an interactive process between the text and the reader and describes the ways that PIRLS measures students' reading achievement. It specifies that the assessment texts and items should cover in equal amounts the two purposes that account for most of the reading done by young students in and out of school:

- For literary experience
- To acquire and use information



Across the literary and informational texts, the PIRLS items measure four processes of comprehension: retrieving, straightforward inferencing, interpreting and integrating, and evaluating and critiquing.

For PIRLS 2016, the assessment was extended to include a less difficult assessment known as PIRLS Literacy. The purpose of the PIRLS Literacy assessment is to provide better measurement at the lower end of the PIRLS achievement scale.

The PIRLS Literacy assessment is equivalent to PIRLS in scope and reflects the same conception of reading as PIRLS, but in addition to passages in common with PIRLS it includes some less difficult texts. Including PIRLS and PIRLS Literacy, the 2016 assessment included 20 different passages: 8 only in PIRLS, 4 in both PIRLS and PIRLS Literacy, and 8 only in PIRLS Literacy. The reading passages and questions in common between the PIRLS and PIRLS Literacy assessments enable the two assessments to be linked, so that the PIRLS Literacy assessment results can be reported together with PIRLS assessment results and directly compared with them. The range of texts and items—from the relatively complex texts and items in PIRLS to the shared passages, to the relatively simpler passages in PIRLS Literacy—provided an excellent basis for the PIRLS 2016 scale anchoring analysis.

To provide examples of the assessment passages and items, five texts together with their associated items and scoring guides can be found in Appendix H. All five texts are designated as “restricted use,” which means that they are reproduced here with permission from the IEA. Any further reproduction or use of these passages requires permission from the IEA. Two of the passages in Appendix H are from PIRLS 2016, including “Macy,” a literary text about a teenage girl, and the informational text “The Green Sea Turtle’s Journey.” One passage, “Flowers on the Roof,” was included in both the PIRLS and PIRLS Literacy assessments. There also are two released passages from PIRLS Literacy, including “The Pearl,” which is a story about a boy who found a rare pearl, and “Rhinos,” which describes the relationship between rhinos and oxpecker birds. The PIRLS and PIRLS Literacy formats are different. The PIRLS texts were followed by the items, whereas the PIRLS Literacy texts were presented in a slightly larger font and the items were interleaved “side by side” within the texts.

Description of the Literary and Informational Texts

Consistent with the two reading purposes that provide the foundation of the [PIRLS 2016 Assessment Framework](#), the scale anchoring analysis was conducted separately for the literary and informational texts and items. The assessment was divided equally between the two purposes, such that across PIRLS and PIRLS Literacy it included 10 literary texts and 10 informational texts.

Literary Reading

In literary reading, readers engage with the text to become involved in events, settings, actions, consequences, characters, atmosphere, feelings, and ideas, and to enjoy language.



Literary Passages

PIRLS
2016

The *literary texts* were complete short stories or episodes accompanied by supportive illustrations. The ten passages 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. The simpler texts were approximately 500 words in length with a clear linear structure and explicit meanings. The language featured everyday vocabulary and straightforward sentence structures. The texts and questions were presented side by side to support the location of information. The relatively complex texts were approximately 800 words in length with scope for exploring layers of meaning, such as plot twists and character development. The passages included a range of styles and language features, such as first-person narration, humor, dialogue, and some figurative language.

Informational Reading

Informational texts are both read and written for a wide variety of functions. While the primary function is to provide information, depending on the objectives writers address their subject matter using a variety of formats (e.g., biography, persuasive essay, instructions, or argument).



Informational Passages

PIRLS
2016

The ten *informational passages* included a variety of continuous and non-continuous texts. They had presentational features such as diagrams, maps, illustrations, photographs, or tables. The range of material covered scientific, ethnographic, 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. The simpler texts were approximately 400 to 500 words in length with a clear structure and explicit meanings, and straightforward sentence structures. The texts and questions were presented side by side to support the location of information. The relatively complex texts were approximately 600 to 900 words in length and conceptually more demanding, some of them based on abstract or technical ideas and with a substantial number of embedded details. Sentence structures may be complex and vocabulary unfamiliar.

Description of the PIRLS 2016 International Benchmarks

The graphic shows the descriptions of the skills demonstrated by fourth grade students at each of the four International Benchmarks. Benchmark descriptions at each level are shown separately for literary and informational reading to reflect the varying demands that different types of texts present. With each reading purpose, the progression in reading comprehension processes is evident from benchmark to benchmark.

625 **Advanced** International Benchmark

*When reading relatively complex **Literary Texts**, students can:*

- Interpret story events and character actions to describe reasons, motivations, feelings, and character development with full text-based support
- Begin to evaluate the effect on the reader of the author’s language and style choices

*When reading relatively complex **Informational Texts**, students can:*

- Distinguish and interpret complex information from different parts of text, and provide full text-based support
- Integrate information across a text to explain relationships and sequence activities
- Begin to evaluate visual and textual elements to consider the author’s point of view

550 **High** International Benchmark

*When reading relatively complex **Literary Texts**, students can:*

- Locate and distinguish significant actions and details embedded across the text
- Make inferences to explain relationships between intentions, actions, events, and feelings, and give text-based support
- Interpret and integrate story events and character actions, traits, and feelings as they develop across the text
- Recognize the use of some language features (e.g., metaphor, tone, imagery)

*When reading relatively complex **Informational Texts**, students can:*

- Locate and distinguish relevant information within a dense text or a complex table
- Make inferences about logical connections to provide explanations and reasons
- Integrate textual and visual information to interpret the relationship between ideas
- Evaluate and make generalizations about content and textual elements

SOURCE: IEA’s Progress in International Reading Literacy Study – PIRLS 2016

● Intermediate International Benchmark

475

When reading a mix of simpler and relatively complex *Literary Texts*, students can:

- Independently locate, recognize, and reproduce explicitly stated actions, events, and feelings
- Make straightforward inferences about the attributes, feelings, and motivations of main characters
- Interpret obvious reasons and causes, recognize evidence, and give examples
- Begin to recognize language choices

When reading a mix of simpler and relatively complex *Informational Texts*, students can:

- Locate and reproduce two or three pieces of information from text
- Make straightforward inferences to provide factual explanations
- Begin to interpret and integrate information to order events

○ Low International Benchmark

400

When reading predominantly simpler *Literary Texts*, students can:

- Locate and retrieve explicitly stated information, actions, or ideas
- Make straightforward inferences about events and reasons for actions
- Begin to interpret story events and central ideas

When reading predominantly simpler *Informational Texts*, students can:

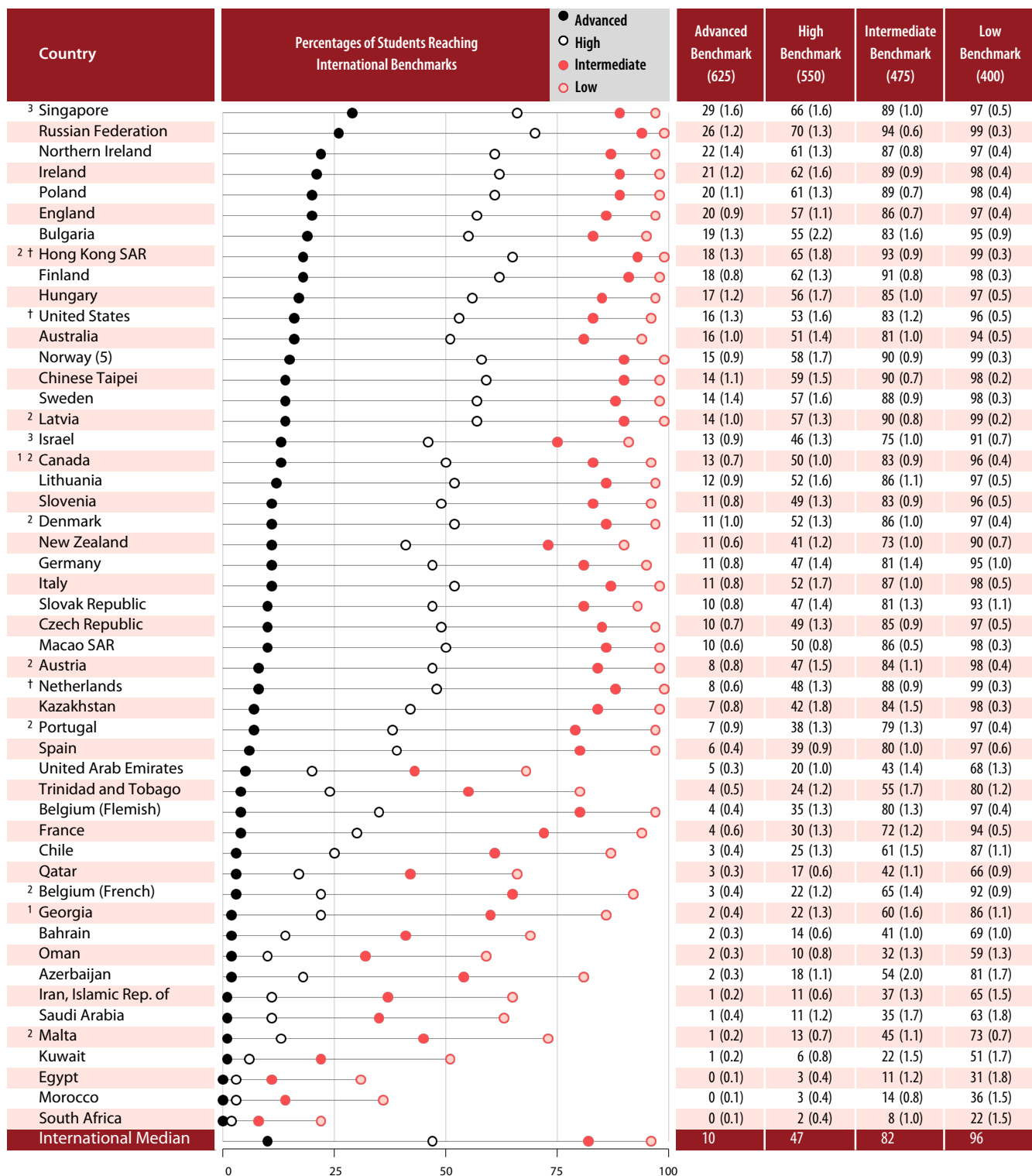
- Locate and reproduce explicitly stated information from text and other formats (e.g., charts, diagrams)
- Begin to make straightforward inferences about explanations, actions, and descriptions

Exhibit 2.1: Performance at the International Benchmarks of Reading Achievement

Exhibit 2.1 presents the percentage of students reaching each PIRLS 2016 International Benchmark. The results are presented in descending order according to the percentage of students reading the Advanced International Benchmark. The percentage of students reaching the Advanced Benchmark is indicated in the bar graph with a black dot. Because students who reached the Advanced Benchmark also reached the other benchmarks, the percentages illustrated in the exhibit and shown in the columns to the right are cumulative. More than one-fourth of the fourth grade students reached the Advanced International Benchmark in Singapore (29%) and the Russian Federation (26%).

As a point of reference, Exhibit 2.1 provides the median percentage of students reaching each benchmark at the bottom of the four right-hand columns. By definition, half the countries will have a percentage in that column above the median and half will be below the median. The median percentages of students reaching the International Benchmarks were as follows: Advanced—10 percent, High—47 percent, Intermediate—82 percent, and Low—96 percent. About half the PIRLS countries (24) had more than 96 percent of their students reaching the Low Benchmark, and in five countries, essentially all the students (99%) reached this benchmark—the Russian Federation, Hong Kong SAR, Norway, Latvia, and the Netherlands.

Exhibit 2.1: Performance at the International Benchmarks of Reading Achievement

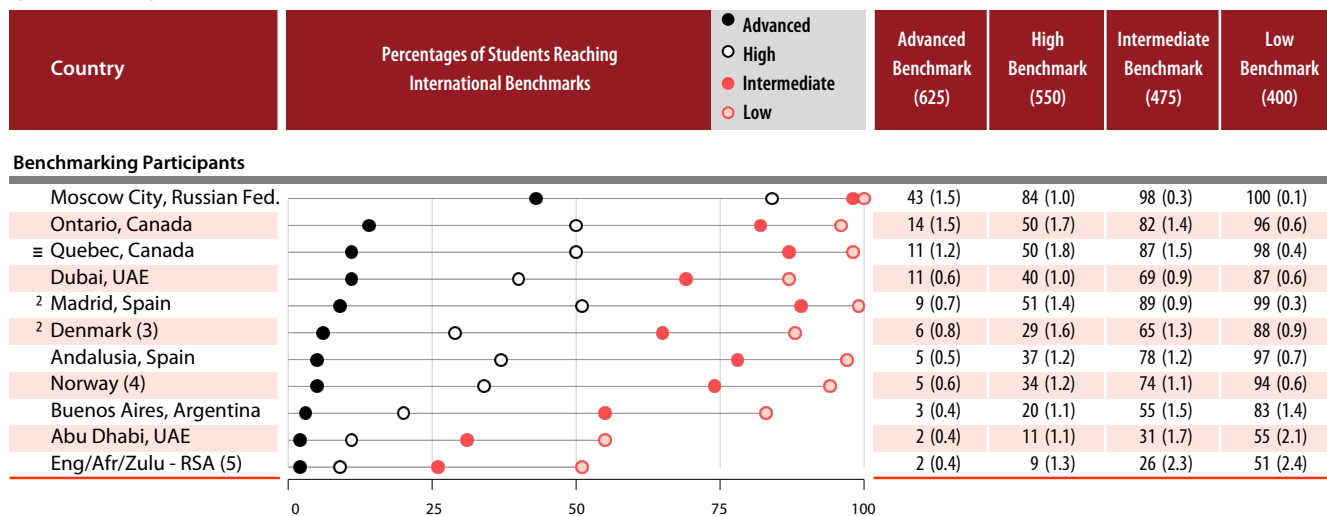


SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

Exhibit 2.1: Performance at the International Benchmarks of Reading Achievement (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 2.2: Percentages of Students Reaching the International Benchmarks of Reading Achievement Across Assessment Years

Exhibit 2.2 shows the changes in percentages of students reaching the benchmarks for countries that have participated in previous assessments (2001, 2006, and 2011). Of the 41 countries participating in both 2011 and 2016, 19 increased and 2 decreased at the Advanced International Benchmark, 18 increased and 6 decreased at the High International Benchmark, 16 increased and 8 decreased at the Intermediate Benchmark, and 7 increased and 9 decreased at the Low Benchmark. Of the 20 countries participating in both 2011 and 2016, 11 increased and 2 decreased at the Advanced International Benchmark, 12 increased and 2 decreased at the High Benchmark, 10 increased and 2 decreased at the Intermediate Benchmark, and 8 increased and 2 decreased at the Low Benchmark.

Exhibit 2.2: Percentages of Students Reaching the International Benchmarks of Reading Achievement Across Assessment Years

Country	Advanced International Benchmark (625)				High International Benchmark (550)				Intermediate International Benchmark (475)				Low International Benchmark (400)			
	Percent of Students				Percent of Students				Percent of Students				Percent of Students			
	2016	2011	2006	2001	2016	2011	2006	2001	2016	2011	2006	2001	2016	2011	2006	2001
Singapore	29	24	19	12	66	62	58	45	89	87	86	76	97	97	97	90
Russian Federation	26	19	19	5	70	63	61	39	94	92	90	80	99	99	98	96
Northern Ireland	22	19			61	58			87	87			97	97		
Ireland	21	16			62	53			89	85			98	97		
England	20	18	15	20	57	54	48	54	86	83	78	82	97	95	93	94
Bulgaria	19	11	16	17	55	45	52	54	83	77	82	83	95	93	95	95
Hong Kong SAR	18	18	15	5	65	67	62	39	93	93	92	81	99	99	99	97
Finland	18	18			62	63			91	92			98	99		
Hungary	17	12	14	10	56	48	53	49	85	81	86	85	97	95	97	98
United States	16	17	12	15	53	56	47	50	83	86	82	80	96	98	96	94
Australia	16	10			51	42			81	76			94	93		
Chinese Taipei	14	13	7		59	55	43		90	87	84		98	98	97	
Sweden	14	9	11	15	57	47	53	59	88	85	88	90	98	98	98	98
Latvia	14		8	9	57		46	49	90		86	87	99		98	99
Lithuania	13	6	5	9	53	39	43	48	87	80	86	85	97	97	99	98
Israel	13	15			46	49			75	80			91	93		
Canada	13	13			50	51			83	86			96	98		
Slovenia	11	8	6	3	49	42	37	25	83	79	76	67	96	95	94	91
Denmark	11	12	11		52	55	52		86	88	85		97	99	97	
New Zealand	11	14	13	14	41	45	45	45	73	75	76	74	90	92	92	90
Germany	11	10	11	9	47	46	52	47	81	85	87	83	95	98	97	97
Italy	11	10	14	11	52	46	52	48	87	85	87	83	98	98	98	97
Slovak Republic	10	8	8	5	47	44	43	34	81	82	80	76	93	96	94	94
Czech Republic	10	8		7	49	50		45	85	87		83	97	98		97
Austria	8	5	8		47	39	45		84	80	84		98	97	98	
Netherlands	8	7	6	10	48	48	49	54	88	90	91	92	99	100	99	99
Portugal	7	9			38	47			79	84			97	98		
Spain	6	4	5		39	31	31		80	72	72		97	94	94	
Norway (4)	5	2	2	4	34	25	22	28	74	71	67	65	94	95	92	88
United Arab Emirates	5	3			20	14			43	38			68	64		
Trinidad and Tobago	4	3	2		24	19	13		55	50	38		80	78	64	
Belgium (Flemish)	4		7		35		49		80		90		97		99	
France	4	5	5	7	30	35	35	37	72	75	76	77	94	95	96	95
Qatar	3	2			17	12			42	34			66	60		
Belgium (French)	3	2	3		22	25	23		65	70	66		92	94	92	
Georgia	2	2	1		22	21	15		60	60	50		86	86	82	
Oman	2	0			10	5			32	21			59	47		
Azerbaijan	1	0			17	9			53	45			80	82		
Iran, Islamic Rep. of	1	1	1	0	11	13	8	7	37	45	30	28	65	76	60	56
Saudi Arabia	1	1			11	8			35	34			63	65		
Malta	1	1			13	14			45	45			73	74		
Morocco	0	0			3	1			14	7			36	21		
South Africa	0	0			2	3			8	10			22	24		

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Benchmarking Participants

Ontario, Canada	14	15	16	15	50	54	54	50	82	85	87	84	96	97	98	96
Quebec, Canada	11	7	6	8	50	43	41	43	87	85	83	84	98	98	97	98
Dubai, UAE	11	6			40	26			69	54			87	75		
Andalusia, Spain	5	4			37	31			78	73			97	95		
Abu Dhabi, UAE	2	2			11	10			31	32			55	60		
Eng/Afr/Zulu - RSA (5)	2		3		9		11		26		23		51		36	

▲ 2016 percent significantly higher

▼ 2016 percent significantly lower

An empty cell indicates a country did not participate in that year's assessment or did not have comparable data.

Trend results for Azerbaijan do not include students taught in Russian. Trend results for Lithuania do not include students taught in Polish or in Russian.

Exhibit 2.3: Low International Benchmark (400)

Exhibit 2.3 presents the description of fourth grade students' achievement at the Low International Benchmark primarily based on results from the PIRLS Literacy assessment but also some results from PIRLS passages. Essentially, when reading the less difficult PIRLS Literacy texts, students could retrieve explicitly stated information and make straightforward inferences.

Exhibits 2.3.1 through 2.3.9 contain nine examples of the types of items that anchored at the Low International Benchmark. There are six example items based on literary text, four from "The Pearl," which was only included in the PIRLS Literacy assessment, and two from "Flowers on the Roof," which was included in both the PIRLS and PIRLS Literacy assessments. There also are three example items based on the "Rhinos" informational text (see Appendix H).

Each exhibit shows achievement results for the countries that participated in PIRLS Literacy and the two items from "Flowers on the Roof" also contain the results for all the countries that participated in PIRLS. The country-by-country results are accompanied with up and down arrows indicating a significantly higher or lower percentage of success than the international average. The reading purpose, comprehension process, and scale anchoring description are provided above the item. For multiple-choice items, the correct response is indicated. Constructed response questions were worth 1, 2, or 3 points. Each constructed response item is shown with an illustrative student response and the amount of credit awarded the response is shown across the bottom of the exhibit, usually full credit.

Example Item 2.3.1 (constructed response) illustrates that students at the Low International Benchmark could retrieve an explicitly stated detail from "The Pearl" and Example Item 2.3.2 that they were able to make an inference about a detail from the beginning of the story. Example Items 2.3.3 and 2.3.4 show students reaching this level also were beginning to interpret and integrate information presented across the text. In the latter case, they were asked about the "whole story" and responded with partial evidence (54% on average internationally). In Example Item 2.3.5 and Example Item 2.3.6 based on "Flowers on the Roof," students retrieved an explicitly stated detail and made an inference based on information at the end of the story.

As shown in two example items based on "Rhinos," Example Item 2.3.7 asking about a chart and Example Item 2.3.8 about a later section of the text, students could retrieve detailed information from different formats and sections of the text. Example Item 2.3.9 asked students to make an inference about why hunters want to kill rhinos.

Exhibit 2.3: Description of the PIRLS 2016 Low International Benchmark (400) of Reading Achievement **Low International Benchmark****400***When reading predominantly simpler **Literary Texts**, students can:*

- Locate and retrieve explicitly stated information, actions, or ideas
- Make straightforward inferences about events and reasons for actions
- Begin to interpret story events and central ideas

*When reading predominantly simpler **Informational Texts**, students can:*

- Locate and reproduce explicitly stated information from text and other formats (e.g., charts, diagrams)
- Begin to make straightforward inferences about explanations, actions, and descriptions

Exhibit 2.3.1: Low International Benchmark – Literary Example Item 1*

Country	Percent Full Credit	
Morocco	78 (1.9)	▲
Kuwait	73 (1.6)	▲
Egypt	69 (1.9)	▲
International Avg.	61 (0.8)	
Iran, Islamic Rep. of	42 (2.1)	▼
South Africa	41 (1.5)	▼
Benchmarking Participants		
² Denmark (3)	70 (1.8)	▲

Purpose: Literary Experience
Process: Focus on and Retrieve Explicitly Stated Information
Description: Locate and reproduce an explicitly stated reason for a character's words

3. Why does the girl say the pearl really belongs to Josh?

① He found it.

The answer shown illustrates the type of student response that would receive full credit (1 point).

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

- ▲ Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

Exhibit 2.3.2: Low International Benchmark – Literary Example Item 2*

Country	Percent Correct
Iran, Islamic Rep. of	70 (2.9) ●
Kuwait	63 (2.1)
Morocco	61 (2.1)
International Avg.	60 (1.0)
South Africa	55 (1.3) ▼
Egypt	49 (1.9) ▼
Benchmarking Participants	
² Denmark (3)	87 (1.3) ●

Purpose: Literary Experience
Process: Make Straightforward Inferences
Description: Make a straightforward inference about a detail from the beginning of the story

1. Where does the boy find the pearl?

- (A) on the beach
- (B) beside the sea
- (C) where they played games
- (D) in the deeper water

- Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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


SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.3.3: Low International Benchmark – Literary Example Item 3*

Country	Percent Full Credit	
Egypt	57 (2.0)	●
Morocco	52 (2.0)	●
Kuwait	50 (1.9)	●
Iran, Islamic Rep. of	48 (2.1)	
International Avg.	47 (0.9)	
South Africa	27 (1.7)	▼
Benchmarking Participants		
² Denmark (3)	45 (2.1)	

Purpose: Literary Experience
Process: Interpret and Integrate Ideas and Information
Description: Integrate ideas to show understanding of how a character develops

9. How does Reuben become a wealthy man?

 He gets lots of pearls from all over the world

The answer shown illustrates the type of student response that would receive full credit (1 point).

- Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.3.4: Low International Benchmark – Literary Example Item 4*

Country	Percent At Least 1 Point
Egypt	66 (2.1) ●
Morocco	57 (2.4)
Kuwait	57 (2.1)
International Avg.	54 (1.0)
Iran, Islamic Rep. of	49 (2.9) ▼
South Africa	43 (1.6) ▼
Benchmarking Participants	
² Denmark (3)	73 (1.7) ●

Purpose: Literary Experience
Process: Interpret and Integrate Ideas and Information
Description: Show understanding of a character's trait by providing 1 (of 2) example of the character's actions

► **Think about the whole story.**

15. In the story, Josh is a good person. Write two things that Josh does that show he is a good person.

① 1. He gives away the Pearl at the beginning.

② 2.

The answer shown illustrates the type of student response that would receive partial credit (1 of 2 points).

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

- Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

Exhibit 2.3.5: Low International Benchmark – Literary Example Item 5

Country	Percent Correct
Sweden	95 (0.9) ●
Italy	93 (1.1) ●
Ireland	93 (1.0) ●
Czech Republic	93 (1.0) ●
² † Hong Kong SAR	93 (1.2) ●
² Austria	93 (1.0) ●
Russian Federation	92 (1.2) ●
Poland	91 (1.2) ●
² Denmark	91 (1.2) ●
Northern Ireland	91 (1.4) ●
Finland	91 (1.1) ●
² Latvia	91 (1.4) ●
Chinese Taipei	90 (1.2) ●
Slovenia	90 (1.4) ●
England	90 (1.1) ●
Macao SAR	90 (1.2) ●
Norway (5)	90 (1.4) ●
Germany	88 (1.3) ●
Lithuania	88 (2.1) ●
Australia	87 (1.5) ●
Hungary	87 (1.8) ●
³ Singapore	87 (1.0) ●
† Netherlands	87 (1.6) ●
France	87 (1.5) ●
Kazakhstan	87 (1.4) ●
Belgium (Flemish)	86 (1.3) ●
¹ ² Canada	86 (1.3) ●
Slovak Republic	86 (1.6) ●
Bulgaria	86 (2.1) ●
² Portugal	85 (1.5) ●
New Zealand	84 (1.2) ●
Spain	83 (1.3) ●
† United States	83 (1.8)
³ Israel	82 (1.4)
¹ Georgia	82 (2.0)
Azerbaijan	81 (1.9)
International Avg.	80 (0.2)
² Belgium (French)	80 (1.7)
Chile	77 (1.9) ◐
Trinidad and Tobago	75 (1.8) ◐
Iran, Islamic Rep. of	71 (1.9) ◐
² Malta	69 (1.8) ◐
Qatar	61 (1.5) ◐
United Arab Emirates	61 (1.4) ◐
Kuwait	60 (2.4) ◐
Bahrain	59 (1.4) ◐
Oman	55 (1.6) ◐
Saudi Arabia	50 (1.9) ◐
Morocco	47 (1.9) ◐
Egypt	43 (1.6) ◐
South Africa	39 (1.6) ◐

Purpose: Literary Experience
Process: Focus on and Retrieve Explicitly Stated Information
Description: Retrieve and recognize explicitly stated information

4. Who offered to look after Granny Gunn’s animals when she moved to town?

● the people on the next farm

Ⓐ the doctor

Ⓑ Granny Gunn’s family

Ⓒ Robert

Country	Percent Correct
Benchmarking Participants	
Moscow City, Russian Fed.	95 (1.0) ●
² Madrid, Spain	89 (1.4) ●
≡ Quebec, Canada	88 (2.0) ●
Ontario, Canada	87 (2.1) ●
Andalusia, Spain	85 (1.4) ●
Norway (4)	84 (1.7)
Buenos Aires, Argentina	81 (2.0)
Dubai, UAE	77 (1.4) ◐
² Denmark (3)	77 (1.9)
Eng/Afr/Zulu - RSA (5)	56 (3.2) ◐
Abu Dhabi, UAE	53 (2.3) ◐

● Percent significantly higher than international average
◐ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
(.) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

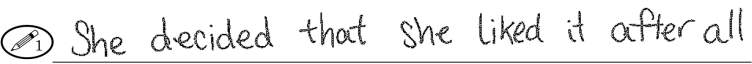
SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.3.6: Low International Benchmark – Literary Example Item 6

Country	Percent Full Credit
² Austria	96 (0.8) ●
Ireland	95 (1.0) ●
Norway (5)	95 (1.0) ●
Finland	94 (0.9) ●
² Denmark	94 (1.0) ●
Poland	94 (1.1) ●
Northern Ireland	94 (1.2) ●
[†] Netherlands	94 (1.0) ●
England	93 (0.9) ●
Czech Republic	93 (1.0) ●
Germany	93 (1.0) ●
Spain	92 (0.8) ●
² Latvia	92 (1.4) ●
^{2 †} Hong Kong SAR	92 (1.3) ●
^{1 2} Canada	92 (0.8) ●
Australia	92 (0.9) ●
[†] United States	92 (1.2) ●
Belgium (Flemish)	91 (1.1) ●
³ Singapore	90 (0.9) ●
Slovak Republic	90 (1.4) ●
Russian Federation	90 (1.4) ●
² Portugal	88 (1.3) ●
Hungary	88 (1.7) ●
New Zealand	88 (1.5) ●
Italy	87 (1.6) ●
Slovenia	87 (1.8) ●
Bulgaria	86 (1.5) ●
France	86 (1.5) ●
³ Israel	86 (1.4) ●
Chile	86 (1.5) ●
² Belgium (French)	84 (1.6) ●
Lithuania	83 (1.9)
Trinidad and Tobago	82 (1.9)
Chinese Taipei	81 (1.6)
International Avg.	80 (0.2)
Macao SAR	78 (1.5)
Sweden	77 (1.8)
² Malta	73 (1.8) ▼
¹ Georgia	71 (1.8) ▼
Kazakhstan	70 (2.0) ▼
United Arab Emirates	67 (1.4) ▼
Iran, Islamic Rep. of	67 (1.9) ▼
Bahrain	62 (1.5) ▼
Qatar	60 (1.3) ▼
Oman	58 (1.9) ▼
Saudi Arabia	57 (2.4) ▼
Azerbaijan	55 (2.3) ▼
Kuwait	45 (2.3) ▼
Morocco	36 (1.4) ▼
Egypt	32 (1.9) ▼
South Africa	32 (1.6) ▼

Purpose: Literary Experience
Process: Make Straightforward Inferences
Description: Recognize and reproduce a character's feeling that is clearly suggested at a specified point in the story

10. At the end of the story, how did Granny Gunn feel about her new home?



The answer shown illustrates the type of student response that would receive full credit (1 point).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	97 (0.7) ●
² Madrid, Spain	94 (1.0) ●
Ontario, Canada	93 (1.4) ●
Norway (4)	92 (0.9) ●
Andalusia, Spain	89 (1.2) ●
≡ Quebec, Canada	89 (1.7) ●
² Denmark (3)	88 (1.6) ●
Buenos Aires, Argentina	82 (2.2)
Dubai, UAE	79 (1.6)
Abu Dhabi, UAE	61 (2.6) ▼
Eng/Afr/Zulu - RSA (5)	51 (2.5) ▼

● Percent significantly higher than international average
 ▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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


SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.3.7: Low International Benchmark – Informational Example Item 1*

Country	Percent Full Credit	
Iran, Islamic Rep. of	86 (2.0)	●
Kuwait	71 (2.2)	●
Morocco	67 (2.4)	
International Avg.	64 (1.0)	
Egypt	57 (2.1)	●
South Africa	41 (1.9)	●
Benchmarking Participants		
² Denmark (3)	92 (1.0)	●

Purpose: Acquire and Use Information
Process: Focus on and Retrieve Explicitly Stated Information
Description: Retrieve and reproduce a detail from a chart

4. Look at the chart.
 How much does an oxpecker weigh?

 2 Ounces

The answer shown illustrates the type of student response that would receive full credit (1 point).

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

- Percent significantly higher than international average
- Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

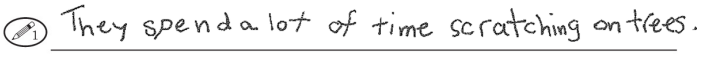
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 2.3.8: Low International Benchmark – Informational Example Item 2*

Country	Percent Full Credit	
Kuwait	63 (2.6)	●
Iran, Islamic Rep. of	59 (2.5)	●
Morocco	57 (2.0)	●
International Avg.	51 (1.0)	
Egypt	39 (2.0)	●
South Africa	38 (1.9)	●
Benchmarking Participants		
² Denmark (3)	87 (1.4)	●

Purpose: Acquire and Use Information
Process: Focus on and Retrieve Explicitly Stated Information
Description: Retrieve and reproduce explicitly stated detail

11. What do rhinos do when they are trying to get rid of their ticks?



The answer shown illustrates the type of student response that would receive full credit (1 point).

- Percent significantly higher than international average
- Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.3.9: Low International Benchmark – Informational Example Item 3*

Country	Percent Correct
Iran, Islamic Rep. of	71 (2.7) ●
Morocco	61 (2.1) ●
International Avg.	57 (1.0)
South Africa	57 (1.7)
Kuwait	51 (2.4) ▼
Egypt	44 (2.0) ▼
Benchmarking Participants	
² Denmark (3)	95 (1.1) ●

Purpose: Acquire and Use Information
Process: Make Straightforward Inferences
Description: Make a straightforward inference about an action

6. Why do hunters want to kill rhinos?

- Ⓐ Rhinos are too dangerous.
- Ⓑ Hunters want rhino meat.
- Hunters want rhino horns.
- Ⓓ There are too many rhinos.

- Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.4: Intermediate International Benchmark (475)

Exhibit 2.4 presents the description of student achievement at the Intermediate Benchmark, which is based on passages and items from both PIRLS and PIRLS Literacy. Because the scale anchoring descriptions are cumulative, with students' comprehension processes building on skills demonstrated at the lower levels, as anticipated students at the Intermediate Benchmark demonstrated greater facility in retrieving explicitly stated information and making inferences as well as in interpreting and integrating story events and information. When reading literary texts, they showed an emerging ability to recognize language choices.

Exhibits 2.4.1 through 2.4.12 present seven example items based on literary texts (“The Pearl,” “Flowers on the Roof,” and “Macy”) and five example items based on informational texts (“Rhinos” and “The Green Sea Turtle’s Journey”). All five texts and their accompanying items and scoring guides are presented in Appendix H. Each exhibit shows achievement results either for the countries that participated in PIRLS Literacy (items from “The Pearl” or “Rhinos”), all the countries participating in PIRLS Literacy and PIRLS (items from “Flowers on the Roof”), or the countries that participated in PIRLS (for “Macy” and “The Green Sea Turtle’s Journey”). Up and down arrows indicate a significantly higher or lower percentage of success for the country compared to the international average on the item. The reading purpose, comprehension process, and scale anchoring description are provided above the item. For multiple-choice items, the correct response is indicated. Constructed response questions were worth 1, 2, or 3 points. Each constructed response item is shown with an illustrative student response and the amount of credit awarded the response is shown across the bottom of the exhibit, usually full credit.

Example Items 2.4.1 and 2.4.2 show that fourth grade students at the Intermediate International Benchmark could provide two details in a constructed response format when asked about each of two different story events in “The Pearl.” Example Item 2.4.3 shows they could provide one example out of two from the longer “Flowers on the Roof.” They also could interpret and integrate information across “Flowers on the Roof” to identify the narrator of the story (Example 2.4.4). Based on the “Macy” story, they recognized the reason for a character’s action (Example Item 2.4.5), integrated evidence about a character’s action (Example Item 2.4.6), and recognized how the author demonstrated a character’s traits (Example 2.4.7).

In reading the “Rhinos” PIRLS Literacy text, students reproduced an explicitly stated action from toward the end of the text (Example Item 2.4.8), made an inference about an explanation (Example 2.4.9), and interpreted information to provide a full explanation of why ticks cause a problem for rhinos (Example 2.4.10). In reading the PIRLS text about sea turtles, students made inferences to answer a multiple-choice item about the content of the first section of the text (Example 2.4.11) and to answer a constructed response question about how people are making the sea more dangerous for turtles (Example Item 2.4.12).

Exhibit 2.4: Description of the PIRLS 2016 Intermediate International Benchmark (475) of Reading Achievement**Intermediate** International Benchmark

475

*When reading a mix of simpler and relatively complex **Literary Texts**, students can:*

- Independently locate, recognize, and reproduce explicitly stated actions, events, and feelings
- Make straightforward inferences about the attributes, feelings, and motivations of main characters
- Interpret obvious reasons and causes, recognize evidence, and give examples
- Begin to recognize language choices

*When reading a mix of simpler and relatively complex **Informational Texts**, students can:*

- Locate and reproduce two or three pieces of information from text
- Make straightforward inferences to provide factual explanations
- Begin to interpret and integrate information to order events

Exhibit 2.4.1: Intermediate International Benchmark – Literary Example Item 1*

Country	Percent Full Credit	
Iran, Islamic Rep. of	60 (2.3)	●
Kuwait	52 (2.4)	●
Morocco	51 (2.4)	●
International Avg.	46 (0.9)	
South Africa	38 (1.4)	▼
Egypt	30 (1.9)	▼
Benchmarking Participants		
² Denmark (3)	83 (1.7)	●

Purpose: Literary Experience
Process: Focus on and Retrieve Explicitly Stated Information
Description: Locate and reproduce 2 explicitly stated details

13. Reuben offers to give Josh two things. What are they?

① 1. New house

② 2. Big shiny boat

The answer shown illustrates the type of student response that would receive full credit (2 points).

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

- Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

Exhibit 2.4.2: Intermediate International Benchmark – Literary Example Item 2*

Country	Percent Full Credit
Iran, Islamic Rep. of	55 (2.9) ●
Kuwait	44 (1.8) ●
International Avg.	37 (0.9)
Egypt	36 (1.8)
Morocco	28 (2.1) ▼
South Africa	23 (1.4) ▼
Benchmarking Participants	
² Denmark (3)	64 (2.1) ●

Purpose: Literary Experience
Process: Make Straightforward Inferences
Description: Make a straightforward inference and reproduce 2 of a character's actions

5. What does Reuben do differently after he gets the pearl?
 Write two things.

① 1. He doesn't play with his friends.

② 2. He reads about pearls.

The answer shown illustrates the type of student response that would receive full credit (2 points).

- Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.4.3: Intermediate International Benchmark – Literary Example Item 3

Country	Percent At Least 1 Point
² Latvia	96 (0.9) ●
² Austria	96 (0.8) ●
Belgium (Flemish)	95 (0.7) ●
Norway (5)	95 (1.0) ●
Ireland	95 (1.0) ●
Poland	95 (0.9) ●
[†] Netherlands	94 (1.0) ●
Hungary	94 (1.3) ●
Czech Republic	94 (1.0) ●
Sweden	93 (1.2) ●
Northern Ireland	92 (1.2) ●
Lithuania	92 (1.7) ●
Finland	91 (1.1) ●
Russian Federation	91 (1.1) ●
² Denmark	91 (1.3) ●
Slovenia	90 (1.3) ●
Slovak Republic	90 (1.4) ●
² Portugal	90 (1.5) ●
^{1 2} Canada	90 (0.9) ●
Australia	89 (1.3) ●
^{2 †} Hong Kong SAR	88 (1.6) ●
France	88 (1.2) ●
[†] United States	88 (1.6) ●
Bulgaria	87 (1.5) ●
Spain	87 (1.1) ●
England	87 (1.4) ●
Chinese Taipei	87 (1.7) ●
Macao SAR	87 (1.2) ●
³ Singapore	86 (1.2) ●
Italy	85 (1.6) ●
³ Israel	84 (1.3) ●
New Zealand	84 (1.3) ●
² Belgium (French)	84 (1.6) ●
Kazakhstan	82 (1.6) ●
Germany	82 (1.7) ●
International Avg.	79 (0.2)
Chile	77 (2.0)
¹ Georgia	75 (2.0) ▼
Trinidad and Tobago	74 (2.1) ▼
Azerbaijan	68 (2.5) ▼
² Malta	66 (2.0) ▼
Bahrain	64 (1.5) ▼
Saudi Arabia	59 (2.5) ▼
United Arab Emirates	56 (1.6) ▼
Iran, Islamic Rep. of	52 (2.0) ▼
Qatar	49 (1.2) ▼
Oman	46 (1.7) ▼
Kuwait	44 (2.0) ▼
Morocco	36 (1.6) ▼
Egypt	29 (1.6) ▼
South Africa	22 (1.4) ▼

Purpose: Literary Experience
Process: Focus on and Retrieve Explicitly Stated Information
Description: Reproduce 1 (of 2) explicitly stated character action

9. Write **two** ways in which Granny Gunn made her new flat feel like home.

① 1. She brought her cat to town

① 2.

The answer shown illustrates the type of student response that would receive partial credit (1 of 2 points).

Country	Percent At Least 1 Point
Benchmarking Participants	
Moscow City, Russian Fed.	97 (0.6) ●
² Madrid, Spain	92 (1.1) ●
Ontario, Canada	90 (1.5) ●
Norway (4)	89 (1.5) ●
≡ Quebec, Canada	85 (2.1) ●
Andalusia, Spain	84 (1.5) ●
² Denmark (3)	80 (2.1)
Dubai, UAE	76 (1.2) ▼
Buenos Aires, Argentina	71 (2.5) ▼
Abu Dhabi, UAE	47 (2.7) ▼
Eng/Afr/Zulu - RSA (5)	42 (2.6) ▼

● Percent significantly higher than international average
▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.4.4: Intermediate International Benchmark – Literary Example Item 4

Country	Percent Correct	Purpose: Literary Experience
		Process: Interpret and Integrate Ideas and Information
		Description: Identify the narrator (in a first person story) from a range of clues in the text and confirmed by the pictures
Ireland	94 (1.3) ▲	<p>1. Who is telling the story?</p> <p><input type="radio"/> A a granny</p> <p><input checked="" type="radio"/> B a child</p> <p><input type="radio"/> C a doctor</p> <p><input type="radio"/> D a farmer</p>
Russian Federation	93 (1.2) ▲	
Northern Ireland	93 (1.3) ▲	
Poland	91 (1.4) ▲	
England	90 (1.0) ▲	
² Denmark	90 (1.4) ▲	
Czech Republic	90 (1.2) ▲	
Bulgaria	90 (1.5) ▲	
Hungary	89 (1.7) ▲	
Slovenia	89 (1.6) ▲	
[†] Netherlands	89 (1.4) ▲	
[†] United States	88 (1.5) ▲	
² Austria	87 (1.4) ▲	
³ Singapore	87 (1.2) ▲	
² Latvia	87 (1.4) ▲	
Australia	87 (1.2) ▲	
Italy	86 (1.6) ▲	
Finland	86 (1.2) ▲	
Belgium (Flemish)	86 (1.4) ▲	
^{1 2} Canada	85 (1.1) ▲	
³ Israel	85 (1.2) ▲	
Norway (5)	85 (1.8) ▲	
Germany	85 (1.4) ▲	
Slovak Republic	84 (1.5) ▲	
² Portugal	83 (1.5) ▲	
Lithuania	83 (2.3) ▲	
Azerbaijan	82 (1.9) ▲	
Spain	82 (1.3) ▲	
New Zealand	81 (1.4) ▲	
Sweden	80 (2.0) ▲	
Kazakhstan	80 (1.8) ▲	
France	78 (1.9)	
¹ Georgia	77 (1.7)	
^{2 †} Hong Kong SAR	77 (1.9)	
Chile	77 (1.9)	
International Avg.	75 (0.2)	
Macao SAR	75 (1.6)	
² Malta	73 (1.8)	
² Belgium (French)	70 (2.0) ▼	
Chinese Taipei	67 (1.8) ▼	
Trinidad and Tobago	66 (2.6) ▼	
Iran, Islamic Rep. of	57 (2.0) ▼	
United Arab Emirates	54 (1.4) ▼	
Qatar	53 (1.2) ▼	
Bahrain	51 (1.9) ▼	
Oman	44 (1.8) ▼	
Morocco	39 (1.5) ▼	
Kuwait	38 (2.7) ▼	
Saudi Arabia	27 (1.9) ▼	
South Africa	25 (1.4) ▼	
Egypt	25 (1.8) ▼	

Country	Percent Correct
Benchmarking Participants	
Moscow City, Russian Fed.	96 (0.8) ▲
≡ Quebec, Canada	87 (1.7) ▲
Ontario, Canada	86 (1.8) ▲
² Madrid, Spain	85 (1.4) ▲
Andalusia, Spain	79 (1.8) ▲
Norway (4)	79 (1.7) ▲
² Denmark (3)	79 (1.8)
Dubai, UAE	75 (1.4)
Buenos Aires, Argentina	67 (2.2) ▼
Eng/Afr/Zulu - RSA (5)	44 (3.1) ▼
Abu Dhabi, UAE	43 (2.7) ▼

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

▲ Percent significantly higher than international average
▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

Exhibit 2.4.5: Intermediate International Benchmark – Literary Example Item 5

Country	Percent Correct
Russian Federation	92 (0.9)
Hungary	91 (1.2)
Ireland	91 (1.3)
Northern Ireland	90 (1.3)
Finland	90 (1.1)
[†] Netherlands	90 (1.4)
³ Singapore	90 (1.2)
Norway (5)	89 (1.3)
[†] United States	89 (1.6)
Czech Republic	89 (1.2)
England	88 (1.2)
Poland	87 (1.4)
² Austria	87 (1.3)
Australia	87 (1.3)
Slovak Republic	87 (1.7)
² Denmark	87 (1.4)
² [†] Hong Kong SAR	86 (1.7)
Sweden	86 (1.7)
Chinese Taipei	85 (1.3)
¹ ² Canada	85 (1.1)
Italy	85 (1.6)
Belgium (Flemish)	84 (1.7)
Slovenia	84 (1.7)
New Zealand	84 (1.5)
² Latvia	84 (1.8)
Bulgaria	84 (1.8)
Lithuania	83 (2.0)
Germany	83 (1.6)
Macao SAR	81 (1.8)
Spain	79 (1.6)
International Avg.	79 (0.2)
Kazakhstan	78 (1.7)
France	78 (1.8)
² Portugal	76 (1.7)
³ Israel	76 (1.8)
Azerbaijan	73 (2.1)
Chile	72 (2.0)
Trinidad and Tobago	71 (1.8)
² Belgium (French)	70 (2.1)
² Malta	64 (2.1)
¹ Georgia	63 (2.7)
Iran, Islamic Rep. of	62 (2.7)
Qatar	59 (1.5)
United Arab Emirates	58 (1.5)
Bahrain	58 (1.9)
Oman	51 (1.7)
Saudi Arabia	50 (2.1)
Morocco	44 (2.5)

Purpose: Literary Experience
Process: Make Straightforward Inferences
Description: Infer and recognize the reason for a character's action

11. Why does Macy make white wings on a pole?

A to look like hen's feathers

B to make a decision

C to look like an owl

D to impress Sam

Country	Percent Correct
Benchmarking Participants	
Moscow City, Russian Fed.	94 (0.9)
Ontario, Canada	84 (2.0)
≡ Quebec, Canada	84 (2.5)
² Madrid, Spain	82 (1.8)
Norway (4)	80 (1.5)
Andalusia, Spain	78 (1.8)
Dubai, UAE	78 (1.5)
Buenos Aires, Argentina	63 (2.2)
Eng/Afr/Zulu - RSA (5)	57 (2.7)
Abu Dhabi, UAE	49 (2.5)

Percent significantly higher than international average
 Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
 () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.4.6: Intermediate International Benchmark – Literary Example Item 6

Country	Percent Correct
Russian Federation	88 (1.3) ●
Chinese Taipei	87 (1.3) ●
^{2 †} Hong Kong SAR	87 (1.6) ●
Macao SAR	84 (1.7) ●
³ Singapore	83 (1.2) ●
² Latvia	82 (1.7) ●
Poland	82 (1.5) ●
Ireland	82 (1.7) ●
Finland	81 (1.5) ●
[†] United States	81 (2.0) ●
Sweden	81 (1.7) ●
England	80 (1.4) ●
Lithuania	79 (2.2) ●
Bulgaria	79 (1.9) ●
² Austria	79 (1.7) ●
Australia	78 (1.3) ●
Italy	77 (1.9) ●
Northern Ireland	76 (2.0) ●
Germany	75 (1.8) ●
Slovak Republic	75 (2.1) ●
^{1 2} Canada	75 (1.1) ●
Slovenia	74 (2.3) ●
New Zealand	74 (1.8) ●
Hungary	74 (1.9) ●
Czech Republic	72 (1.8) ●
Kazakhstan	72 (2.0) ●
² Denmark	71 (2.4) ●
Belgium (Flemish)	71 (1.7) ●
International Avg.	70 (0.3)
[†] Netherlands	70 (2.2) ●
Norway (5)	68 (2.2) ●
³ Israel	68 (1.5) ●
Chile	65 (1.9) ●
Spain	64 (1.7) ●
Trinidad and Tobago	63 (2.1) ●
¹ Georgia	63 (2.3) ●
France	61 (2.1) ●
² Portugal	61 (2.0) ●
Azerbaijan	59 (2.7) ●
² Belgium (French)	57 (2.2) ●
Qatar	57 (1.3) ●
² Malta	56 (2.0) ●
Bahrain	56 (1.9) ●
United Arab Emirates	56 (1.4) ●
Iran, Islamic Rep. of	52 (2.4) ●
Saudi Arabia	51 (2.0) ●
Oman	41 (1.8) ●
Morocco	39 (2.8) ●

Purpose: Literary Experience
Process: Interpret and Integrate Ideas and Information
Description: Integrate evidence to recognize the reason for a character's action

12. Macy “hit the wings with her hands and pushed the wings away.”

What does Macy want the hen to think?

that Macy is saving the hen

that Macy is angry with the hen

that Macy is terrified of the owl

that Macy is playing with the owl

Country	Percent Correct
Benchmarking Participants	
Moscow City, Russian Fed.	93 (1.1) ●
Ontario, Canada	74 (2.2) ●
≡ Quebec, Canada	72 (2.6) ●
² Madrid, Spain	71 (1.8) ●
Dubai, UAE	71 (1.6) ●
Norway (4)	64 (2.1) ●
Andalusia, Spain	63 (2.4) ●
Buenos Aires, Argentina	62 (2.2) ●
Abu Dhabi, UAE	46 (2.5) ●
Eng/Afr/Zulu - RSA (5)	44 (2.3) ●

● Percent significantly higher than international average
● Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.4.7: Intermediate International Benchmark – Literary Example Item 7

Country	Percent Correct
Russian Federation	96 (0.8) ▲
Hungary	94 (1.0) ▲
Ireland	90 (1.3) ▲
Norway (5)	89 (1.4) ▲
² Latvia	89 (1.2) ▲
Poland	89 (1.5) ▲
Finland	88 (1.7) ▲
Chinese Taipei	88 (1.2) ▲
Lithuania	88 (1.3) ▲
² † Hong Kong SAR	87 (1.8) ▲
Sweden	87 (1.6) ▲
Italy	87 (1.4) ▲
² Denmark	87 (1.6) ▲
Macao SAR	87 (1.6) ▲
² Austria	86 (1.5) ▲
† United States	86 (1.6) ▲
England	86 (1.2) ▲
Slovak Republic	86 (1.7) ▲
³ Israel	85 (1.4) ▲
³ Singapore	85 (1.1) ▲
Bulgaria	85 (1.8) ▲
Australia	84 (1.7) ▲
Northern Ireland	84 (1.4) ▲
† Netherlands	84 (1.7) ▲
^{1 2} Canada	84 (1.1) ▲
Germany	84 (1.6) ▲
New Zealand	83 (1.5) ▲
France	82 (1.7) ▲
Czech Republic	82 (1.7) ▲
Spain	82 (1.2) ▲
¹ Georgia	82 (1.9) ▲
Slovenia	80 (2.0) ▲
Kazakhstan	80 (1.6) ▲
International Avg.	79 (0.2)

Purpose: Literary Experience
Process: Evaluate and Critique Content and Textual Elements
Description: Recognize how an author demonstrates a character's traits

2. How does the author show you what the red hen is like?

(A) by describing what the red hen looks like

(B) by describing the red hen's favorite food

(C) by describing where the red hen lives

(D) by describing how the red hen behaves

² Portugal	75 (1.7) ▼
² Belgium (French)	72 (2.0) ▼
Azerbaijan	72 (2.2) ▼
Belgium (Flemish)	70 (2.0) ▼
Chile	69 (1.6) ▼
Trinidad and Tobago	66 (2.1) ▼
² Malta	63 (2.4) ▼
Saudi Arabia	63 (2.1) ▼
Bahrain	62 (1.7) ▼
Qatar	62 (1.5) ▼
United Arab Emirates	61 (1.3) ▼
Iran, Islamic Rep. of	59 (3.0) ▼
Oman	54 (1.6) ▼
Morocco	34 (2.2) ▼

Country	Percent Correct
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Benchmarking Participants

Moscow City, Russian Fed.	97 (0.7) ▲
² Madrid, Spain	85 (1.5) ▲
≡ Quebec, Canada	84 (2.5) ▲
Ontario, Canada	83 (2.3) ▲
Andalusia, Spain	81 (1.9) ▲
Norway (4)	77 (2.1) ▲
Dubai, UAE	76 (1.6) ▲
Abu Dhabi, UAE	54 (2.2) ▼
Buenos Aires, Argentina	52 (2.3) ▼
Eng/Afr/Zulu - RSA (5)	51 (2.1) ▼

▲ Percent significantly higher than international average
▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.4.8: Intermediate International Benchmark – Informational

Example Item 1*

Country	Percent Full Credit
Iran, Islamic Rep. of	62 (3.0) ●
Kuwait	52 (2.7) ●
Morocco	47 (2.1)
International Avg.	45 (1.0)
Egypt	40 (1.8) ▼
South Africa	24 (1.3) ▼
Benchmarking Participants	
² Denmark (3)	83 (1.5) ●

Purpose: Acquire and Use Information
Process: Focus on and Retrieve Explicitly Stated Information
Description: Retrieve and reproduce an explicitly stated action

16. What does the oxpecker do to warn the rhino of danger?

① it makes loud noises and hisses

The answer shown illustrates the type of student response that would receive full credit (1 point).

- Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.4.9: Intermediate International Benchmark – Informational
Example Item 2*

Country	Percent Correct	
Iran, Islamic Rep. of	62 (2.4)	▲
Kuwait	51 (2.3)	▲
International Avg.	47 (0.9)	
South Africa	43 (1.3)	▼
Egypt	39 (1.7)	▼
Morocco	38 (2.0)	▼
Benchmarking Participants		
² Denmark (3)	78 (2.0)	▲

Purpose: Acquire and Use Information
Process: Make Straightforward Inferences
Description: Make a straightforward inference to recognize an explanation

8. Why are trees and bushes a good place for ticks to hide?

- (A) because ticks eat grass and leaves
- (B) because rhinos come there to eat
- (C) because the birds want to eat the ticks
- (D) because the leaves protect their skin

- ▲ Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016


Exhibit 2.4.10: Intermediate International Benchmark – Informational

Example Item 3*

Country	Percent Full Credit	
Iran, Islamic Rep. of	52 (2.2)	●
Kuwait	38 (2.3)	●
International Avg.	33 (0.9)	
Egypt	29 (2.0)	▼
Morocco	28 (1.8)	▼
South Africa	19 (1.2)	▼
Benchmarking Participants		
² Denmark (3)	39 (1.9)	●

Purpose: Acquire and Use Information
Process: Interpret and Integrate Ideas and Information
Description: Interpret information to provide a full explanation

9. Explain why ticks are a problem for rhinos.

 The ticks suck the rhinos' blood and make the rhinos feel itchy.

The answer shown illustrates the type of student response that would receive full credit (2 points).

- Percent significantly higher than international average
- ▼ Percent significantly lower than international average

* Item administered only in PIRLS Literacy.

See Appendix C.1 for target population coverage notes 1, 2, and 3.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.4.11: Intermediate International Benchmark – Informational
Example Item 4

Country	Percent Correct
Russian Federation	96 (0.9) ▲
² Denmark	94 (1.2) ▲
Sweden	94 (0.9) ▲
Czech Republic	94 (0.9) ▲
[†] Netherlands	93 (1.0) ▲
Germany	93 (1.1) ▲
Belgium (Flemish)	93 (1.1) ▲
Slovenia	93 (1.0) ▲
² Latvia	93 (1.2) ▲
² Austria	93 (1.1) ▲
Poland	92 (1.0) ▲
Ireland	92 (1.4) ▲
England	92 (1.0) ▲
Finland	92 (1.0) ▲
² [†] Hong Kong SAR	91 (1.2) ▲
Norway (5)	91 (1.4) ▲
Australia	91 (1.2) ▲
Chinese Taipei	90 (1.2) ▲
Slovak Republic	90 (1.6) ▲
Lithuania	90 (1.4) ▲
Bulgaria	90 (1.6) ▲
³ Singapore	89 (1.1) ▲
Macao SAR	89 (1.2) ▲
Hungary	88 (1.5) ▲
Kazakhstan	88 (1.4) ▲
New Zealand	87 (1.3) ▲
Northern Ireland	87 (1.8)
¹ ² Canada	87 (1.1) ▲
France	87 (1.5)
Spain	87 (1.3) ▲
² Portugal	86 (1.3)
[†] United States	86 (1.5)
³ Israel	85 (1.5)

Purpose: Acquire and Use Information
Process: Make Straightforward Inferences
Description: Recognize the main idea of a specified section of the text

1. What is the first section “Out From the Sand” about?

(A) what different sea turtles look like

(B) how sea turtles learn to swim

(C) what sea turtles like to eat

how sea turtles’ eggs hatch

International Avg.	84 (0.2)
Italy	84 (1.6)
Azerbaijan	81 (2.1)
Trinidad and Tobago	80 (1.9) ▼
Chile	78 (1.5) ▼
² Belgium (French)	75 (1.8) ▼
¹ Georgia	74 (2.5) ▼
United Arab Emirates	69 (1.0) ▼
Iran, Islamic Rep. of	68 (2.5) ▼
Qatar	68 (1.4) ▼
Bahrain	65 (1.6) ▼
Oman	64 (1.8) ▼
² Malta	64 (1.9) ▼
Morocco	56 (2.4) ▼
Saudi Arabia	56 (2.2) ▼

Country	Percent Correct
Benchmarking Participants	
Moscow City, Russian Fed.	94 (0.9) ▲
² Madrid, Spain	89 (1.4) ▲
Ontario, Canada	89 (1.5) ▲
Norway (4)	87 (1.8)
≡ Quebec, Canada	85 (2.3)
Andalusia, Spain	83 (1.8)
Dubai, UAE	82 (1.3)
Abu Dhabi, UAE	60 (2.3) ▼
Buenos Aires, Argentina	58 (1.9) ▼
Eng/Afr/Zulu - RSA (5)	56 (2.3) ▼

▲ Percent significantly higher than international average
▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

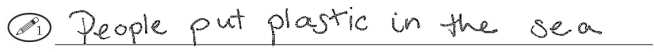
Exhibit 2.4.12: Intermediate International Benchmark – Informational

Example Item 5

Country	Percent Full Credit
Russian Federation	92 (1.2) ⬆
Chinese Taipei	91 (1.2) ⬆
² † Hong Kong SAR	90 (1.3) ⬆
Finland	90 (1.1) ⬆
³ Singapore	87 (1.2) ⬆
Norway (5)	86 (1.7) ⬆
Sweden	86 (1.7) ⬆
Ireland	85 (1.7) ⬆
Macao SAR	85 (1.7) ⬆
Germany	83 (1.6) ⬆
Australia	82 (1.5) ⬆
Bulgaria	81 (2.4) ⬆
Hungary	81 (1.8) ⬆
² Denmark	81 (2.1) ⬆
† Netherlands	81 (1.6) ⬆
² Austria	81 (1.7) ⬆
² Latvia	80 (2.0) ⬆
^{1 2} Canada	80 (1.2) ⬆
Slovenia	79 (2.0) ⬆
Spain	79 (1.7) ⬆
England	79 (1.3) ⬆
Czech Republic	79 (1.9) ⬆
Kazakhstan	79 (1.8) ⬆
New Zealand	78 (1.4) ⬆
Italy	78 (1.8) ⬆
² Portugal	78 (1.9) ⬆
† United States	78 (1.8) ⬆
Northern Ireland	77 (1.8) ⬆
³ Israel	77 (1.6) ⬆
Lithuania	77 (2.1) ⬆
France	77 (1.8) ⬆
Belgium (Flemish)	76 (1.6) ⬆
International Avg.	72 (0.3)
Slovak Republic	71 (2.1)
Poland	71 (1.8)
Trinidad and Tobago	64 (2.1) ⬇
² Malta	63 (2.0) ⬇
² Belgium (French)	59 (2.3) ⬇
Chile	57 (2.1) ⬇
¹ Georgia	54 (2.3) ⬇
Azerbaijan	52 (2.4) ⬇
United Arab Emirates	49 (1.4) ⬇
Qatar	47 (1.5) ⬇
Iran, Islamic Rep. of	44 (2.3) ⬇
Bahrain	38 (2.0) ⬇
Oman	37 (1.8) ⬇
Morocco	35 (2.2) ⬇
Saudi Arabia	31 (2.4) ⬇

Purpose: Acquire and Use Information
Process: Make Straightforward Inferences
Description: Make a straightforward inference about the cause of a situation

6. According to the article, what is one way people have made the sea more dangerous for turtles?



The answer shown illustrates the type of student response that would receive full credit (1 point).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	94 (0.9) ⬆
² Madrid, Spain	83 (1.7) ⬆
≡ Quebec, Canada	80 (1.9) ⬆
Andalusia, Spain	80 (2.2) ⬆
Ontario, Canada	77 (2.4)
Norway (4)	75 (2.1)
Dubai, UAE	66 (1.4) ⬇
Buenos Aires, Argentina	45 (2.2) ⬇
Abu Dhabi, UAE	41 (2.6) ⬇
Eng/Afr/Zulu - RSA (5)	30 (2.4) ⬇

⬆ Percent significantly higher than international average
 ⬇ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.5: High International Benchmark (550)

Exhibit 2.5 contains the description of comprehension skills and strategies demonstrated by fourth grade students at the High International Benchmark. At the High International Benchmark, students demonstrated that they could locate and distinguish information embedded in dense text; make inferences to explain relationships and reasons; interpret and integrate events and information across text; and evaluate language features and textual elements.

Exhibits 2.5.1 through 2.5.10 contain examples of the types of items successfully answered by students achieving at the High International Benchmark, including two based on the literary text “Flowers on the Roof,” four based on the literary text “Macy,” and four based on the informational text “The Green Sea Turtle’s Journey” (see Appendix H). Each exhibit shows achievement results for the countries that participated in PIRLS (and also the PIRLS Literacy countries for “Flowers on the Roof”), with up and down arrows indicating a significantly higher or lower percentage of success than the international average. The reading purpose, comprehension process, and scale anchoring description are provided above the item. For multiple-choice items, the correct response is indicated. Constructed response questions were worth 1, 2, or 3 points. Each constructed response item is shown with an illustrative student response and the amount of credit awarded the response is shown across the bottom of the exhibit, usually full credit.

Based on two constructed response items from “Flowers on the Roof,” Example Item 2.5.1 shows that students reaching the High International Benchmark could infer the significance of a character’s action and Example Item 2.5.2 that they could give a partial interpretation of a character’s feelings. Example Item 2.5.3 illustrates the kinds of information students were able to retrieve from the “Macy” passage, and Example 2.5.4 shows they could recognize the reason for a character’s action. In Example Items 2.5.5 and 2.5.6, students demonstrated that they were able to integrate events across the story to predict a character’s behavior and to describe a central idea in the story.

Example Items 2.5.7 and 2.5.8 show that when reading “The Green Sea Turtle’s Journey,” students were able to reproduce explicitly stated details from dense informational text. They also were able to make an inference to provide two explanations (Example Item 2.5.9). Perhaps most interesting, in Example Item 2.5.10, students at the High International Benchmark were able to evaluate the content of the diagram to interpret its meaning.

Exhibit 2.5: Description of the PIRLS 2016 High International Benchmark (550) of Reading Achievement○ **High** International Benchmark

550

*When reading relatively complex **Literary Texts**, students can:*

- Locate and distinguish significant actions and details embedded across the text
- Make inferences to explain relationships between intentions, actions, events, and feelings, and give text-based support
- Interpret and integrate story events and character actions, traits, and feelings as they develop across the text
- Recognize the use of some language features (e.g., metaphor, tone, imagery)


*When reading relatively complex **Informational Texts**, students can:*

- Locate and distinguish relevant information within a dense text or a complex table
- Make inferences about logical connections to provide explanations and reasons
- Integrate textual and visual information to interpret the relationship between ideas
- Evaluate and make generalizations about content and textual elements

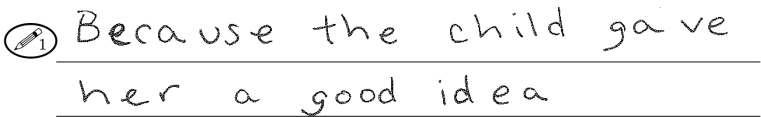
Exhibit 2.5.1: High International Benchmark – Literary Example Item 1

Country	Percent Full Credit
Ireland	84 (1.6) ●
Northern Ireland	81 (1.6) ●
Finland	80 (1.7) ●
² Portugal	80 (1.5) ●
Norway (5)	80 (1.8) ●
[†] Netherlands	79 (1.6) ●
Poland	78 (1.9) ●
Russian Federation	76 (1.7) ●
² Denmark	76 (1.8) ●
^{1 2} Canada	75 (1.3) ●
England	74 (1.6) ●
Belgium (Flemish)	74 (2.1) ●
³ Singapore	74 (1.5) ●
² Latvia	73 (2.2) ●
Italy	73 (2.1) ●
Germany	72 (1.6) ●
Sweden	72 (2.1) ●
Spain	72 (1.4) ●
Czech Republic	71 (1.6) ●
Hungary	70 (2.3) ●
Chinese Taipei	69 (2.0) ●
Australia	69 (2.2) ●
[†] United States	69 (1.8) ●
France	68 (1.9) ●
^{2 †} Hong Kong SAR	68 (2.3) ●
¹ Georgia	66 (2.2) ●
² Austria	66 (2.1) ●
Slovak Republic	66 (1.8) ●
Lithuania	66 (2.0) ●
New Zealand	66 (1.7) ●
Slovenia	65 (2.8)
³ Israel	64 (2.1)
International Avg.	61 (0.3)
Bulgaria	61 (2.1)
² Belgium (French)	60 (2.0)
Chile	59 (2.2) ▼
Macao SAR	57 (1.9) ▼
Kazakhstan	55 (2.0) ▼
Azerbaijan	51 (2.6) ▼
² Malta	51 (1.9) ▼
Trinidad and Tobago	50 (2.3) ▼
Iran, Islamic Rep. of	46 (2.3) ▼
Saudi Arabia	41 (2.4) ▼
Bahrain	36 (2.1) ▼
Qatar	35 (1.5) ▼
United Arab Emirates	35 (1.5) ▼
Oman	34 (1.7) ▼
Kuwait	25 (2.4) ▼
Morocco	24 (1.3) ▼
South Africa	9 (1.2) ▼
Egypt	8 (1.0) ▼

Purpose: Literary Experience
Process: Make Straightforward Inferences
Description: Infer the significance of a character's action from subsequent events

8. Find the part of the story by this picture of Granny Gunn: 

Why did Granny Gunn wink and grin at the little boy?



The answer shown illustrates the type of student response that would receive full credit (1 point).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	85 (1.4) ●
≡ Quebec, Canada	80 (1.8) ●
² Madrid, Spain	79 (1.9) ●
Ontario, Canada	72 (2.2) ●
Andalusia, Spain	65 (2.1) ●
Norway (4)	65 (2.1)
² Denmark (3)	63 (2.1)
Buenos Aires, Argentina	56 (2.3) ▼
Dubai, UAE	54 (1.5) ▼
Abu Dhabi, UAE	28 (2.3) ▼
Eng/Afr/Zulu - RSA (5)	25 (2.4) ▼

● Percent significantly higher than international average
▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

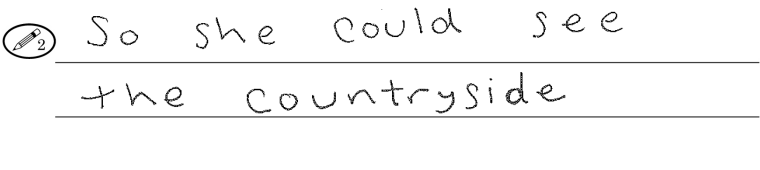
SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.5.2: High International Benchmark – Literary Example Item 2

Country	Percent At Least 1 Point
Northern Ireland	74 (1.6) ●
² Latvia	74 (1.7) ●
Ireland	73 (2.4) ●
Norway (5)	70 (1.6) ●
² Denmark	67 (2.0) ●
Russian Federation	66 (1.9) ●
Poland	66 (2.2) ●
² Austria	65 (1.8) ●
Australia	64 (2.1) ●
England	63 (1.9) ●
^{1 2} Canada	62 (1.6) ●
[†] United States	61 (2.4) ●
Hungary	61 (2.3) ●
[†] Netherlands	61 (2.0) ●
Sweden	60 (2.0) ●
Italy	60 (2.1) ●
Slovak Republic	59 (1.8) ●
New Zealand	59 (1.8) ●
² Portugal	59 (1.9) ●
Spain	57 (1.2) ●
Belgium (Flemish)	57 (1.9) ●
Germany	57 (2.2) ●
Bulgaria	56 (2.3) ●
France	54 (2.2) ●
Finland	53 (2.2) ●
Lithuania	53 (1.9) ●
Czech Republic	52 (1.6) ●
³ Israel	51 (2.1) ●
² Belgium (French)	51 (1.9) ●
¹ Georgia	51 (2.5) ●
International Avg.	49 (0.3)
Slovenia	45 (2.1) ●
³ Singapore	44 (1.7) ▼
Macao SAR	43 (1.8) ▼
² Malta	42 (2.0) ▼
Kazakhstan	42 (2.2) ▼
Chile	40 (2.0) ▼
^{2 †} Hong Kong SAR	39 (2.2) ▼
Chinese Taipei	37 (2.0) ▼
Iran, Islamic Rep. of	37 (1.9) ▼
Trinidad and Tobago	36 (2.2) ▼
Saudi Arabia	34 (2.3) ▼
Azerbaijan	33 (1.8) ▼
Qatar	25 (1.4) ▼
United Arab Emirates	24 (0.9) ▼
Kuwait	23 (1.7) ▼
Oman	20 (1.1) ▼
Bahrain	20 (1.3) ▼
Egypt	14 (1.2) ▼
South Africa	11 (1.0) ▼
Morocco	10 (1.0) ▼

Purpose: Literary Experience
Process: Interpret and Integrate Ideas and Information
Description: Give a simple interpretation of a character's feelings about the settings

7. When Granny Gunn was on the balcony, she crouched down so that she could not see any of the rooftops—only the mountains and the sky. Why did she do this?



The answer shown illustrates the type of student response that would receive partial credit (1 of 2 points).

Country	Percent At Least 1 Point
Benchmarking Participants	
Moscow City, Russian Fed.	80 (1.7) ●
² Madrid, Spain	62 (2.0) ●
≡ Quebec, Canada	60 (2.8) ●
Ontario, Canada	59 (3.1) ●
Norway (4)	58 (2.6) ●
Andalusia, Spain	58 (2.0) ●
² Denmark (3)	49 (2.3) ●
Dubai, UAE	40 (1.9) ▼
Buenos Aires, Argentina	37 (2.4) ▼
Eng/Afr/Zulu - RSA (5)	21 (2.4) ▼
Abu Dhabi, UAE	19 (1.8) ▼

● Percent significantly higher than international average
▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.5.3: High International Benchmark – Literary Example Item 3

Country	Percent Full Credit
Chinese Taipei	76 (1.9) ●
³ Singapore	74 (1.6) ●
² † Hong Kong SAR	74 (2.0) ●
Russian Federation	67 (2.1) ●
Northern Ireland	65 (2.3) ●
Hungary	63 (2.2) ●
† Netherlands	63 (2.4) ●
Ireland	63 (2.1) ●
Norway (5)	62 (2.4) ●
England	62 (1.9) ●
Italy	61 (2.3) ●
Bulgaria	60 (2.5) ●
² Denmark	58 (2.1) ●
² Portugal	58 (1.9) ●
Macao SAR	57 (2.1) ●
¹ ² Canada	57 (1.2) ●
Sweden	57 (2.3) ●
Lithuania	56 (2.5) ●
† United States	55 (2.3) ●
Slovak Republic	55 (2.1) ●
² Austria	54 (2.3) ●
Germany	53 (2.2) ●
Czech Republic	53 (2.2) ●
Belgium (Flemish)	52 (1.8) ●
New Zealand	52 (1.9)
Slovenia	52 (2.3)
³ Israel	49 (2.3)
International Avg.	49 (0.3)
France	48 (2.3)
Finland	48 (2.1)
Australia	47 (2.1)
² Latvia	47 (2.4)
Spain	47 (1.8)
Trinidad and Tobago	46 (1.9)
Poland	42 (2.2) ◐
² Belgium (French)	40 (2.0) ◐
Kazakhstan	38 (2.1) ◐
Chile	37 (2.4) ◐
² Malta	32 (2.4) ◐
Bahrain	28 (2.1) ◐
United Arab Emirates	28 (1.1) ◐
Saudi Arabia	28 (2.2) ◐
Oman	27 (1.5) ◐
¹ Georgia	26 (2.0) ◐
Iran, Islamic Rep. of	25 (2.4) ◐
Qatar	25 (1.2) ◐
Azerbaijan	17 (1.5) ◐
Morocco	1 (0.4) ◐

Purpose: Literary Experience
Process: Focus on and Retrieve Explicitly Stated Information
Description: Locate and reproduce 2 actions that lead to a specified result

6. Macy wants the red hen to go into the cage.

What are two things Macy does that **do not** work?

① 1. She tries to pick up the hen

② 2. She puts food in the hen's cage

The answer shown illustrates the type of student response that would receive full credit (2 points).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	82 (1.5) ●
Ontario, Canada	57 (2.4) ●
≡ Quebec, Canada	56 (2.7) ●
Norway (4)	53 (2.1) ●
² Madrid, Spain	53 (2.1)
Andalusia, Spain	45 (1.9)
Buenos Aires, Argentina	42 (1.8) ◐
Dubai, UAE	42 (1.4) ◐
Eng/Afr/Zulu - RSA (5)	20 (2.1) ◐
Abu Dhabi, UAE	20 (1.9) ◐

● Percent significantly higher than international average
◐ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.5.4: High International Benchmark – Literary Example Item 4

Country	Percent Correct
Russian Federation	85 (1.5) ⬆
Hungary	72 (2.1) ⬆
Spain	72 (1.6) ⬆
Chinese Taipei	70 (1.8) ⬆
Lithuania	68 (2.1) ⬆
Poland	67 (2.1) ⬆
Bulgaria	67 (2.4) ⬆
² † Hong Kong SAR	66 (2.5) ⬆
Italy	65 (2.1) ⬆
Slovak Republic	65 (2.0) ⬆
Macao SAR	63 (1.7) ⬆
² Latvia	63 (2.3) ⬆
Norway (5)	63 (2.2) ⬆
Azerbaijan	63 (2.2) ⬆
France	62 (2.3) ⬆
² Portugal	61 (2.0) ⬆
Kazakhstan	60 (2.2) ⬆
Czech Republic	60 (1.8) ⬆
Ireland	57 (2.3)
† Netherlands	57 (1.8)
Sweden	56 (2.1)
Slovenia	56 (2.2)
² Denmark	56 (2.1)
² Malta	55 (2.2)
Belgium (Flemish)	55 (2.2)
² Austria	55 (2.3)
² Belgium (French)	55 (2.3)
¹ Georgia	55 (2.3)
International Avg.	55 (0.3)
³ Israel	54 (2.0)
Northern Ireland	53 (2.1)
Germany	53 (2.2)
England	53 (1.5)
¹ ² Canada	52 (1.7)
Finland	51 (2.1)
† United States	51 (2.2)
³ Singapore	48 (1.7) ⬇
Australia	47 (2.1) ⬇
Iran, Islamic Rep. of	47 (2.7) ⬇
New Zealand	47 (2.0) ⬇
Chile	39 (2.3) ⬇
United Arab Emirates	37 (1.2) ⬇
Qatar	37 (1.2) ⬇
Saudi Arabia	37 (2.0) ⬇
Bahrain	34 (1.9) ⬇
Trinidad and Tobago	30 (1.9) ⬇
Oman	24 (1.5) ⬇
Morocco	21 (1.8) ⬇

Purpose: Literary Experience
Process: Make Straightforward Inferences
Description: Make a straightforward inference about the reason for a character's words

9. Why does Mum say, "I would like your job"?

(A) Mum feels sorry for Macy.

(B) Macy should do more jobs around the house.

(C) Mum really likes looking after hens.

(D) Macy should understand Mum has harder jobs.

Country	Percent Correct
Benchmarking Participants	
Moscow City, Russian Fed.	85 (1.4) ⬆
² Madrid, Spain	80 (2.1) ⬆
Andalusia, Spain	73 (2.0) ⬆
≡ Quebec, Canada	57 (2.4)
Ontario, Canada	53 (2.4)
Buenos Aires, Argentina	51 (2.6)
Norway (4)	46 (2.0) ⬇
Dubai, UAE	45 (1.6) ⬇
Abu Dhabi, UAE	31 (1.9) ⬇
Eng/Afr/Zulu - RSA (5)	22 (1.5) ⬇

⬆ Percent significantly higher than international average
 ⬇ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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


SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.5.5: High International Benchmark – Literary Example Item 5

Country	Percent Full Credit
Finland	84 (1.6) ●
Russian Federation	84 (1.6) ●
Lithuania	83 (1.9) ●
² Latvia	80 (1.7) ●
Ireland	80 (1.9) ●
Sweden	79 (1.9) ●
³ Singapore	79 (1.4) ●
Norway (5)	78 (1.8) ●
Poland	77 (2.1) ●
England	77 (1.5) ●
Australia	75 (1.9) ●
Hungary	75 (2.3) ●
² † Hong Kong SAR	74 (1.9) ●
Northern Ireland	74 (2.0) ●
Italy	74 (1.8) ●
Czech Republic	73 (1.8) ●
† United States	71 (1.9) ●
† Netherlands	70 (2.2) ●
Chinese Taipei	70 (2.1) ●
Germany	70 (2.3) ●
Spain	70 (1.5) ●
Kazakhstan	69 (1.9) ●
Slovenia	69 (2.2) ●
¹ ² Canada	69 (1.4) ●
² Denmark	68 (2.1) ●
Bulgaria	68 (2.4) ●
Slovak Republic	68 (2.0) ●
² Austria	68 (2.1) ●
Belgium (Flemish)	64 (2.1)
New Zealand	64 (1.7)
Macao SAR	63 (2.3)
France	63 (2.3)
International Avg.	62 (0.3)
³ Israel	61 (2.1)
² Portugal	61 (1.8)
² Belgium (French)	58 (2.1) ▼
Trinidad and Tobago	47 (2.6) ▼
Chile	46 (2.2) ▼
² Malta	45 (2.0) ▼
Azerbaijan	43 (2.1) ▼
¹ Georgia	41 (2.4) ▼
Iran, Islamic Rep. of	39 (2.6) ▼
United Arab Emirates	37 (2.0) ▼
Bahrain	36 (1.6) ▼
Qatar	29 (1.7) ▼
Oman	25 (1.7) ▼
Saudi Arabia	18 (1.5) ▼
Morocco	12 (1.3) ▼

Purpose: Literary Experience
Process: Interpret and Integrate Ideas and Information
Description: Integrate events across the text to predict a character's future behavior

15. What do you think the red hen will do next time Macy puts the hens in their cage?

 She will just sit down until Macy comes and picks her up.

The answer shown illustrates the type of student response that would receive full credit (1 point).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	91 (1.1) ●
≡ Quebec, Canada	76 (2.1) ●
² Madrid, Spain	76 (2.1) ●
Andalusia, Spain	69 (2.3) ●
Ontario, Canada	63 (3.0)
Norway (4)	61 (2.1)
Dubai, UAE	57 (2.6) ▼
Buenos Aires, Argentina	49 (2.4) ▼
Eng/Afr/Zulu - RSA (5)	30 (2.3) ▼
Abu Dhabi, UAE	28 (2.6) ▼

● Percent significantly higher than international average
 ▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.5.6: High International Benchmark – Literary Example Item 6

Country	Percent Full Credit
Russian Federation	67 (1.8) ●
Australia	60 (1.9) ●
Germany	60 (1.9) ●
Poland	60 (2.5) ●
England	59 (2.1) ●
Lithuania	59 (2.6) ●
Ireland	58 (2.2) ●
Hungary	58 (2.5) ●
² Austria	57 (2.3) ●
Finland	56 (2.0) ●
[†] United States	56 (2.2) ●
Belgium (Flemish)	56 (2.1) ●
Norway (5)	55 (2.3) ●
Northern Ireland	54 (2.2) ●
² [†] Hong Kong SAR	54 (2.4) ●
New Zealand	54 (1.9) ●
[†] Netherlands	54 (2.2) ●
Chinese Taipei	53 (2.1) ●
¹ ² Canada	53 (1.4) ●
Bulgaria	52 (2.4) ●
Czech Republic	51 (1.9) ●
³ Singapore	51 (1.8) ●
Sweden	50 (2.7) ●
Slovenia	50 (2.4) ●
Italy	49 (2.2) ●
² Latvia	48 (2.3) ●
² Denmark	48 (2.3) ●
Macao SAR	46 (1.9) ●
International Avg.	43 (0.3)
Spain	43 (1.8)
Slovak Republic	41 (2.0)
³ Israel	39 (1.8)
² Portugal	37 (2.1) ▼
Trinidad and Tobago	36 (2.2) ▼
Kazakhstan	34 (1.7) ▼
² Belgium (French)	33 (1.9) ▼
France	31 (2.4) ▼
Chile	30 (2.1) ▼
Iran, Islamic Rep. of	24 (2.3) ▼
United Arab Emirates	23 (1.3) ▼
Bahrain	19 (1.5) ▼
Qatar	17 (0.9) ▼
¹ Georgia	16 (1.5) ▼
Azerbaijan	16 (1.4) ▼
² Malta	15 (1.6) ▼
Oman	10 (1.0) ▼
Saudi Arabia	10 (1.3) ▼
Morocco	7 (1.2) ▼

Purpose: Literary Experience
Process: Interpret and Integrate Ideas and Information
Description: Integrate evidence from across the text to describe a central idea

14. Why is Macy at the top of the pecking order at the end of the story?

Use the information from the story to explain your answer.

① She tricked the hen so the hen thought Macy was better

The answer shown illustrates the type of student response that would receive full credit (1 point).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	74 (1.5) ●
² Madrid, Spain	54 (2.1) ●
Ontario, Canada	51 (2.4) ●
≡ Quebec, Canada	48 (2.9)
Norway (4)	45 (2.2)
Andalusia, Spain	41 (2.5)
Dubai, UAE	38 (1.5) ▼
Buenos Aires, Argentina	26 (2.0) ▼
Abu Dhabi, UAE	16 (1.8) ▼
Eng/Afr/Zulu - RSA (5)	11 (1.6) ▼

● Percent significantly higher than international average

▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

Exhibit 2.5.7: High International Benchmark – Informational Example Item 1

Country	Percent Full Credit
Chinese Taipei	74 (2.0) ⬆
Finland	69 (2.0) ⬆
Russian Federation	68 (1.9) ⬆
Ireland	66 (2.1) ⬆
Hungary	65 (2.0) ⬆
England	63 (1.8) ⬆
Norway (5)	63 (2.2) ⬆
Sweden	61 (2.4) ⬆
² † Hong Kong SAR	61 (2.4) ⬆
Lithuania	60 (2.6) ⬆
Belgium (Flemish)	60 (1.9) ⬆
Macao SAR	60 (1.8) ⬆
Germany	59 (2.2) ⬆
† Netherlands	59 (2.2) ⬆
² Portugal	59 (1.8) ⬆
Australia	58 (2.1) ⬆
^{1 2} Canada	58 (1.7) ⬆
Northern Ireland	58 (2.4) ⬆
² Austria	58 (2.5) ⬆
Slovenia	57 (2.6) ⬆
Slovak Republic	57 (1.8) ⬆
Czech Republic	57 (2.1) ⬆
† United States	56 (1.8) ⬆
Bulgaria	55 (2.5) ⬆
³ Israel	55 (2.1) ⬆
Spain	55 (1.5) ⬆
³ Singapore	54 (1.7) ⬆
France	53 (2.4) ⬆
New Zealand	52 (2.0) ⬆
² Latvia	52 (2.1) ⬆
² Denmark	52 (2.3) ⬆
Italy	51 (2.2) ⬆
International Avg.	51 (0.3)
Poland	47 (2.6) ⬇
² Belgium (French)	47 (1.9) ⬇
Kazakhstan	46 (1.7) ⬇
Bahrain	43 (2.0) ⬇
Trinidad and Tobago	40 (2.1) ⬇
¹ Georgia	40 (2.7) ⬇
Oman	38 (1.7) ⬇
Azerbaijan	34 (2.3) ⬇
Iran, Islamic Rep. of	33 (2.7) ⬇
² Malta	33 (2.1) ⬇
United Arab Emirates	32 (1.1) ⬇
Qatar	31 (1.2) ⬇
Chile	28 (2.0) ⬇
Morocco	10 (1.6) ⬇
Saudi Arabia	9 (1.4) ⬇

Purpose: Acquire and Use Information
Process: Focus on and Retrieve Explicitly Stated Information
Description: Locate and reproduce 2 actions that are part of a sequence of events

2. "One of the baby sea turtles begins to stir and hatch from her egg."

Write the first two things the hatchling does next.

1. She opens the egg.

2. She breaks out of the shell.

The answer shown illustrates the type of student response that would receive full credit (2 points).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	75 (1.8) ⬆
≡ Quebec, Canada	63 (2.1) ⬆
² Madrid, Spain	56 (1.7) ⬆
Ontario, Canada	55 (4.1)
Norway (4)	51 (2.1)
Andalusia, Spain	49 (2.6)
Dubai, UAE	47 (1.9) ⬇
Buenos Aires, Argentina	40 (2.4) ⬇
Abu Dhabi, UAE	24 (2.0) ⬇
Eng/Afr/Zulu - RSA (5)	17 (2.3) ⬇

⬆ Percent significantly higher than international average
 ⬇ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
 () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.5.8: High International Benchmark – Informational Example Item 2

Country	Percent Full Credit
Chinese Taipei	80 (1.9) ⬆
Finland	76 (1.7) ⬆
Russian Federation	74 (1.6) ⬆
² † Hong Kong SAR	73 (2.5) ⬆
Kazakhstan	72 (1.9) ⬆
³ Singapore	70 (1.5) ⬆
Macao SAR	68 (2.1) ⬆
Norway (5)	68 (2.0) ⬆
² Latvia	68 (2.6) ⬆
Ireland	67 (2.1) ⬆
Sweden	66 (2.6) ⬆
Lithuania	64 (2.6) ⬆
Bulgaria	63 (2.6) ⬆
² Denmark	63 (2.5) ⬆
Slovak Republic	62 (2.0) ⬆
Belgium (Flemish)	62 (2.1) ⬆
England	62 (1.9) ⬆
† Netherlands	61 (2.2) ⬆
Czech Republic	61 (2.1) ⬆
Northern Ireland	60 (2.3) ⬆
Hungary	59 (2.4) ⬆
Germany	59 (2.2) ⬆
Italy	58 (2.4) ⬆
Poland	57 (2.1) ⬆
³ Israel	55 (2.1) ⬆
Australia	55 (2.0) ⬆
^{1 2} Canada	55 (1.1) ⬆
Slovenia	55 (2.0) ⬆
² Austria	54 (2.4) ⬆
International Avg.	53 (0.3)
† United States	52 (2.2) ⬆
France	49 (2.5) ⬇
New Zealand	49 (2.2) ⬇
Azerbaijan	45 (2.9) ⬇
² Portugal	44 (2.4) ⬇
¹ Georgia	43 (2.5) ⬇
² Belgium (French)	37 (2.1) ⬇
Trinidad and Tobago	37 (2.0) ⬇
Spain	36 (1.8) ⬇
United Arab Emirates	35 (1.3) ⬇
Bahrain	35 (1.9) ⬇
Chile	35 (2.0) ⬇
² Malta	33 (2.2) ⬇
Iran, Islamic Rep. of	30 (1.9) ⬇
Qatar	28 (1.1) ⬇
Saudi Arabia	27 (2.5) ⬇
Oman	24 (1.7) ⬇
Morocco	10 (1.6) ⬇

Purpose: Acquire and Use Information
Process: Focus on and Retrieve Explicitly Stated Information
Description: Locate and reproduce an explicitly stated detail

8. When does a sea turtle hold its breath for up to 5 hours?

① When it sleeps.

The answer shown illustrates the type of student response that would receive full credit (1 point).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	80 (1.7) ⬆
≡ Quebec, Canada	60 (2.4) ⬆
Norway (4)	54 (2.4) ⬆
Dubai, UAE	50 (2.2) ⬆
Ontario, Canada	50 (2.0) ⬆
² Madrid, Spain	40 (2.1) ⬇
Buenos Aires, Argentina	34 (2.0) ⬇
Andalusia, Spain	32 (2.0) ⬇
Abu Dhabi, UAE	27 (2.3) ⬇
Eng/Afr/Zulu - RSA (5)	17 (1.7) ⬇

⬆ Percent significantly higher than international average
 ⬇ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
 () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.5.9: High International Benchmark – Informational Example Item 3

Country	Percent Full Credit	Purpose: Acquire and Use Information
		Process: Make Straightforward Inferences
		Description: Make a straightforward inference to provide 2 explanations
² † Hong Kong SAR	68 (2.4) ⬆	<p>3. When the hatchling reaches the surface of the sand, what helps her go the right way?</p> <p><input type="checkbox"/> the moonlight</p> <p>What can confuse the hatchlings?</p> <p><input type="checkbox"/> street lights</p> <p>The answer shown illustrates the type of student response that would receive full credit (2 points).</p>
Russian Federation	65 (1.9) ⬆	
Kazakhstan	64 (2.0) ⬆	
³ Singapore	58 (1.8) ⬆	
Finland	57 (1.9) ⬆	
Macao SAR	57 (2.0) ⬆	
Poland	56 (2.2) ⬆	
Chinese Taipei	54 (2.1) ⬆	
Czech Republic	53 (2.0) ⬆	
Sweden	52 (2.4) ⬆	
Australia	51 (1.9) ⬆	
Northern Ireland	51 (2.5) ⬆	
Slovak Republic	51 (2.0) ⬆	
² Austria	50 (2.1) ⬆	
Norway (5)	50 (2.3) ⬆	
Ireland	49 (2.1) ⬆	
Germany	49 (2.4) ⬆	
Bulgaria	49 (2.7) ⬆	
Hungary	48 (2.3) ⬆	
England	48 (1.9) ⬆	
New Zealand	48 (2.1) ⬆	
Lithuania	48 (2.5) ⬆	
Slovenia	45 (2.0) ⬆	
¹ ² Canada	45 (1.7) ⬆	
† Netherlands	44 (2.5)	
³ Israel	44 (2.1)	
Italy	43 (2.1)	
² Denmark	43 (2.3)	
France	42 (1.9)	
Spain	42 (1.6)	
† United States	42 (1.9)	
International Avg.	41 (0.3)	

² Latvia	36 (2.1) ⬇
Chile	33 (1.8) ⬇
Trinidad and Tobago	30 (2.0) ⬇
² Portugal	29 (1.9) ⬇
² Belgium (French)	28 (2.2) ⬇
Belgium (Flemish)	26 (1.7) ⬇
Azerbaijan	26 (2.2) ⬇
Qatar	22 (1.6) ⬇
¹ Georgia	20 (2.0) ⬇
² Malta	19 (1.6) ⬇
Bahrain	19 (1.4) ⬇
United Arab Emirates	18 (1.0) ⬇
Iran, Islamic Rep. of	14 (1.4) ⬇
Oman	13 (1.0) ⬇
Saudi Arabia	11 (1.5) ⬇
Morocco	7 (1.0) ⬇

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	74 (1.8) ⬆
² Madrid, Spain	48 (2.3) ⬆
≡ Quebec, Canada	45 (3.0)
Andalusia, Spain	42 (2.6)
Ontario, Canada	42 (3.1)
Norway (4)	34 (2.2) ⬇
Dubai, UAE	34 (1.2) ⬇
Buenos Aires, Argentina	34 (2.2) ⬇
Abu Dhabi, UAE	12 (1.7) ⬇
Eng/Afr/Zulu - RSA (5)	11 (1.6) ⬇

⬆ Percent significantly higher than international average
 ⬇ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.5.10: High International Benchmark – Informational Example Item 4

Country	Percent Full Credit	
³ Singapore	74 (1.6)	▲
Poland	68 (1.9)	▲
England	68 (1.7)	▲
Australia	67 (1.7)	▲
Chinese Taipei	64 (1.7)	▲
^{1 2} Canada	63 (1.8)	▲
² Latvia	61 (2.0)	▲
† United States	61 (2.4)	▲
Kazakhstan	59 (2.4)	▲
Northern Ireland	59 (2.1)	▲
Slovenia	57 (2.5)	▲
Bulgaria	57 (2.3)	▲
New Zealand	54 (2.0)	▲
Ireland	54 (2.4)	▲
^{2 †} Hong Kong SAR	54 (2.9)	▲
Russian Federation	52 (1.7)	▲
Norway (5)	51 (2.2)	▲
Hungary	51 (2.4)	▲
² Denmark	51 (2.3)	
Lithuania	51 (2.5)	
Slovak Republic	49 (2.1)	
† Netherlands	49 (1.7)	
Macao SAR	49 (2.3)	
Finland	47 (2.0)	
International Avg.	47 (0.3)	
Trinidad and Tobago	46 (2.2)	
Czech Republic	45 (2.1)	
Italy	45 (2.4)	
² Belgium (French)	44 (1.9)	
¹ Georgia	44 (2.6)	
Germany	42 (2.5)	▼
Belgium (Flemish)	42 (2.4)	▼
Bahrain	41 (1.8)	▼
United Arab Emirates	41 (1.3)	▼
² Portugal	41 (2.0)	▼
³ Israel	39 (2.0)	▼
Azerbaijan	39 (2.5)	▼
² Austria	39 (2.3)	▼
Qatar	38 (1.2)	▼
France	35 (2.0)	▼
Chile	34 (2.2)	▼
Spain	34 (2.1)	▼
Oman	33 (1.8)	▼
² Malta	31 (1.8)	▼
Sweden	30 (2.2)	▼
Saudi Arabia	28 (2.2)	▼
Morocco	13 (1.7)	▼
Iran, Islamic Rep. of	11 (1.4)	▼

Purpose: Acquire and Use Information
Process: Evaluate and Critique Content and Textual Elements
Description: Evaluate the content of a diagram and interpret its meaning

14. A diagram from the article is shown below.
What does this diagram help you to understand?

① what all the parts of the life cycle are

The answer shown illustrates the type of student response that would receive full credit (1 point).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	72 (1.7) ▲
Ontario, Canada	64 (2.9) ▲
Dubai, UAE	59 (1.4) ▲
≡ Quebec, Canada	55 (3.3) ▲
² Madrid, Spain	41 (2.2) ▼
Norway (4)	35 (2.3) ▼
Andalusia, Spain	34 (2.0) ▼
Abu Dhabi, UAE	29 (1.9) ▼
Buenos Aires, Argentina	23 (1.8) ▼
Eng/Afr/Zulu - RSA (5)	18 (1.7) ▼

▲ Percent significantly higher than international average
▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.6: Advanced International Benchmark (625)

Exhibit 2.6 describes the reading comprehension skills and strategies demonstrated by fourth grade students at the Advanced International Benchmark. Students at the Advanced International Benchmark can take the entire text into account to provide full text-based support for their interpretations and explanations. They are able to evaluate the effect of the author's choices and visual elements.

Exhibits 2.6.1 through 2.6.8 contain examples of the types of items successfully answered by students achieving at the Advanced International Benchmark, two based on the literary text “Flowers on the Roof,” two based on the literary text “Macy,” and four based on the informational text “The Green Sea Turtle’s Journey” (see Appendix H). It can be seen that these items answered correctly by Advanced readers (50% or more of them) were very difficult for students internationally. Each exhibit shows achievement results for the countries that participated in PIRLS (and PIRLS Literacy for “Flowers on the Roof”), with up and down arrows indicating a significantly higher or lower percentage of success than the international average. The reading purpose, comprehension process, and scale anchoring description are provided above the item. For multiple-choice items, the correct response is indicated. Constructed response questions were worth 1, 2, or 3 points. Each constructed response item is shown with an illustrative student response and the amount of credit awarded the response is shown across the bottom of the exhibit, usually full credit.

Example Items 2.6.1 and 2.6.2 are based on students integrating information across “Flowers on the Roof” to fully answer constructed response questions, first to interpret and explain how a character’s actions reflected her feelings and second to explain how feelings changed across the story. Example Item 2.6.3 asked students to integrate ideas across the “Macy” story to describe what she was like and give two examples, which was a challenge for the Advanced readers such that the item actually was a little too difficult to anchor and illustrates their boundaries. Example Item 2.6.4 illustrates how students at the Advanced International Benchmark were able to evaluate text, in this case to explain why an alternative title would be better.

Example Items 2.6.5, 2.6.6, and 2.6.7 (which just missed anchoring) illustrate that fourth grade readers at the Advanced International Benchmark can distinguish and integrate information across a relatively complex scientific text. In particular, the second two examples require students to interpret and integrate information to provide a full explanation. Example Item 2.6.8 asks students to evaluate the text about “The Green Sea Turtle’s Journey” from the writer’s point of view. Indeed, the fourth grade students performing at the Advanced International Benchmark are accomplished readers.

Exhibit 2.6: Description of the PIRLS 2016 Advanced International Benchmark (625) of Reading Achievement● **Advanced** International Benchmark

625

*When reading relatively complex **Literary Texts**, students can:*

- Interpret story events and character actions to describe reasons, motivations, feelings, and character development with full text-based support
- Begin to evaluate the effect on the reader of the author's language and style choices

*When reading relatively complex **Informational Texts**, students can:*

- Distinguish and interpret complex information from different parts of text, and provide full text-based support
- Integrate information across a text to explain relationships and sequence activities
- Begin to evaluate visual and textual elements to consider the author's point of view

Exhibit 2.6.1: Advanced International Benchmark – Literary Example Item 1

Country	Percent Full Credit
Norway (5)	59 (1.6) ●
Ireland	52 (2.5) ●
Russian Federation	52 (2.0) ●
² Austria	51 (2.0) ●
Northern Ireland	50 (2.1) ●
Hungary	50 (2.2) ●
Germany	50 (2.1) ●
Italy	49 (2.0) ●
² Latvia	49 (2.3) ●
Australia	46 (2.0) ●
² Denmark	45 (2.0) ●
Slovak Republic	45 (2.1) ●
Poland	44 (2.1) ●
[†] Netherlands	43 (2.3) ●
[†] United States	42 (2.3) ●
New Zealand	42 (1.8) ●
England	42 (1.8) ●
² Portugal	41 (1.7) ●
^{1 2} Canada	41 (1.3) ●
Sweden	41 (2.0) ●
Spain	41 (1.4) ●
² Belgium (French)	40 (1.7) ●
France	40 (2.3) ●
Belgium (Flemish)	40 (1.7) ●
Czech Republic	38 (1.7) ●
Bulgaria	38 (2.0) ●
¹ Georgia	37 (2.4)
³ Israel	37 (1.9)
Lithuania	37 (2.0)
Finland	34 (1.9)
International Avg.	34 (0.3)
Macao SAR	31 (1.7) ▼
Chinese Taipei	30 (1.8) ▼
Slovenia	29 (1.9) ▼
³ Singapore	27 (1.6) ▼
Chile	27 (1.9) ▼
Azerbaijan	27 (1.6) ▼
^{2 †} Hong Kong SAR	26 (2.2) ▼
Kazakhstan	24 (1.8) ▼
² Malta	23 (1.7) ▼
Iran, Islamic Rep. of	22 (1.6) ▼
Trinidad and Tobago	20 (1.7) ▼
Saudi Arabia	14 (1.6) ▼
Qatar	14 (0.9) ▼
United Arab Emirates	13 (0.8) ▼
Bahrain	13 (1.2) ▼
Oman	12 (1.3) ▼
Kuwait	7 (1.2) ▼
Morocco	5 (0.7) ▼
South Africa	4 (0.7) ▼
Egypt	2 (0.5) ▼

Purpose: Literary Experience
Process: Interpret and Integrate Ideas and Information
Description: Integrate ideas across text to interpret the character's feelings about the setting

7. When Granny Gunn was on the balcony, she crouched down so that she could not see any of the rooftops—only the mountains and the sky. Why did she do this?

She could easily imagine that the mountains were those that were near her farm.

The answer shown illustrates the type of student response that would receive full credit (2 points).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	60 (2.2) ●
Norway (4)	48 (2.2) ●
² Madrid, Spain	46 (2.4) ●
Ontario, Canada	41 (2.8) ●
Andalusia, Spain	39 (1.9) ●
≡ Quebec, Canada	37 (2.2)
Buenos Aires, Argentina	27 (2.3) ▼
² Denmark (3)	27 (1.7) ▼
Dubai, UAE	22 (1.4) ▼
Eng/Afr/Zulu - RSA (5)	10 (1.5) ▼
Abu Dhabi, UAE	9 (1.3) ▼

● Percent significantly higher than international average
 ▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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


SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.6.2: Advanced International Benchmark – Literary Example Item 2

Country	Percent Full Credit
Slovenia	47 (2.1) ⬆
² Latvia	44 (2.3) ⬆
² † Hong Kong SAR	43 (2.8) ⬆
Ireland	41 (1.9) ⬆
Germany	40 (2.2) ⬆
Bulgaria	40 (2.4) ⬆
Sweden	40 (2.6) ⬆
Russian Federation	38 (2.0) ⬆
² Austria	38 (2.2) ⬆
Norway (5)	38 (2.5) ⬆
² Denmark	37 (2.3) ⬆
Poland	36 (1.9) ⬆
England	36 (1.7) ⬆
Macao SAR	35 (1.7) ⬆
Northern Ireland	34 (1.9) ⬆
³ Israel	33 (2.3) ⬆
² Portugal	33 (1.7) ⬆
³ Singapore	32 (1.7) ⬆
Slovak Republic	32 (2.0) ⬆
Hungary	32 (1.8) ⬆
¹ ² Canada	31 (1.3) ⬆
Spain	30 (1.6) ⬆
† United States	30 (2.1) ⬆
Australia	30 (1.7) ⬆
Chinese Taipei	28 (2.1)
Italy	27 (2.1)
Lithuania	27 (1.8)
International Avg.	26 (0.3)
Kazakhstan	25 (1.9)
New Zealand	24 (1.4)
† Netherlands	24 (1.8)
Finland	22 (1.8) ⬇
¹ Georgia	22 (1.7) ⬇
² Malta	19 (1.5) ⬇
France	18 (1.7) ⬇
Czech Republic	18 (1.6) ⬇
Belgium (Flemish)	17 (1.6) ⬇
United Arab Emirates	16 (0.9) ⬇
Bahrain	16 (1.4) ⬇
Saudi Arabia	16 (1.5) ⬇
² Belgium (French)	16 (1.5) ⬇
Qatar	15 (1.2) ⬇
Trinidad and Tobago	14 (1.6) ⬇
Chile	13 (1.6) ⬇
Oman	10 (1.1) ⬇
Kuwait	9 (1.1) ⬇
Egypt	8 (0.8) ⬇
Iran, Islamic Rep. of	8 (1.1) ⬇
Azerbaijan	6 (1.1) ⬇
Morocco	5 (0.7) ⬇
South Africa	4 (0.7) ⬇

Purpose: Literary Experience
Process: Interpret and Integrate Ideas and Information
Description: Interpret a change in the narrator’s feelings between the beginning and the end of the story

12. What were the little boy’s feelings about Granny Gunn when she first moved in and at the end of the story? Use what you have read to describe each feeling and explain why his feelings changed.

 The little boy was disappointed because he was hoping that kids would move in, but his opinion changed because he saw that she could do anything.

The answer shown illustrates the type of student response that would receive full credit (2 points).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	57 (2.3) ⬆
² Madrid, Spain	41 (2.5) ⬆
Ontario, Canada	39 (2.8) ⬆
Dubai, UAE	29 (1.8)
Norway (4)	27 (1.9)
Andalusia, Spain	24 (1.9)
Buenos Aires, Argentina	20 (1.7) ⬇
² Denmark (3)	19 (1.4) ⬇
≡ Quebec, Canada	14 (1.7) ⬇
Abu Dhabi, UAE	12 (1.4) ⬇
Eng/Afr/Zulu - RSA (5)	9 (1.7) ⬇

⬆ Percent significantly higher than international average
 ⬇ Percent significantly lower than international average

This item was designed to have a maximum of three points but was reduced to two points following item review.
 See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
 () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016


Exhibit 2.6.3: Advanced International Benchmark – Literary Example Item 3

Country	Percent Full Credit	
Hungary	34 (2.3)	▲
Poland	32 (2.2)	▲
³ Singapore	32 (1.7)	▲
² † Hong Kong SAR	29 (2.4)	▲
England	29 (1.6)	▲
Australia	29 (2.0)	▲
Ireland	28 (2.6)	▲
Northern Ireland	25 (2.1)	▲
† United States	25 (1.9)	▲
² Latvia	25 (2.0)	▲
Russian Federation	24 (1.7)	▲
¹ ² Canada	23 (1.4)	▲
Spain	21 (1.1)	▲
³ Israel	20 (1.7)	▲
Chinese Taipei	19 (1.6)	▲
Norway (5)	19 (1.7)	▲
Bulgaria	18 (1.9)	▲
New Zealand	18 (1.4)	▲
Finland	16 (1.8)	
Italy	16 (1.7)	
Lithuania	15 (1.7)	
International Avg.	15 (0.2)	
Sweden	13 (1.6)	
Germany	13 (1.5)	
Chile	13 (1.4)	
¹ Georgia	12 (1.5)	
Slovak Republic	12 (1.1)	▼
† Netherlands	11 (1.4)	▼
Kazakhstan	11 (1.4)	▼
Czech Republic	11 (1.2)	▼
² Portugal	10 (1.4)	▼
Trinidad and Tobago	9 (1.1)	▼
² Denmark	8 (1.1)	▼
² Austria	7 (1.4)	▼
United Arab Emirates	7 (0.6)	▼
Slovenia	6 (0.9)	▼
Macao SAR	6 (1.1)	▼
Bahrain	6 (0.9)	▼
² Belgium (French)	6 (1.0)	▼
Qatar	6 (0.6)	▼
² Malta	5 (0.9)	▼
Oman	5 (0.7)	▼
Belgium (Flemish)	4 (0.8)	▼
France	4 (0.8)	▼
Azerbaijan	2 (0.7)	▼
Saudi Arabia	1 (0.6)	▼
Iran, Islamic Rep. of	1 (0.3)	▼
Morocco	0 (0.0)	▼

Purpose: Literary Experience
Process: Interpret and Integrate Ideas and Information
Description: Interpret ideas from across the text to identify a character trait and support it with 2 examples

13. You learn what Macy is like from the things she does.

Describe what Macy is like and give two examples from the story that show this.

 Macy is determined because she does not give up when the red hen is naughty and she continues to try different ways to get the hen in the cage.

The answer shown illustrates the type of student response that would receive full credit (3 points).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	38 (1.7) ▲
² Madrid, Spain	31 (2.2) ▲
Ontario, Canada	25 (2.7) ▲
≡ Quebec, Canada	21 (2.0) ▲
Andalusia, Spain	20 (1.9) ▲
Dubai, UAE	14 (1.1)
Norway (4)	11 (1.3) ▼
Abu Dhabi, UAE	5 (1.1) ▼
Buenos Aires, Argentina	3 (0.9) ▼
Eng/Afr/Zulu - RSA (5)	1 (0.5) ▼

▲ Percent significantly higher than international average
 ▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.6.4: Advanced International Benchmark – Literary Example Item 4

Country	Percent Full Credit
Poland	70 (2.1) ⬆
³ Singapore	62 (1.6) ⬆
Ireland	55 (2.3) ⬆
[†] United States	55 (2.1) ⬆
Northern Ireland	53 (2.3) ⬆
England	53 (1.8) ⬆
Australia	52 (1.9) ⬆
Russian Federation	51 (2.3) ⬆
Lithuania	51 (2.6) ⬆
^{1 2} Canada	49 (1.6) ⬆
Bulgaria	48 (2.6) ⬆
Finland	45 (2.1) ⬆
² Latvia	45 (2.4) ⬆
Slovak Republic	44 (2.1) ⬆
Kazakhstan	43 (1.9) ⬆
Germany	43 (2.1) ⬆
Hungary	42 (2.5) ⬆
^{2 †} Hong Kong SAR	41 (2.4) ⬆
Slovenia	41 (2.6) ⬆
Norway (5)	41 (2.4) ⬆
Chinese Taipei	37 (2.2)
² Austria	37 (2.3)
³ Israel	36 (2.0)
International Avg.	34 (0.3)
Italy	34 (2.2)
[†] Netherlands	33 (2.1)
² Portugal	31 (2.1)
New Zealand	31 (1.7)
² Belgium (French)	30 (1.9) ⬇
Spain	25 (1.2) ⬇
Sweden	24 (2.0) ⬇
² Denmark	24 (2.0) ⬇
Trinidad and Tobago	24 (1.9) ⬇
Czech Republic	23 (1.8) ⬇
Bahrain	23 (1.4) ⬇
Belgium (Flemish)	23 (1.8) ⬇
Macao SAR	23 (1.6) ⬇
¹ Georgia	22 (2.1) ⬇
United Arab Emirates	21 (1.1) ⬇
Chile	20 (1.6) ⬇
Azerbaijan	19 (1.9) ⬇
Qatar	19 (1.0) ⬇
France	19 (1.9) ⬇
Oman	17 (1.5) ⬇
² Malta	16 (1.5) ⬇
Iran, Islamic Rep. of	15 (1.8) ⬇
Saudi Arabia	8 (1.5) ⬇
Morocco	3 (0.7) ⬇

Purpose: Literary Experience
Process: Evaluate and Critique Content and Textual Elements
Description: Evaluate story events and character actions to explain why an alternative, given title would be appropriate

16. Why would “Macy Finds a Way” be good as a different title for this story?

Give one reason.

① She did find a way to make the hen do what she wanted.

The answer shown illustrates the type of student response that would receive full credit (1 point).

Country	Percent Full Credit
Benchmarking Participants	
Ontario, Canada	52 (3.0) ⬆
Moscow City, Russian Fed.	52 (2.1) ⬆
Dubai, UAE	40 (1.2) ⬆
≡ Quebec, Canada	37 (2.5)
Buenos Aires, Argentina	31 (2.2)
² Madrid, Spain	28 (1.7) ⬇
Norway (4)	26 (2.1) ⬇
Andalusia, Spain	25 (1.8) ⬇
Abu Dhabi, UAE	14 (1.6) ⬇
Eng/Afr/Zulu - RSA (5)	14 (1.8) ⬇

⬆ Percent significantly higher than international average
 ⬇ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.6.5: Advanced International Benchmark – Informational Example Item 1

Country	Percent Correct
³ Singapore	67 (1.7) ▲
Russian Federation	61 (2.0) ▲
[†] Netherlands	60 (2.4) ▲
Sweden	59 (2.1) ▲
Bulgaria	59 (2.6) ▲
Finland	59 (2.1) ▲
Slovak Republic	58 (2.1) ▲
² Latvia	57 (1.9) ▲
Czech Republic	55 (2.0) ▲
Chinese Taipei	55 (2.1) ▲
Australia	55 (2.0) ▲
Hungary	55 (2.1) ▲
Lithuania	54 (2.2) ▲
Norway (5)	53 (2.2) ▲
Poland	53 (2.4) ▲
² Denmark	52 (2.8) ▲
Ireland	52 (2.1) ▲
Germany	50 (2.3) ▲
Belgium (Flemish)	50 (2.0) ▲
England	50 (1.9) ▲
Italy	50 (2.3) ▲
[†] United States	49 (2.2) ▲
Northern Ireland	49 (2.4)
Kazakhstan	49 (2.0) ▲
^{1 2} Canada	49 (1.6) ▲
² Portugal	47 (2.3)
² Austria	47 (2.1)
New Zealand	46 (2.0)
³ Israel	46 (1.9)
Slovenia	45 (2.3)
International Avg.	45 (0.3)
France	44 (2.1)
^{2 †} Hong Kong SAR	43 (2.1)
Chile	39 (1.9) ▼
¹ Georgia	38 (2.3) ▼
Spain	37 (1.6) ▼
Macao SAR	34 (2.0) ▼
United Arab Emirates	33 (1.3) ▼
² Belgium (French)	32 (1.9) ▼
Trinidad and Tobago	30 (2.1) ▼
Qatar	29 (1.3) ▼
² Malta	25 (1.7) ▼
Azerbaijan	25 (2.3) ▼
Bahrain	24 (1.9) ▼
Oman	22 (1.4) ▼
Saudi Arabia	19 (1.9) ▼
Iran, Islamic Rep. of	18 (2.0) ▼
Morocco	17 (1.6) ▼

Purpose: Acquire and Use Information
Process: Make Straightforward Inferences
Description: Distinguish relevant information and make an inference about a scientific question

13. Which activity in an adult female green sea turtle's life is not fully understood by scientists?

- (A) how she can swim over 600 miles
- (B) how she makes a nest for her eggs
- (C) how she avoids being eaten by predators
- how she finds the right beach to lay her eggs

Country	Percent Correct
Benchmarking Participants	
Moscow City, Russian Fed.	68 (1.8) ▲
Ontario, Canada	47 (2.5)
≡ Quebec, Canada	47 (2.6)
Dubai, UAE	47 (1.7)
² Madrid, Spain	45 (2.1)
Norway (4)	43 (2.2)
Andalusia, Spain	37 (2.2) ▼
Buenos Aires, Argentina	31 (2.3) ▼
Abu Dhabi, UAE	28 (2.2) ▼
Eng/Afr/Zulu - RSA (5)	22 (1.6) ▼

▲ Percent significantly higher than international average
▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.6.6: Advanced International Benchmark – Informational Example Item 2


Country	Percent Full Credit
Chinese Taipei	45 (2.3) ●
Ireland	44 (2.4) ●
Russian Federation	39 (2.0) ●
† United States	38 (2.7) ●
Northern Ireland	37 (2.0) ●
England	37 (1.7) ●
Sweden	36 (2.2) ●
^{1 2} Canada	36 (1.4) ●
New Zealand	33 (1.7) ●
Australia	32 (1.9) ●
Norway (5)	31 (1.8) ●
^{2 †} Hong Kong SAR	31 (2.0) ●
Bulgaria	29 (1.9) ●
Finland	29 (1.7) ●
Kazakhstan	29 (2.2) ●
Hungary	27 (1.9) ●
† Netherlands	27 (1.7) ●
Italy	25 (2.1) ●
Germany	24 (1.6) ●
² Latvia	24 (2.0) ●
² Austria	23 (1.9) ●
Macao SAR	23 (1.7) ●
Slovak Republic	23 (1.6) ●
International Avg.	22 (0.3)
Czech Republic	22 (1.6) ●
Poland	22 (1.8) ●
Lithuania	22 (2.2) ●
Spain	22 (1.5) ●
² Denmark	21 (1.9) ●
Slovenia	19 (1.9) ●
² Portugal	19 (1.5) ●
France	18 (1.7) ●
³ Israel	17 (1.5) ●
Belgium (Flemish)	17 (1.7) ●
Trinidad and Tobago	17 (1.5) ●
United Arab Emirates	15 (1.2) ●
Azerbaijan	14 (1.7) ●
Qatar	12 (1.0) ●
² Belgium (French)	12 (1.3) ●
¹ Georgia	9 (1.5) ●
Oman	9 (1.2) ●
² Malta	7 (1.0) ●
Saudi Arabia	6 (1.3) ●
Iran, Islamic Rep. of	5 (1.1) ●
Bahrain	1 (0.4) ●
Chile	0 (0.1) ●
Morocco	0 (0.0) ●
³ Singapore	- -

Purpose: Acquire and Use Information
Process: Interpret and Integrate Ideas and Information
Description: Distinguish and integrate information from across different sections to fully complete a table (5 of 5 entries)

11. What information does the article provide about the sea turtle's size and food at each stage of its life?

Complete the table below.

Three have been done for you.



Stage of life	Size	Food
egg	golf ball	The egg has its own food.
hatchling	walnut	shrimp
juvenile	dinner plate	algae
adult	3 feet	algae and sea grass

The answer shown illustrates the type of student response that would receive full credit (3 points).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	45 (1.8) ●
Ontario, Canada	36 (2.3) ●
≡ Quebec, Canada	32 (2.7) ●
² Madrid, Spain	32 (1.9) ●
Dubai, UAE	27 (1.5) ●
Andalusia, Spain	21 (1.9) ●
Norway (4)	17 (1.5) ●
Buenos Aires, Argentina	12 (1.6) ●
Abu Dhabi, UAE	9 (1.5) ●
Eng/Afr/Zulu - RSA (5)	4 (1.0) ●

● Percent significantly higher than international average
 ● Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
 () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
 A dash (-) indicates comparable data not available.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.6.7: Advanced International Benchmark – Informational Example Item 3

Country	Percent Full Credit
Kazakhstan	48 (2.4) ●
³ Singapore	48 (1.7) ●
Russian Federation	44 (2.0) ●
Hungary	41 (2.6) ●
Finland	41 (2.2) ●
Poland	37 (2.6) ●
Lithuania	36 (2.4) ●
Czech Republic	35 (1.7) ●
^{2 †} Hong Kong SAR	35 (2.3) ●
Italy	35 (2.1) ●
Slovak Republic	34 (2.0) ●
England	34 (1.8) ●
Northern Ireland	33 (2.1) ●
Bulgaria	32 (2.1) ●
Germany	32 (2.3) ●
Chinese Taipei	31 (2.0) ●
Norway (5)	31 (2.0) ●
Slovenia	31 (2.1) ●
² Latvia	30 (2.0) ●
Sweden	29 (2.4) ●
³ Israel	29 (1.9) ●
² Denmark	28 (2.2) ●
^{1 2} Canada	27 (1.4) ●
Ireland	26 (1.8) ●
International Avg.	25 (0.3)
Australia	24 (1.8) ●
[†] United States	24 (2.0) ●
² Austria	23 (2.2) ●
Spain	22 (1.2) ▼
² Portugal	22 (1.8) ●
New Zealand	21 (1.6) ▼
Macao SAR	20 (1.6) ▼
Saudi Arabia	19 (2.0) ▼
Belgium (Flemish)	19 (1.6) ▼
France	16 (1.6) ▼
² Belgium (French)	15 (1.5) ▼
Azerbaijan	14 (1.7) ▼
Trinidad and Tobago	13 (1.7) ▼
Qatar	13 (1.2) ▼
Oman	12 (1.1) ▼
¹ Georgia	11 (1.7) ▼
United Arab Emirates	11 (0.7) ▼
[†] Netherlands	11 (1.4) ▼
Bahrain	9 (1.4) ▼
² Malta	7 (1.2) ▼
Iran, Islamic Rep. of	6 (1.2) ▼
Chile	6 (0.9) ▼
Morocco	1 (0.5) ▼

Purpose: Acquire and Use Information
Process: Interpret and Integrate Ideas and Information
Description: Integrate ideas to provide 2 explanations

7. The color of a hatchling's shell protects it from predators.

Give a way it is protected from birds.

The dark color of the top part blends in with the water when viewed above.

Give a way it is protected from sharks.

The bottom is white so sharks may not spot her in the sunlight

The answer shown illustrates the type of student response that would receive full credit (2 points).

Country	Percent Full Credit
Benchmarking Participants	
Moscow City, Russian Fed.	54 (2.1) ●
Ontario, Canada	28 (2.5) ●
² Madrid, Spain	28 (2.2) ●
≡ Quebec, Canada	24 (2.2) ●
Andalusia, Spain	21 (1.6) ▼
Norway (4)	21 (1.9) ▼
Dubai, UAE	20 (1.5) ▼
Buenos Aires, Argentina	14 (1.7) ▼
Abu Dhabi, UAE	7 (1.1) ▼
Eng/Afr/Zulu - RSA (5)	4 (1.0) ▼

● Percent significantly higher than international average
▼ Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 2.6.8: Advanced International Benchmark – Informational Example Item 4

Country	Percent Correct
² Latvia	67 (2.1)
[†] United States	64 (2.1)
³ Singapore	64 (1.7)
Poland	63 (2.0)
Russian Federation	62 (2.2)
Ireland	62 (2.2)
Bulgaria	61 (2.4)
England	60 (2.0)
Kazakhstan	60 (2.1)
Northern Ireland	60 (2.4)
[†] Netherlands	59 (2.3)
Finland	59 (2.0)
^{2 †} Hong Kong SAR	58 (2.6)
² Denmark	58 (2.7)
Australia	57 (1.6)
Norway (5)	56 (2.2)
Hungary	56 (2.3)
Belgium (Flemish)	54 (1.9)
Germany	53 (2.4)
Sweden	53 (2.3)
New Zealand	51 (2.2)
Lithuania	51 (2.5)
^{1 2} Canada	51 (1.7)
² Austria	50 (2.6)
Czech Republic	49 (2.2)
International Avg.	49 (0.3)
³ Israel	45 (2.0)
Macao SAR	45 (2.2)
Slovak Republic	45 (2.1)
² Belgium (French)	44 (2.1)
Italy	44 (2.3)
Chinese Taipei	43 (2.0)
¹ Georgia	42 (2.3)
United Arab Emirates	42 (1.3)
Chile	40 (2.1)
Saudi Arabia	40 (2.2)
Azerbaijan	39 (2.5)
Qatar	39 (1.5)
Spain	38 (1.4)
Bahrain	38 (1.6)
France	36 (2.2)
Oman	35 (1.6)
² Portugal	35 (1.8)
Slovenia	34 (2.2)
Trinidad and Tobago	31 (1.9)
Morocco	23 (2.2)
Iran, Islamic Rep. of	22 (2.4)
² Malta	- -

Purpose: Acquire and Use Information
Process: Evaluate and Critique Content and Textual Elements
Description: Evaluate textual elements and content to recognize how they exemplify the writer's point of view

15. How does the writer show you that the green sea turtle is special?

(A) by asking you to help to save it

(B) by telling you the amazing things it does

(C) by describing how beautiful it looks

(D) by warning you that few turtles are still alive today

Country	Percent Correct
Benchmarking Participants	
Moscow City, Russian Fed.	64 (2.2)
Dubai, UAE	55 (1.7)
≡ Quebec, Canada	51 (2.8)
Ontario, Canada	49 (3.2)
Norway (4)	43 (2.1)
² Madrid, Spain	40 (2.3)
Andalusia, Spain	36 (2.0)
Abu Dhabi, UAE	34 (2.0)
Buenos Aires, Argentina	33 (2.0)
Eng/Afr/Zulu - RSA (5)	28 (2.1)

Percent significantly higher than international average
 Percent significantly lower than international average

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and participation notes †, ‡, and ≡.

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

A dash (-) indicates comparable data not available.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

PIRLS
2016

**CHAPTER 3:
ACHIEVEMENT IN
READING PURPOSES
AND COMPREHENSION
PROCESSES**

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016



IEA

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Achievement by Reading Purposes

PIRLS provided results at the fourth grade for two reading purposes — Literary and Informational. Most countries demonstrated a relative strength in one of the purposes, often accompanied by a relative weakness in the other purpose.

PIRLS 2016: 50 Countries

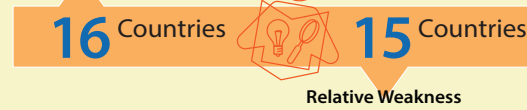
Literary

Relative Strength

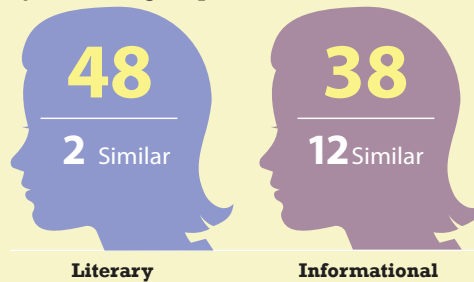


Informational

Relative Strength



Number of Countries Where Girls Outperformed Boys in Reading Purposes

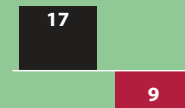


Trends 2011–2016:
41 Countries

Countries Improved | Countries Declined



Informational

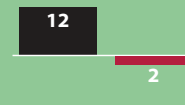


Trends 2011–2016:
20 Countries

Countries Improved | Countries Declined



Informational



Achievement by Comprehension Processes

PIRLS provided results at the fourth grade for two comprehension processes — Retrieving/Straightforward Inferencing and Interpreting/Integrating/Evaluating. Most countries demonstrated a relative strength in one of the processes, often accompanied by a relative weakness in the other process.

PIRLS 2016: 50 Countries

Retrieving and Inferencing

Relative Strength

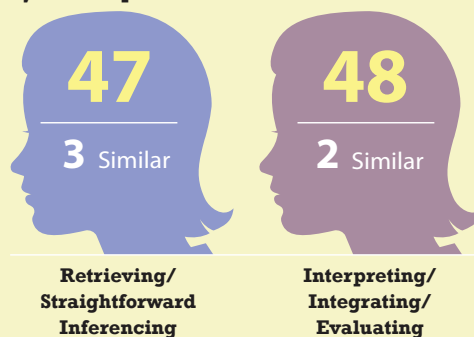


Interpreting and Integrating

Relative Strength



Number of Countries Where Girls Outperformed Boys in Comprehension Processes

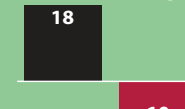


Trends 2011–2016:
41 Countries

Countries Improved | Countries Declined

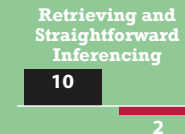


Interpreting, Integrating, and Evaluating

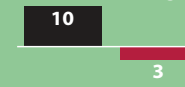


Trends 2011–2016:
20 Countries

Countries Improved | Countries Declined



Interpreting, Integrating, and Evaluating



CHAPTER 3

Achievement in Reading Purposes and Comprehension Processes

Exhibit 3.1: Achievement in Reading Purposes

The *PIRLS 2016 Assessment Framework* focuses on two overarching purposes for reading that account for most of the reading done by young students both in and out of school: for literary experience, and to acquire and use information.

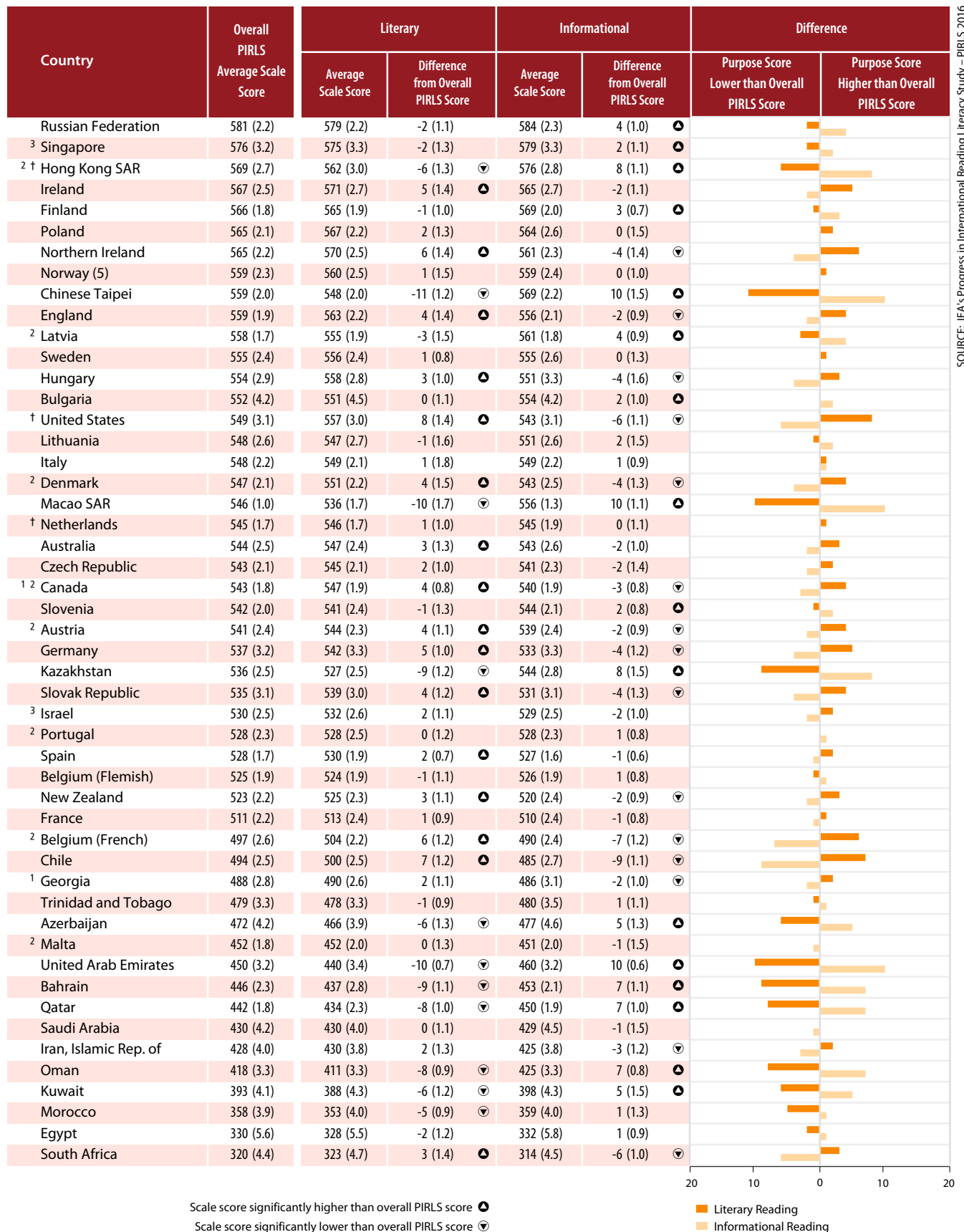
In literary reading, readers engage with the text to become involved in events, settings, actions, consequences, characters, atmosphere, feeling, and ideas as well as to enjoy language itself. The PIRLS and PIRLS Literacy assessments use narrative fiction as the main form of literary texts because it works well in an international context. For example, given the differences in languages and curricula across the participating countries, it is difficult for PIRLS to include poetry because it is difficult to translate and plays are not widely taught in the primary grades.

Informational texts are both written and read for a wide variety of functions. While the primary function of informational text is to provide information, writers often address the subject matter with different objectives and perspectives. Many informational texts are straightforward presentations of facts, but they also can be subjective such as an argument or expository essay. Informational texts often contain information presented via lists, charts, graphs, and diagrams. In addition, words need not be in the form of continuous text and may be in sidebars, timelines, text boxes, or other various forms of depicting information.

Exhibit 3.1 presents the fourth grade reading achievement results for the two reading purposes assessed by PIRLS 2016—literary and informational. To examine relative performance in the purposes, PIRLS used item response theory (IRT) scaling to place achievement in the two purposes on the PIRLS 2016 achievement scale. Exhibit 3.1 provides the overall average PIRLS achievement score from Exhibit 1.1, as well as the average scale score for each purpose together with the difference between reading achievement overall and achievement in the purpose. Up and down arrows are used to indicate whether a country's average score in a purpose is significantly higher or lower than its overall PIRLS average score. Generally, the higher performing countries overall had higher achievement in the purposes and the lower performing countries had lower achievement. However, most countries demonstrated a relative strength in one of the purposes, often accompanied by a relative weakness in the other purpose. Sixteen countries performed higher in literary reading than

on PIRLS overall, and 11 countries performed lower than they did overall. Similarly, 16 countries had higher achievement in informational reading than on PIRLS overall, while 15 countries had lower results. Often (in 23 countries) a strength in literary reading was accompanied by a weakness in informational reading or vice versa, but not always. Some countries had only a strength or weakness in one purpose for reading or the other.

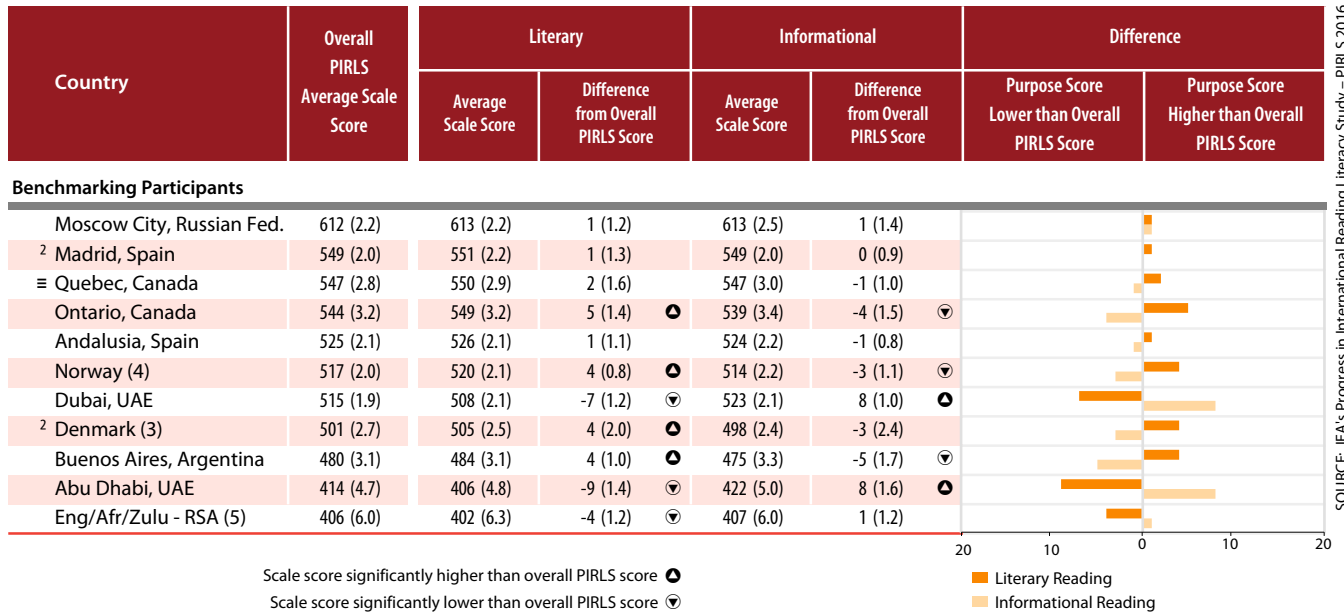
Exhibit 3.1: Achievement in Reading Purposes



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ¶. () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 3.1: Achievement in Reading Purposes (Continued)



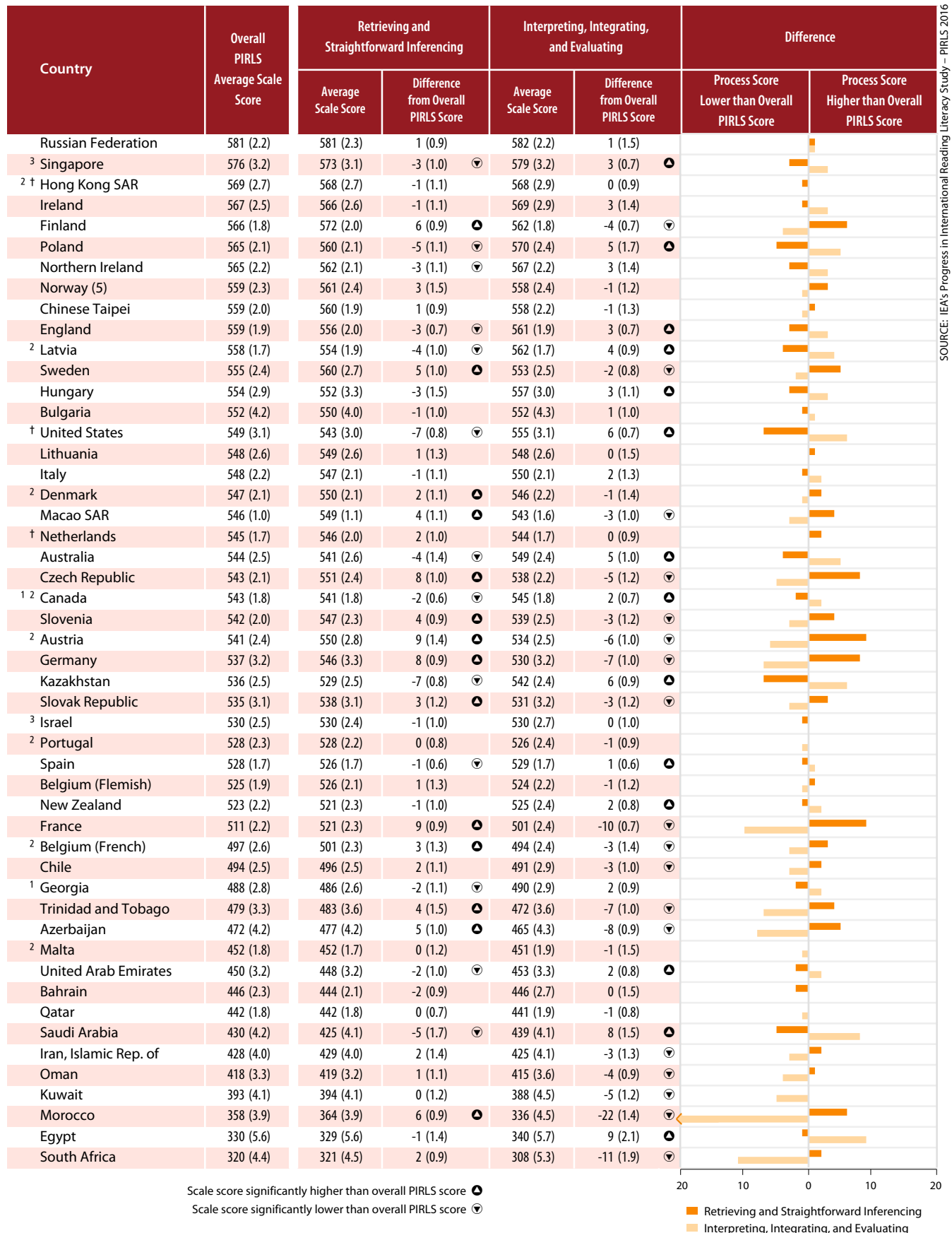
SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.2: Achievement in Comprehension Processes

The *PIRLS 2016 Assessment Framework* integrates four broad-based comprehension processes within each of the two purposes for reading: focus on and retrieve explicitly stated information, make straightforward inferences, interpret and integrate ideas and information, and evaluate and critique content and textual elements. To summarize fourth grade achievement across countries for the comprehension processes, Exhibit 3.2 presents results for two scales—each encompassing two of the four processes. The Retrieving and Straightforward Inferencing scale includes items assessing the retrieval process (20% of the assessment) and those assessing straightforward inferencing (30%). The Interpreting, Integrating, and Evaluating scale combines the interpreting and integrating process items (30%) with the evaluating and critiquing content items (20%).

To examine relative performance on the two process scales, PIRLS used item response theory (IRT) scaling to place achievement in each of the two processes on the PIRLS 2016 achievement scale. Exhibit 3.2 shows the overall average PIRLS achievement as well as the average scale score for each process with the difference between reading achievement overall and achievement in the process. Up and down arrows are used to indicate whether a country's average score for a process is significantly higher or lower than its overall PIRLS average score. Generally, the higher performing countries overall had higher achievement in the reading comprehension processes and the lower performing countries had lower achievement. Nevertheless, most countries had a relative strength in one process or the other. The results within countries indicate that fourth grade students in the same number of countries had a relative strength in retrieving/straightforward inferencing as they did in interpreting/integrating/evaluating. Interestingly, fourth graders in fewer countries had a relative weakness in retrieving/straightforward inferencing compared with the number of countries with a relative weakness in interpreting/integrating/evaluating. Across the countries, the results show that 14 countries performed higher on the Retrieving and Straightforward Inferencing scale than on PIRLS overall, and 13 countries had lower achievement on that scale than they did overall. In comparison, 14 countries had higher achievement on the Interpreting, Integrating, and Evaluating scale than on PIRLS overall, while 18 countries had lower results.

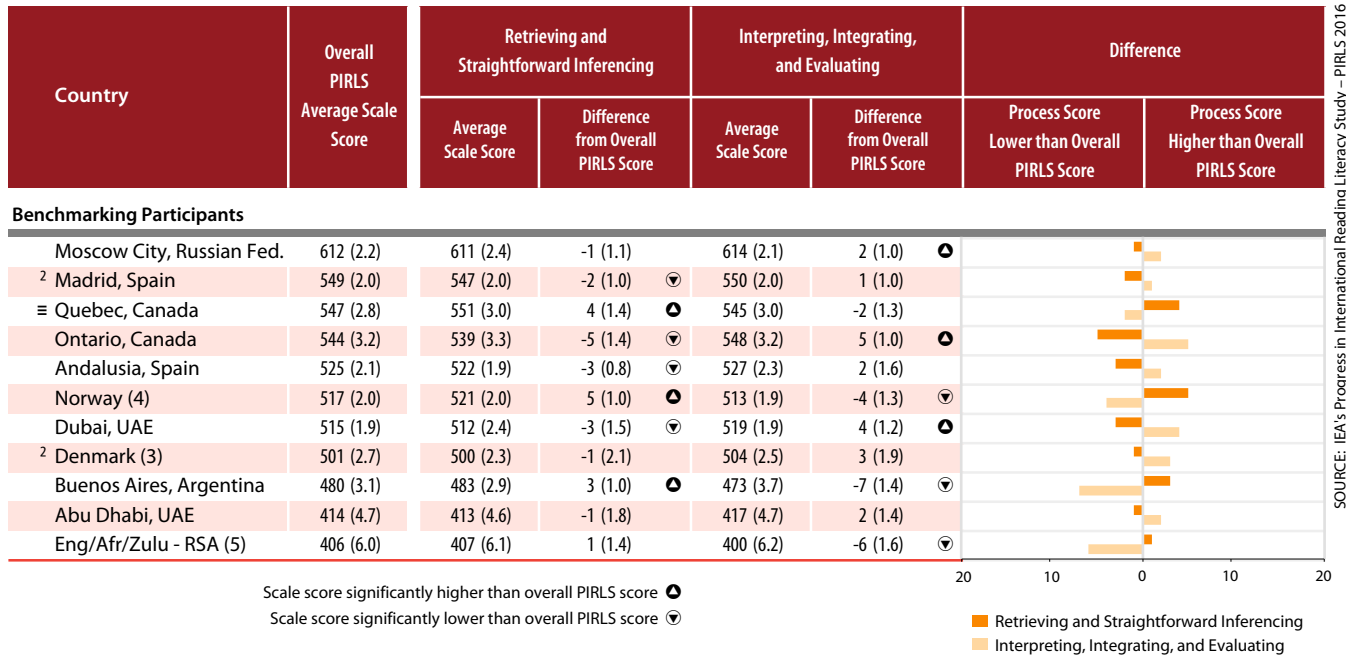
Exhibit 3.2: Achievement in Comprehension Processes



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 3.2: Achievement in Comprehension Processes (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 3.3 and 3.4: Trends in the Reading Purposes

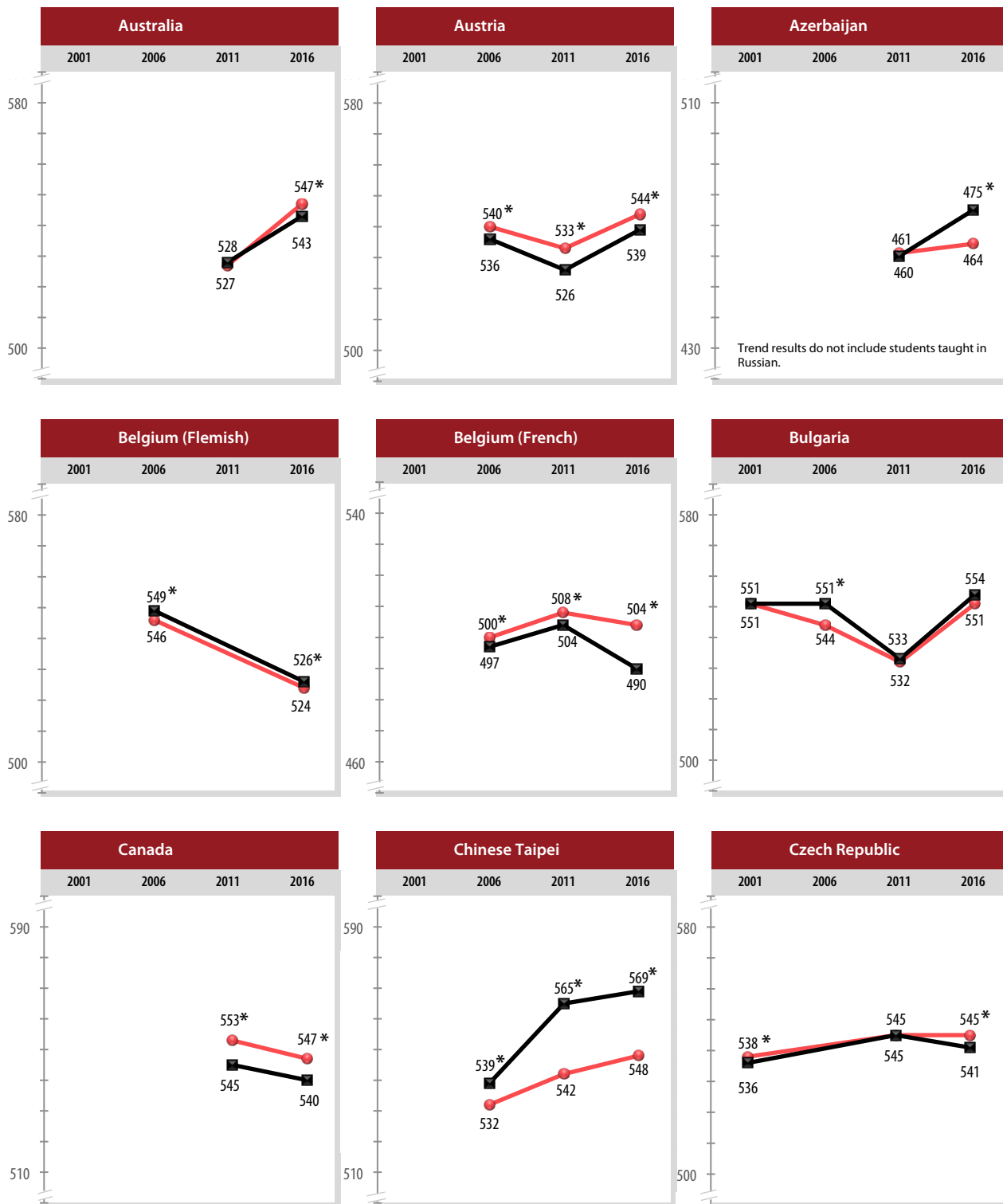
Differences in average reading achievement in the literary and informational purposes are presented for the countries that have comparable data from one or more of the previous assessments in 2001, 2006, and 2011. Exhibit 3.3 depicts the results graphically for the countries in alphabetical order, while Exhibit 3.4 provides the detailed results from assessment to assessment. Mirroring the overall results, the trends in reading achievement in both purposes are more up than down. Twenty countries have data for the 15 year period between 2001 and 2016, with 8 showing increases in literary reading and only 1 a decrease. Similarly, 12 showed increases in informational reading and only 2 had decreases. Interestingly, while 13 countries had the same pattern for both purposes (both increasing, staying the about the same, or decreasing), the other 7 countries had different results for one purpose than for the other.

Forty-one of the countries participated in both 2011 and 2016, with 19 showing improvements in literary reading and 7 showing decreases. Compared to five years earlier, 17 countries had higher achievement in 2016 in informational reading and 9 had lower achievement. The trends within countries were not necessarily the same for literary and informational reading.

Exhibit 3.3: Trends in Achievement by Reading Purpose

Scale interval is 10 points for each country, but the part of the scale shown differs according to each country's average achievement.

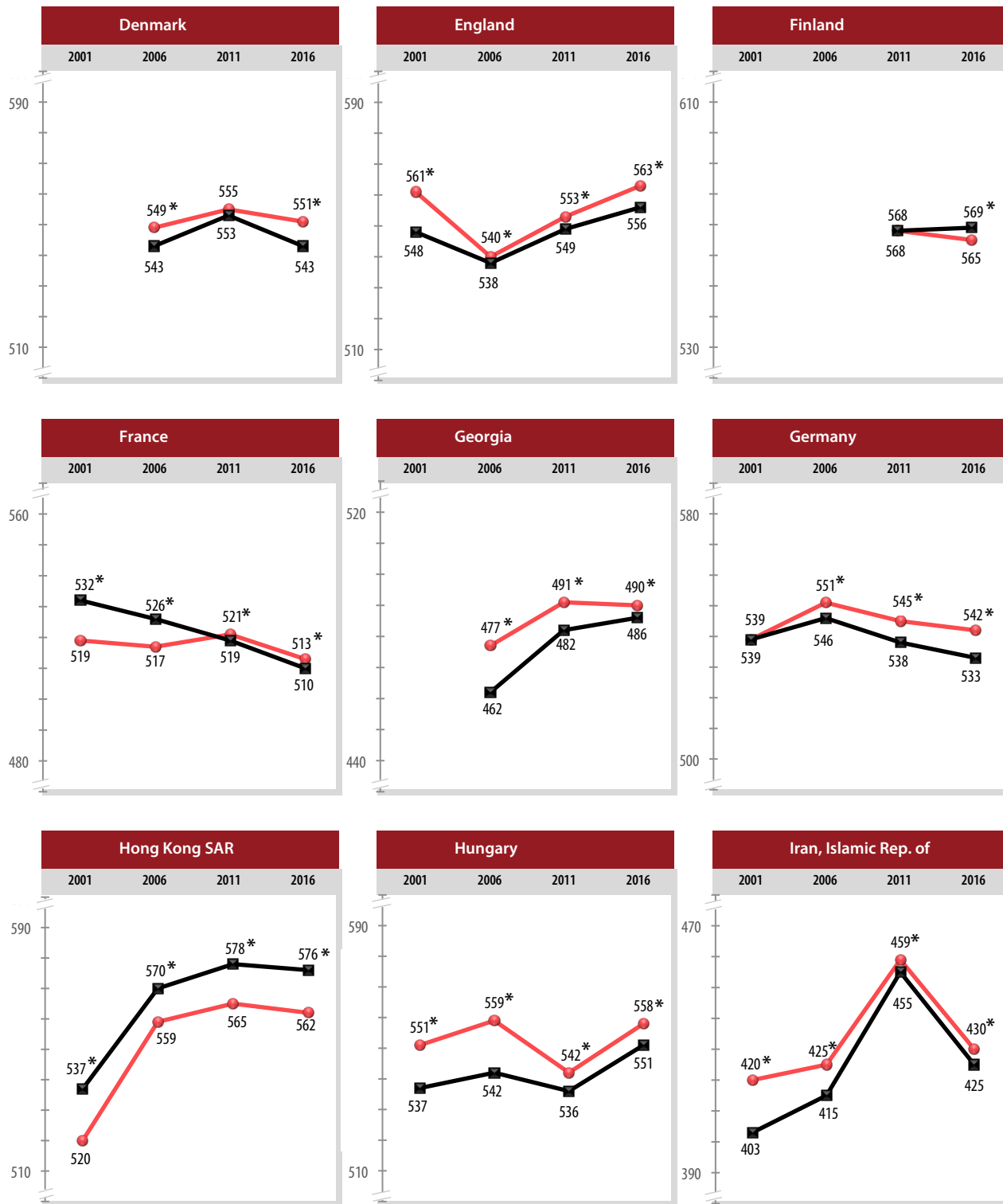
Literary  Informational  * Achievement significantly higher than other reading purpose



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.3: Trends in Achievement by Reading Purpose (Continued)

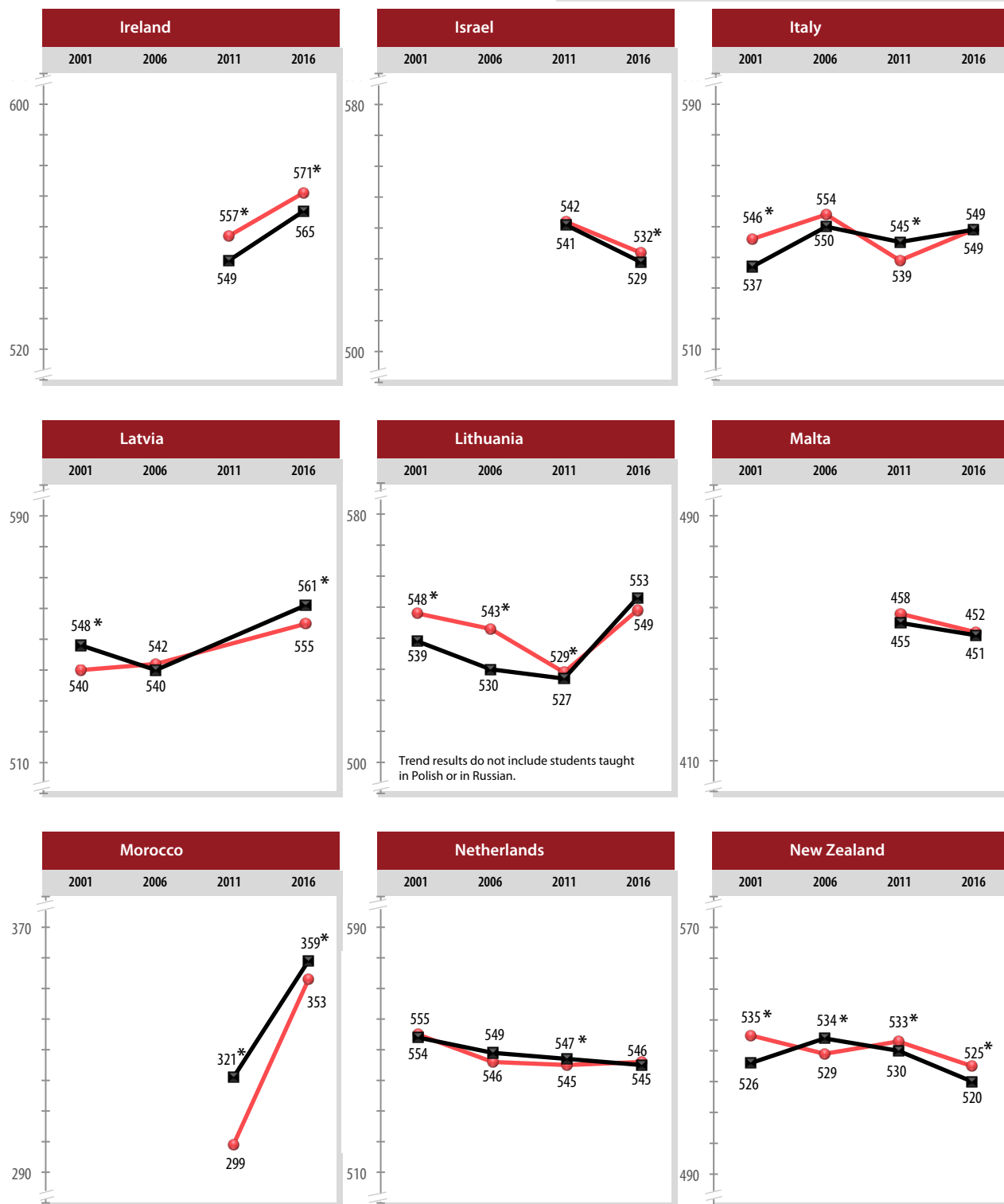
Literary —●— Informational —■— * Achievement significantly higher than other reading purpose



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

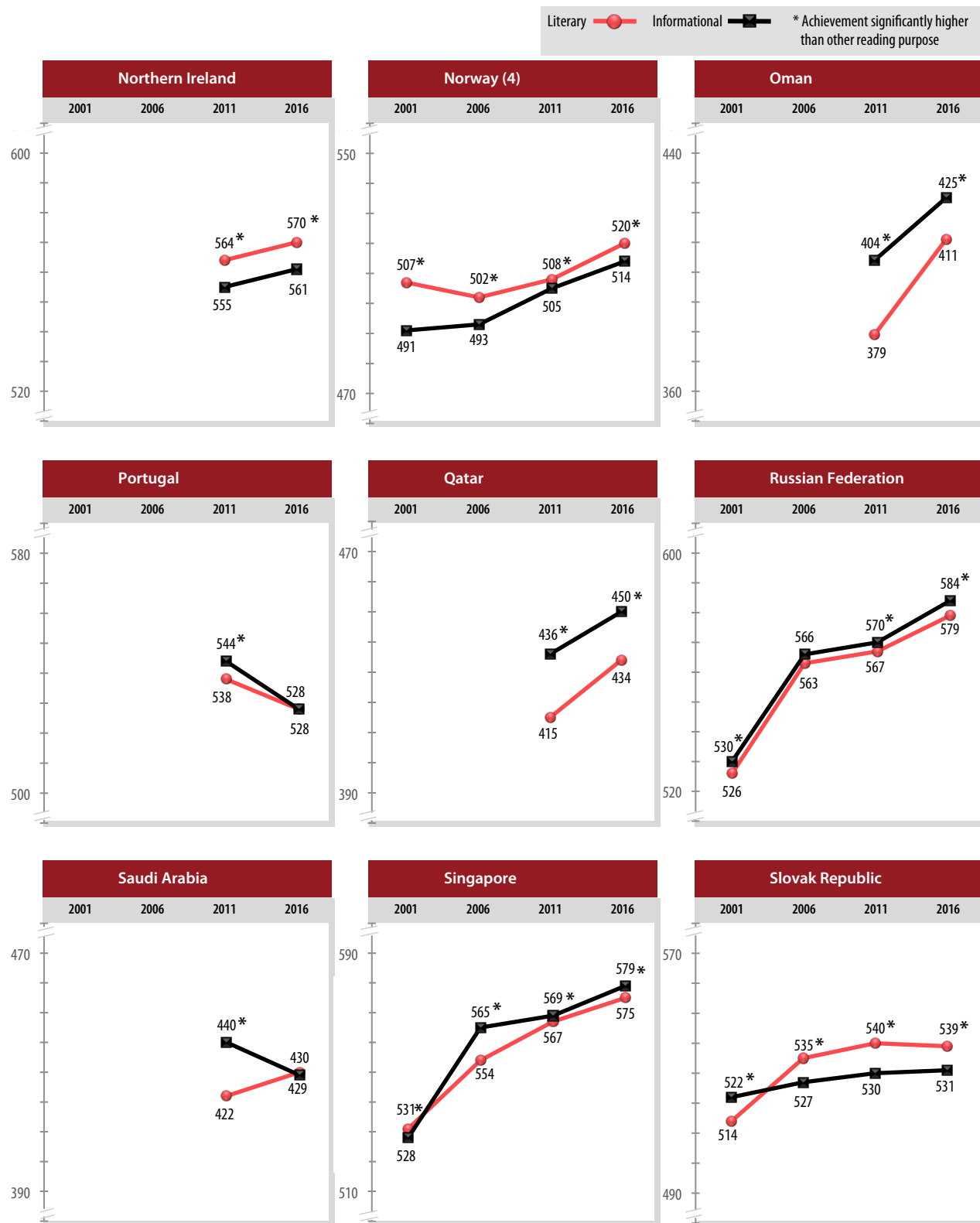
Exhibit 3.3: Trends in Achievement by Reading Purpose (Continued)

Literary ● Informational ■ * Achievement significantly higher than other reading purpose



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.3: Trends in Achievement by Reading Purpose (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.3: Trends in Achievement by Reading Purpose (Continued)

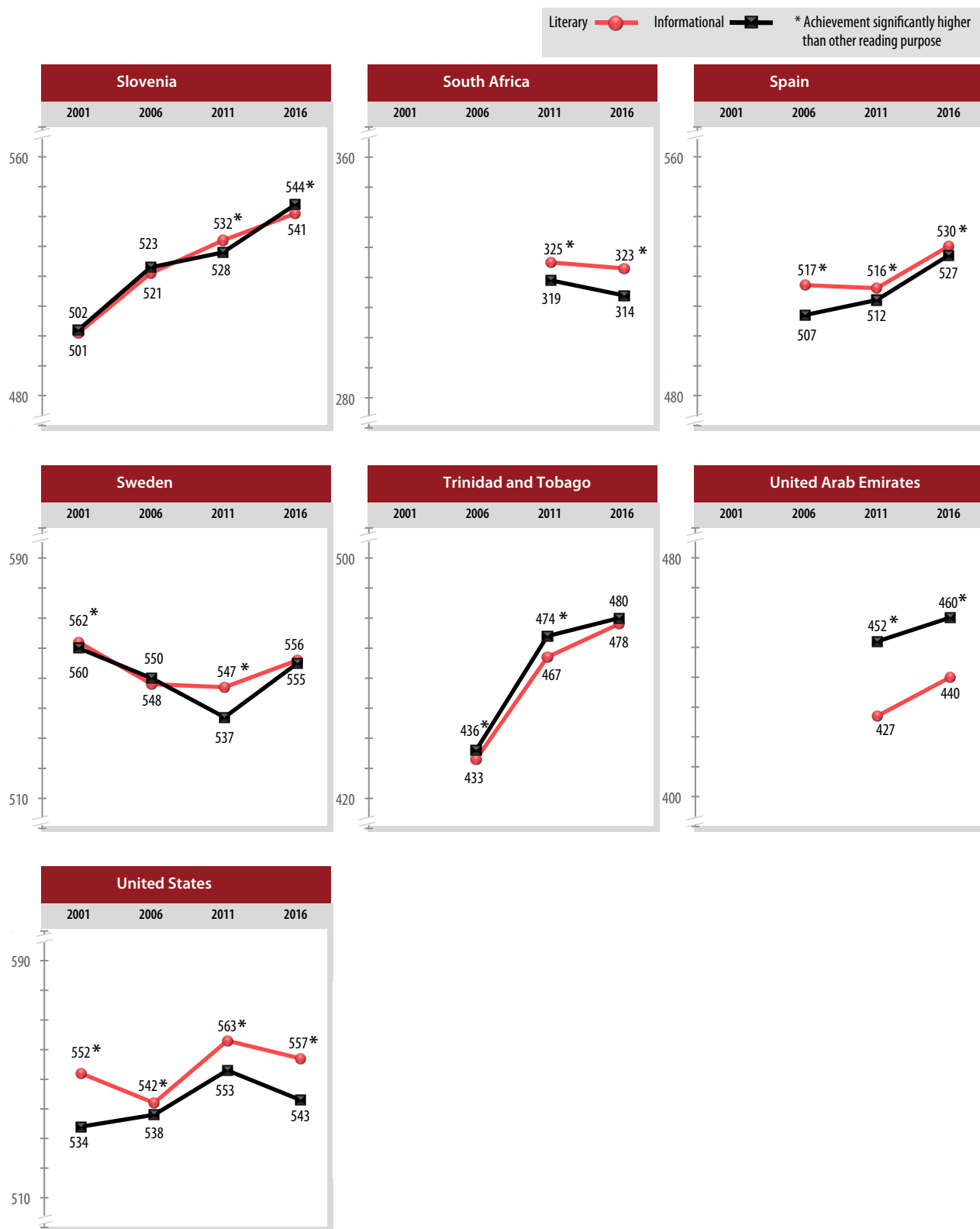
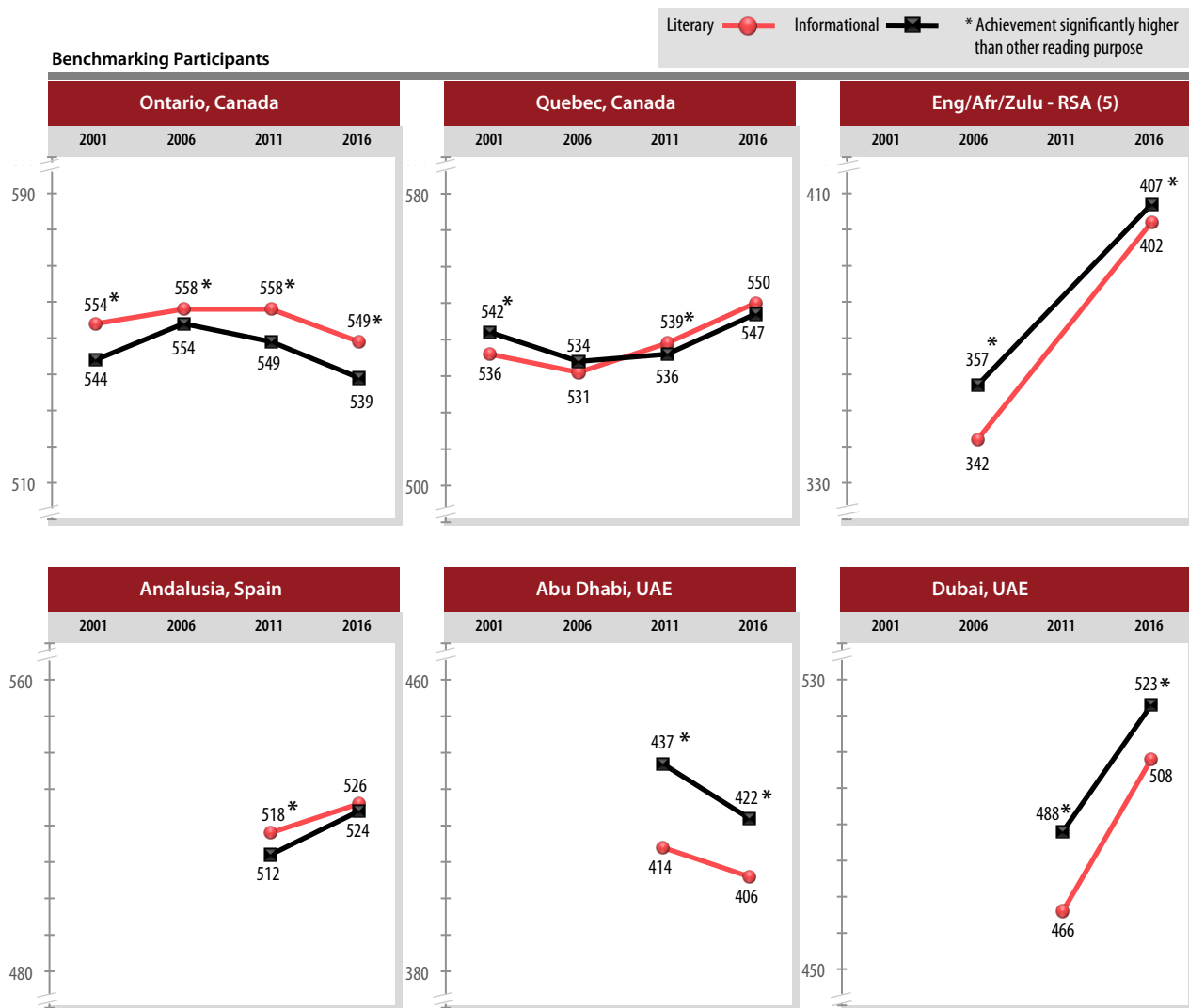


Exhibit 3.3: Trends in Achievement by Reading Purpose (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.4: Differences in Achievement for Reading Purposes Across Assessment Years

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

Country	Literary				Informational			
	Average Scale Score	Differences Between Years			Average Scale Score	Differences Between Years		
		2011	2006	2001		2011	2006	2001
Australia								
2016	547 (2.4)	20 ▲			543 (2.6)	15 ▲		
2011	527 (2.4)				528 (2.3)			
Austria								
² 2016	544 (2.3)	12 ▲	5		539 (2.4)	13 ▲	3	
2011	533 (2.2)		-7 ▼		526 (2.1)		-10 ▼	
2006	540 (2.2)				536 (2.3)			
Azerbaijan								
2016	464 (4.1)	3			475 (4.9)	15 ▲		
² 2011	461 (3.1)				460 (3.9)			
Belgium (Flemish)								
2016	524 (1.9)		-22 ▼		526 (1.9)		-23 ▼	
² † 2006	546 (1.9)				549 (2.0)			
Belgium (French)								
² 2016	504 (2.2)	-4	4		490 (2.4)	-13 ▼	-7	
² † 2011	508 (2.8)		8 ▲		504 (3.1)		7	
2006	500 (2.5)				497 (2.8)			
Bulgaria								
2016	551 (4.5)	20 ▲	7	0	554 (4.2)	21 ▲	3	3
2011	532 (4.4)		-12	-19 ▼	533 (4.0)		-18 ▼	-18 ▼
² 2006	544 (4.6)			-7	551 (4.5)			0
2001	551 (4.0)				551 (3.7)			
Canada								
¹ ² 2016	547 (1.9)	-6 ▼			540 (1.9)	-5 ▼		
² 2011	553 (1.7)				545 (1.6)			
Chinese Taipei								
2016	548 (2.0)	7 ▲	16 ▲		569 (2.2)	4	31 ▲	
2011	542 (1.9)		9 ▲		565 (1.8)		27 ▲	
2006	532 (2.1)				539 (1.9)			
Czech Republic								
2016	545 (2.1)	0		7 ▲	541 (2.3)	-4		6
2011	545 (2.1)			7 ▲	545 (2.1)			9 ▲
² 2001	538 (2.3)				536 (2.6)			
Denmark								
² 2016	551 (2.2)	-4	2		543 (2.5)	-10 ▼	0	
² 2011	555 (1.8)		6		553 (1.9)		10 ▲	
² 2006	549 (2.5)				543 (2.6)			
England								
2016	563 (2.2)	10 ▲	22 ▲	1	556 (2.1)	7 ▲	18 ▲	8 ▲
† 2011	553 (2.7)		12 ▲	-9	549 (2.6)		11 ▲	1
2006	540 (2.6)			-21 ▼	538 (2.6)			-10 ▼
² † 2001	561 (3.7)				548 (3.6)			
Finland								
2016	565 (1.9)	-4			569 (2.0)	1		
2011	568 (1.9)				568 (1.9)			
France								
2016	513 (2.4)	-9 ▼	-5	-6	510 (2.4)	-9 ▼	-16 ▼	-22 ▼
2011	521 (2.6)		4	2	519 (2.7)		-7 ▼	-13 ▼
2006	517 (2.4)			-2	526 (2.2)			-6
2001	519 (2.5)				532 (2.5)			

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

▲ More recent year significantly higher

▼ More recent year significantly lower

Trend results for Azerbaijan do not include students taught in Russian. Trend results for Lithuania do not include students taught in Polish or in Russian. See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡. () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Exhibit 3.4: Differences in Achievement for Reading Purposes Across Assessment Years (Continued)

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

Country	Literary					Informational				
	Average Scale Score	Differences Between Years			Average Scale Score	Differences Between Years				
		2011	2006	2001		2011	2006	2001		
Georgia										
¹ 2016	490 (2.6)	-1	13 ▲		486 (3.1)	4	24 ▲			
¹ 2011	491 (3.1)		15 ▲		482 (3.2)		20 ▲			
^{1 2} 2006	477 (3.4)				462 (3.8)					
Germany										
2016	542 (3.3)	-2	-8 ▼	3	533 (3.3)	-5	-13 ▼	-6		
2011	545 (2.2)		-6	5	538 (2.5)		-8 ▼	-2		
2006	551 (2.1)			11 ▲	546 (2.4)			6 ▲		
2001	539 (1.8)				539 (1.9)					
Hong Kong SAR										
^{2 †} 2016	562 (3.0)	-2	3	42 ▲	576 (2.8)	-1	6	40 ▲		
³ 2011	565 (2.5)		5	45 ▲	578 (2.2)		7 ▲	41 ▲		
2006	559 (2.6)			39 ▲	570 (2.4)			33 ▲		
2001	520 (3.5)				537 (3.1)					
Hungary										
2016	558 (2.8)	16 ▲	-1	6	551 (3.3)	15 ▲	8	14 ▲		
2011	542 (2.8)		-17 ▼	-10 ▼	536 (3.0)		-6	-1		
2006	559 (3.0)			8 ▲	542 (3.1)			6		
2001	551 (2.2)				537 (2.3)					
Iran, Islamic Rep. of										
2016	430 (3.8)	-29 ▼	6	10	425 (3.8)	-30 ▼	10	22 ▲		
2011	459 (2.9)		34 ▲	39 ▲	455 (3.0)		40 ▲	52 ▲		
2006	425 (3.3)			4	415 (3.2)			12 ▲		
2001	420 (4.5)				403 (4.7)					
Ireland										
2016	571 (2.7)	14 ▲			565 (2.7)	16 ▲				
2011	557 (2.7)				549 (2.3)					
Israel										
³ 2016	532 (2.6)	-9 ▼			529 (2.5)	-12 ▼				
³ 2011	542 (2.8)				541 (2.7)					
Italy										
2016	549 (2.1)	10 ▲	-5	3	549 (2.2)	4	-1	12 ▲		
2011	539 (2.0)		-15 ▼	-7 ▼	545 (2.0)		-5	8 ▲		
2006	554 (3.3)			8	550 (3.0)			13 ▲		
2001	546 (2.6)				537 (2.6)					
Latvia										
² 2016	555 (1.9)		13 ▲	15 ▲	561 (1.8)		21 ▲	14 ▲		
2006	542 (2.5)			2	540 (2.5)			-8 ▼		
2001	540 (2.3)				548 (2.4)					
Lithuania										
2016	549 (2.9)	20 ▲	6	1	553 (2.8)	25 ▲	22 ▲	13 ▲		
^{1 2} 2011	529 (1.8)		-15 ▼	-19 ▼	527 (2.1)		-3	-12 ▼		
¹ 2006	543 (1.9)			-5	530 (1.7)			-9 ▼		
¹ 2001	548 (2.9)				539 (2.8)					
Malta										
² 2016	452 (2.0)	-6 ▼			451 (2.0)	-4				
2011	458 (1.7)				455 (2.0)					
Morocco										
2016	353 (4.0)	54 ▲			359 (4.0)	38 ▲				
✱ 2011	299 (3.7)				321 (3.7)					

▲ More recent year significantly higher

▼ More recent year significantly lower

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.4: Differences in Achievement for Reading Purposes Across Assessment Years (Continued)

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

Country	Literary				Informational			
	Average Scale Score	Differences Between Years			Average Scale Score	Differences Between Years		
		2011	2006	2001		2011	2006	2001
Netherlands								
† 2016	546 (1.7)	2	0	-8 ▼	545 (1.9)	-3	-4	-10 ▼
† 2011	545 (2.4)		-2	-10 ▼	547 (1.9)		-2	-7 ▼
† 2006	546 (1.8)			-9 ▼	549 (1.6)			-5
† 2001	555 (2.6)				554 (2.8)			
New Zealand								
2016	525 (2.3)	-8 ▼	-4	-9	520 (2.4)	-9 ▼	-14 ▼	-5
2011	533 (2.2)		4	-1	530 (2.0)		-5	4
2006	529 (2.2)			-6	534 (2.4)			8
2001	535 (4.3)				526 (4.0)			
Northern Ireland								
2016	570 (2.5)	7			561 (2.3)	6		
† 2011	564 (2.7)				555 (2.5)			
Norway (4)								
2016	520 (2.1)	13 ▲	19 ▲	13 ▲	514 (2.2)	9 ▲	21 ▲	22 ▲
‡ 2011	508 (2.0)		6	0	505 (2.3)		12 ▲	14 ▲
‡ 2006	502 (2.5)			-5	493 (2.7)			2
2001	507 (3.2)				491 (3.1)			
Oman								
2016	411 (3.3)	31 ▲			425 (3.3)	22 ▲		
ψ 2011	379 (2.8)				404 (3.0)			
Portugal								
² 2016	528 (2.5)	-10 ▼			528 (2.3)	-15 ▼		
2011	538 (2.7)				544 (2.7)			
Qatar								
2016	434 (2.3)	19 ▲			450 (1.9)	14 ▲		
² 2011	415 (3.8)				436 (3.5)			
Russian Federation								
2016	579 (2.2)	12 ▲	16 ▲	53 ▲	584 (2.3)	15 ▲	19 ▲	54 ▲
2011	567 (2.7)		4	42 ▲	570 (2.8)		4	40 ▲
² 2006	563 (3.4)			38 ▲	566 (3.4)			35 ▲
² 2001	526 (4.2)				530 (4.6)			
Saudi Arabia								
2016	430 (4.0)	8			429 (4.5)	-11		
2011	422 (4.7)				440 (4.5)			
Singapore								
³ 2016	575 (3.3)	8	21 ▲	44 ▲	579 (3.3)	9 ▲	14 ▲	51 ▲
² 2011	567 (3.5)		13 ▲	36 ▲	569 (3.2)		4	42 ▲
2006	554 (3.1)			23 ▲	565 (3.0)			37 ▲
2001	531 (5.6)				528 (5.1)			
Slovak Republic								
2016	539 (3.0)	-1	4	24 ▲	531 (3.1)	1	4	9 ▲
2011	540 (2.9)		5	25 ▲	530 (3.0)		3	9 ▲
2006	535 (3.0)			21 ▲	527 (2.9)			5
2001	514 (2.8)				522 (3.0)			
Slovenia								
2016	541 (2.4)	9 ▲	21 ▲	40 ▲	544 (2.1)	17 ▲	21 ▲	42 ▲
2011	532 (2.3)		12 ▲	32 ▲	528 (1.9)		5	26 ▲
2006	521 (2.0)			20 ▲	523 (2.4)			21 ▲
2001	501 (2.0)				502 (2.1)			

▲ More recent year significantly higher

▼ More recent year significantly lower

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.4: Differences in Achievement for Reading Purposes Across Assessment Years (Continued)

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

Country	Literary					Informational				
	Average Scale Score	Differences Between Years			Average Scale Score	Differences Between Years				
		2011	2006	2001		2011	2006	2001		
South Africa										
2016	323 (4.7)	-2			314 (4.5)	-6				
2011	325 (4.5)				319 (4.2)					
Spain										
2016	530 (1.9)	14 ▲	13 ▲		527 (1.6)	15 ▲	19 ▲			
2011	516 (2.2)		-2		512 (2.2)		5			
2006	517 (2.7)				507 (2.8)					
Sweden										
2016	556 (2.4)	9 ▲	8 ▲	-6	555 (2.6)	18 ▲	5	-5		
2011	547 (2.4)		-1	-15 ▼	537 (2.4)		-13 ▼	-23 ▼		
2006	548 (2.1)			-14 ▼	550 (2.4)			-10 ▼		
2001	562 (2.4)				560 (2.3)					
Trinidad and Tobago										
2016	478 (3.3)	11 ▲	45 ▲		480 (3.5)	6	44 ▲			
2011	467 (4.1)		35 ▲		474 (3.8)		37 ▲			
2006	433 (4.9)				436 (5.0)					
United Arab Emirates										
2016	440 (3.4)	13 ▲			460 (3.2)	7				
2011	427 (2.3)				452 (2.2)					
United States										
† 2016	557 (3.0)	-5	15 ▲	5	543 (3.1)	-10 ▼	5	9		
² 2011	563 (1.9)		20 ▲	10 ▲	553 (1.6)		15 ▲	19 ▲		
²† 2006	542 (3.7)			-10	538 (3.7)			4		
† 2001	552 (4.2)				534 (3.9)					

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Benchmarking Participants

Ontario, Canada										
2016	549 (3.2)	-10 ▼	-9 ▼	-5	539 (3.4)	-9 ▼	-14 ▼	-4		
² 2011	558 (2.6)		1	4	549 (2.7)		-5	5		
² 2006	558 (3.2)			4	554 (3.1)			10 ▲		
2001	554 (3.4)				544 (3.4)					
Quebec, Canada										
≡ 2016	550 (2.9)	10 ▲	19 ▲	14 ▲	547 (3.0)	11 ▲	13 ▲	4		
2011	539 (2.1)		8 ▲	3	536 (2.4)		2	-6		
2006	531 (2.7)			-5	534 (3.1)			-8		
2001	536 (3.2)				542 (3.1)					
Eng/Afr/Zulu - RSA (5)										
2016	402 (6.3)		60 ▲		407 (6.0)		50 ▲			
2006	342 (8.8)				357 (8.3)					
Andalusia, Spain										
2016	526 (2.1)	8 ▲			524 (2.2)	11 ▲				
2011	518 (2.4)				512 (2.3)					
Abu Dhabi, UAE										
2016	406 (4.8)	-8			422 (5.0)	-15 ▼				
2011	414 (4.9)				437 (4.4)					
Dubai, UAE										
2016	508 (2.1)	42 ▲			523 (2.1)	35 ▲				
2011	466 (2.5)				488 (2.4)					

- ▲ More recent year significantly higher
- ▼ More recent year significantly lower

Exhibit 3.5 and 3.6: Trends in the Comprehension Processes

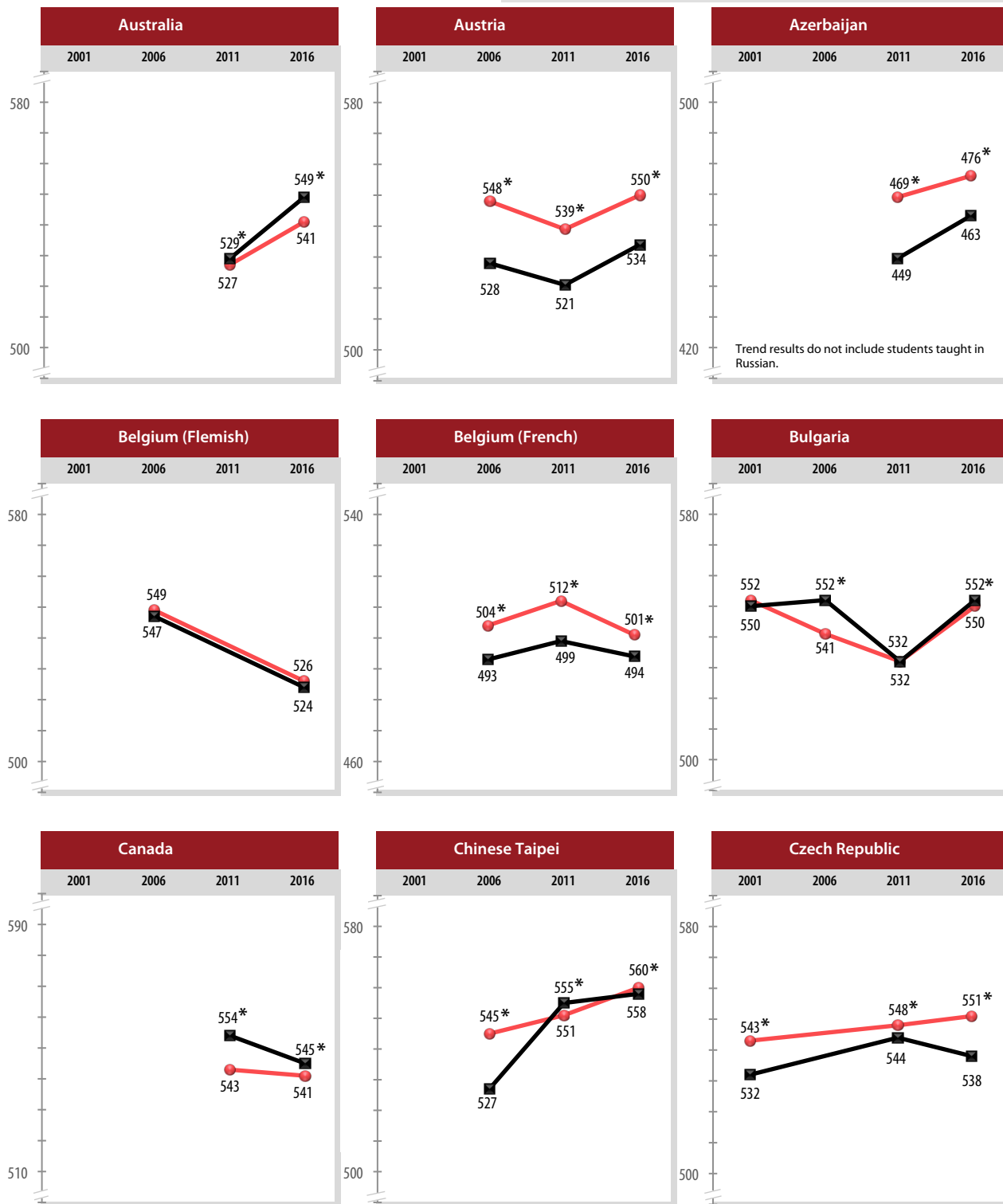
Trends in average reading achievement for the retrieving and straightforward inferencing and the interpreting, integrating, and evaluating reading comprehension processes are presented for the countries that have comparable data from previous PIRLS assessments. Exhibit 3.5 depicts the results graphically for the countries in alphabetical order, while Exhibit 3.6 provides the detailed results from assessment to assessment. Mirroring the overall results, the trends in reading achievement for both process scales show more gains than losses. Twenty countries have data for the 15 year period between 2001 and 2016, with 10 showing increases in retrieving and straightforward inferencing and 2 decreases. Similarly, 10 had increases in interpreting, integrating, and evaluating and 3 had decreases. Of the 20 countries, 15 had the same trend result for both processes.

Forty-one of the countries participated in both 2011 and 2016, with 18 showing improvements in the retrieving and straightforward inferencing comprehension process and 8 showing decreases. Compared to five years earlier, 18 countries had higher achievement in 2016 in the interpreting, integrating, and evaluating process and 10 had lower achievement. The within country trends were the same for the two processes in 30 of the 41 countries.

Exhibit 3.5: Trends in Achievement by Comprehension Process

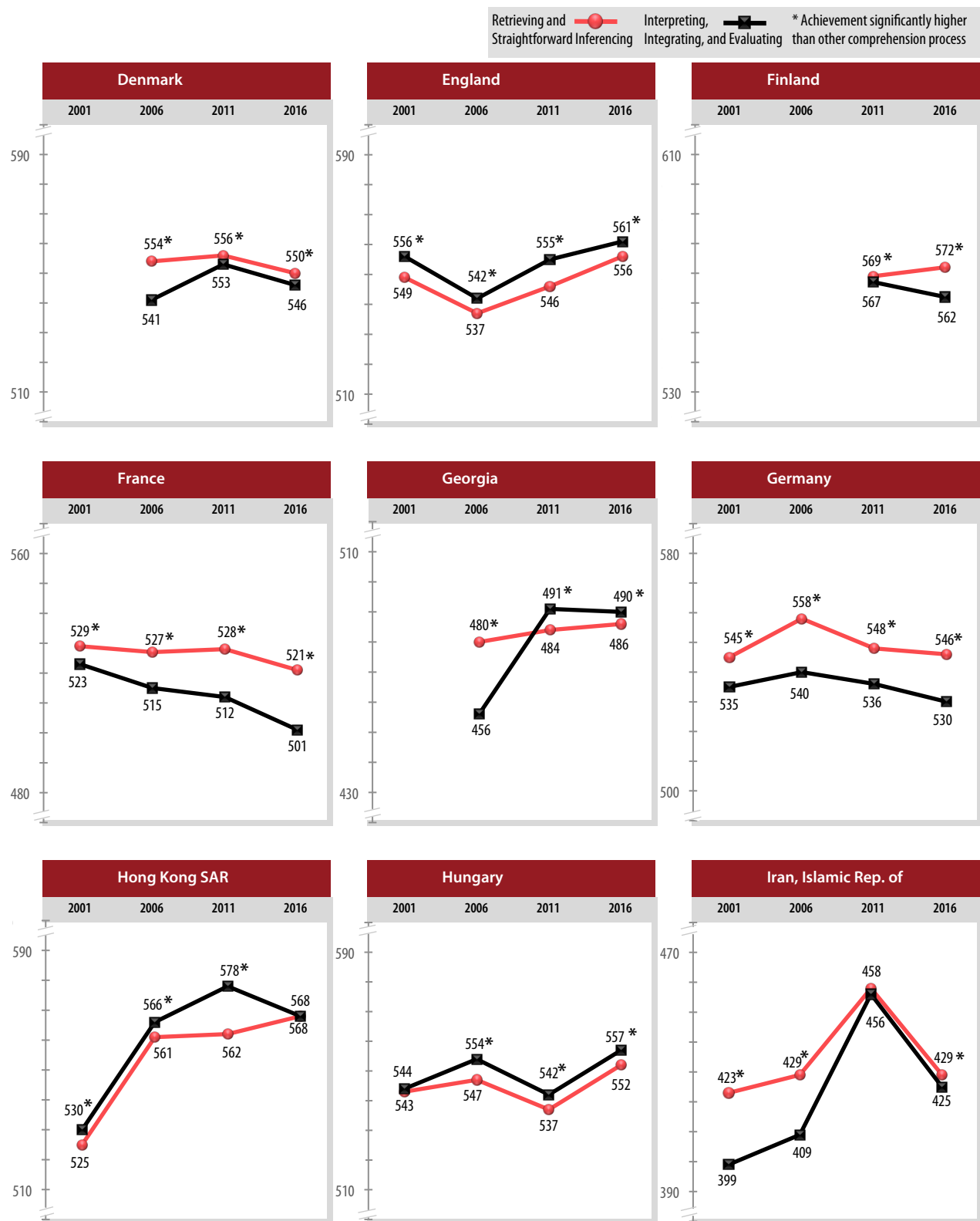
Scale interval is 10 points for each country, but the part of the scale shown differs according to each country's average achievement.

Retrieving and Straightforward Inferencing (red line with circle) Interpreting, Integrating, and Evaluating (black line with square) * Achievement significantly higher than other comprehension process



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.5: Trends in Achievement by Comprehension Process (Continued)



SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.5: Trends in Achievement by Comprehension Process (Continued)

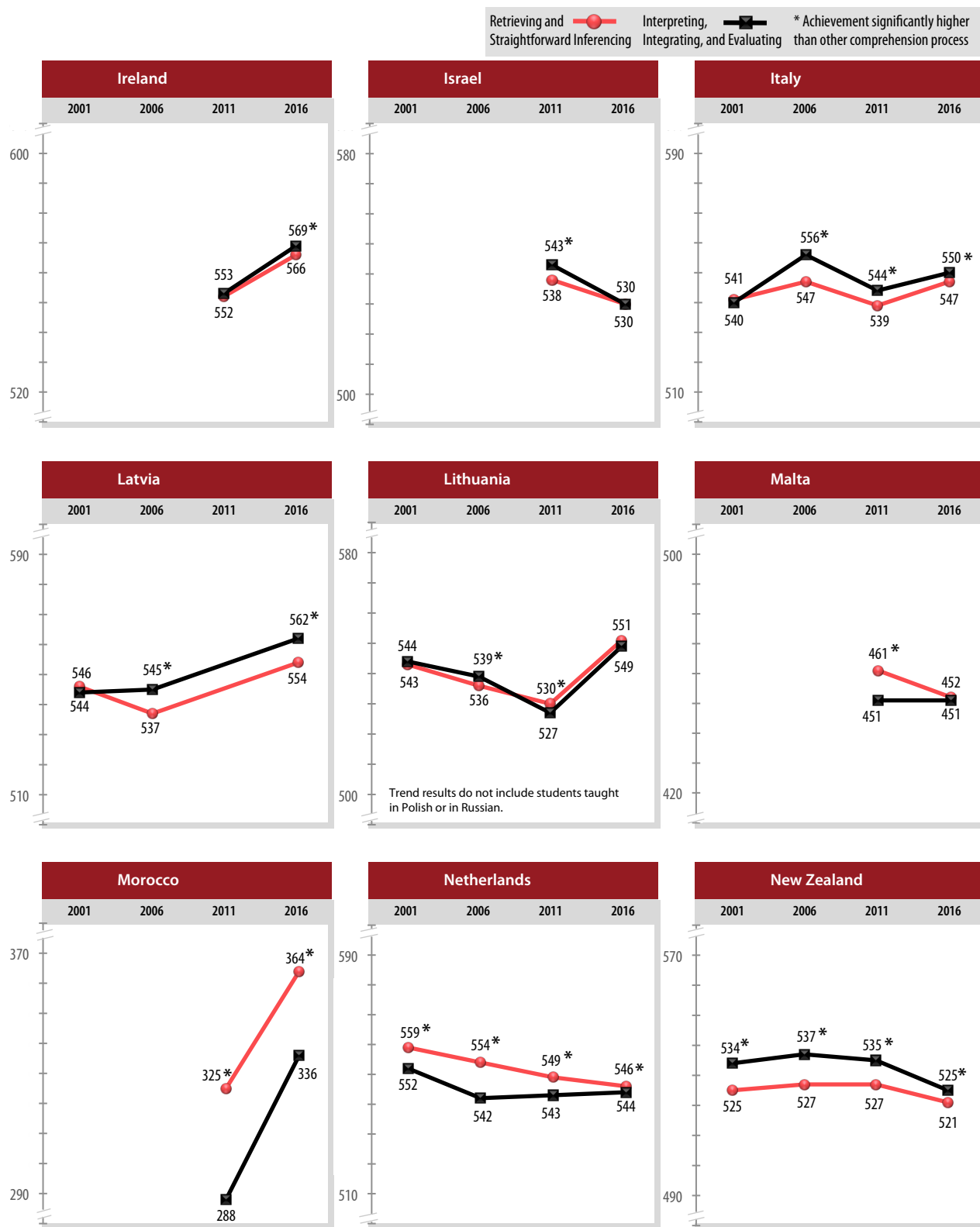
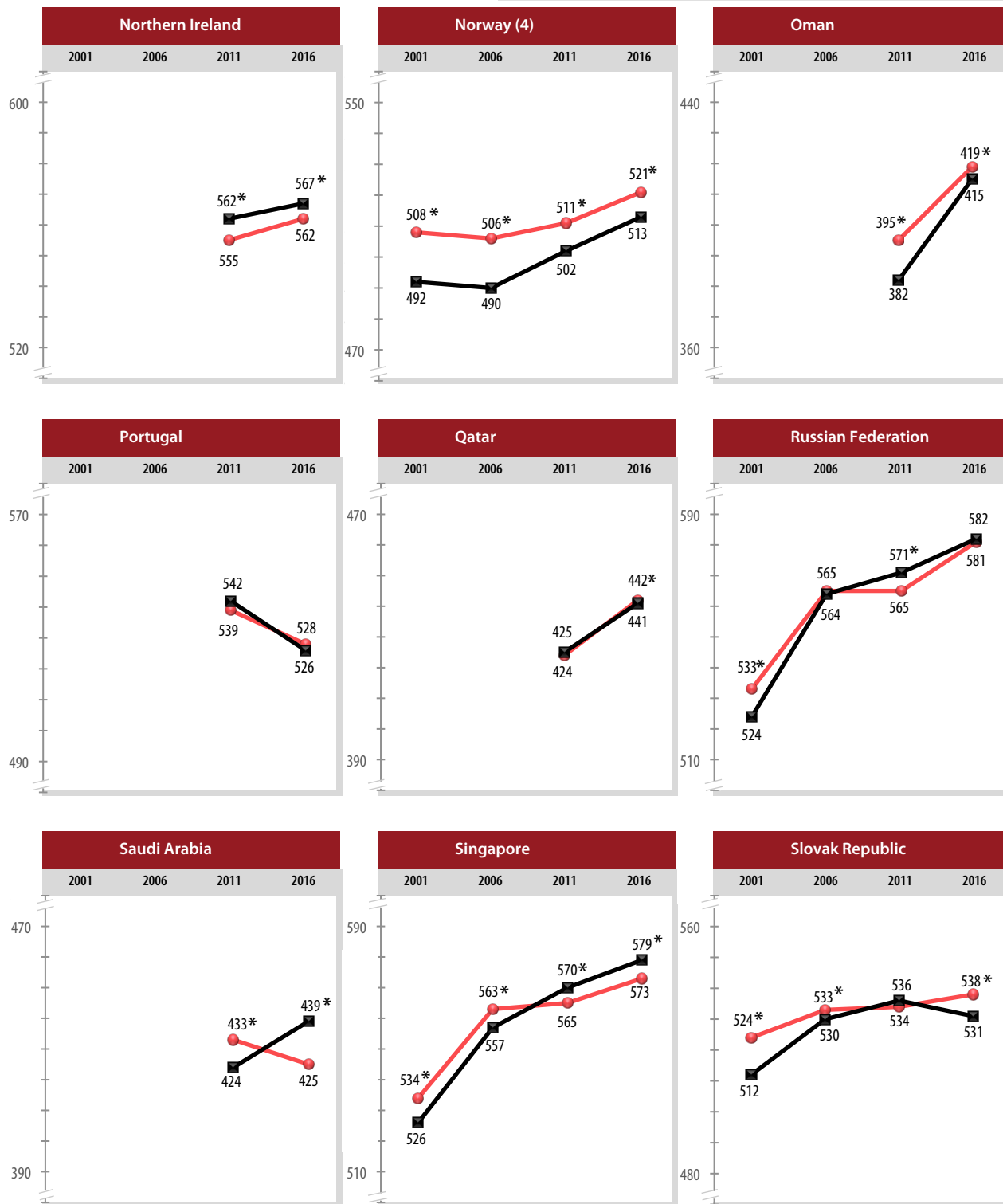


Exhibit 3.5: Trends in Achievement by Comprehension Process (Continued)

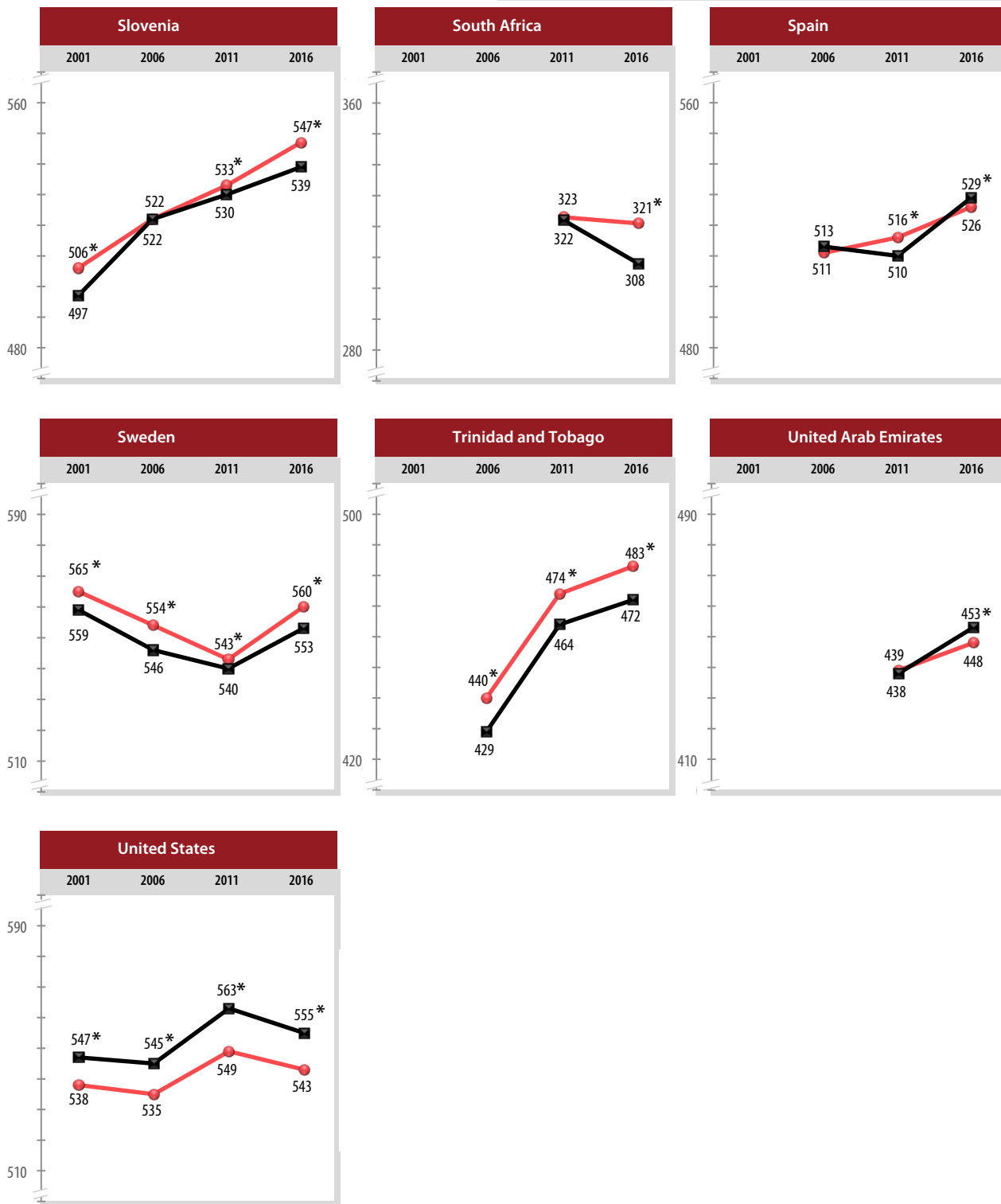
Retrieving and Straightforward Inference ● Interpreting, Integrating, and Evaluating ■ * Achievement significantly higher than other comprehension process



SOURCE: IEA's Progress in International Reading Literacy Study—PIRLS 2016

Exhibit 3.5: Trends in Achievement by Comprehension Process (Continued)

Retrieving and Straightforward Inferencing (red line with circles) Interpreting, Integrating, and Evaluating (black line with squares) * Achievement significantly higher than other comprehension process



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 3.5: Trends in Achievement by Comprehension Process (Continued)

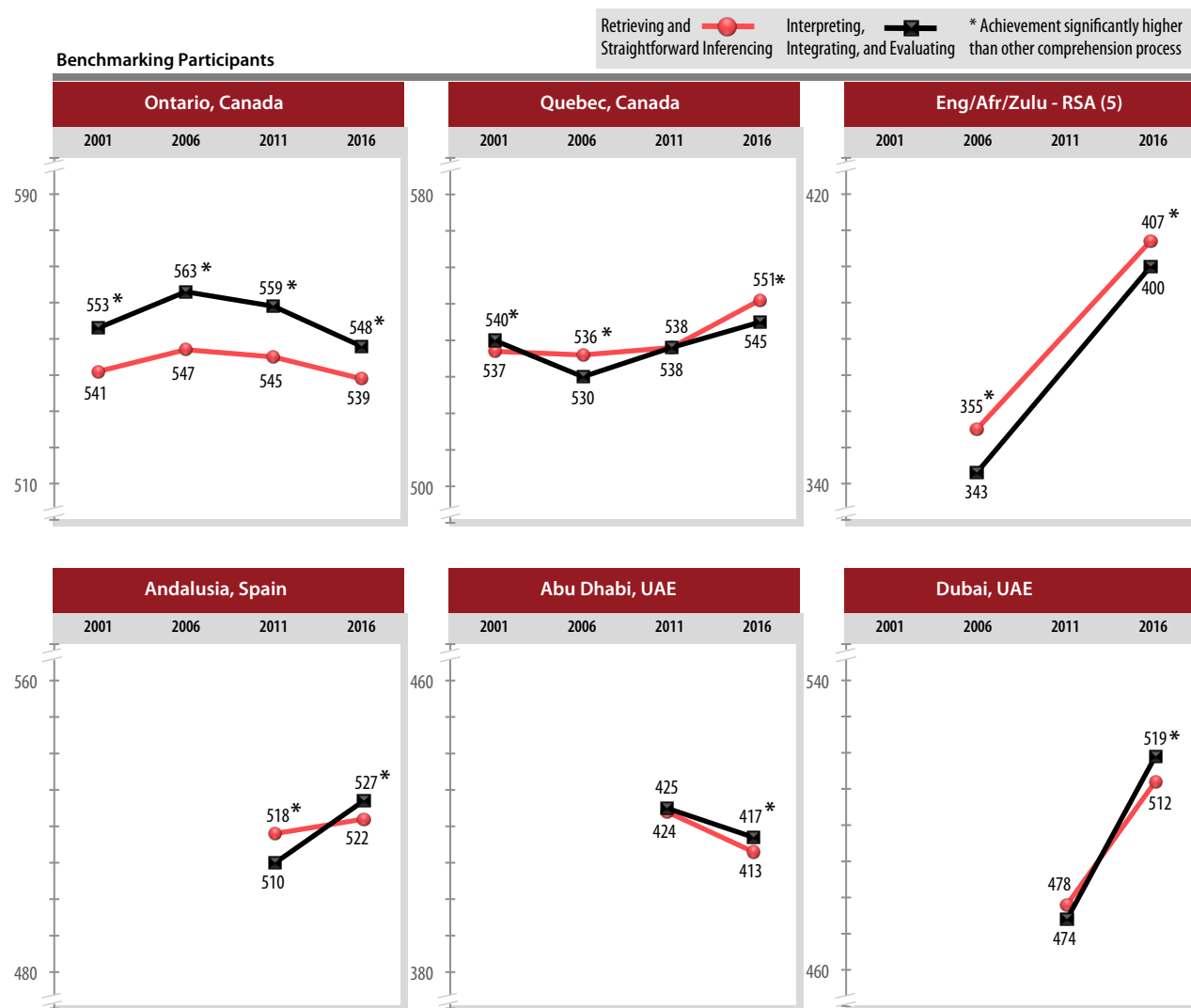


Exhibit 3.6: Differences in Achievement for Comprehension Processes Across Assessment Years

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

Country	Retrieving and Straightforward Inferencing				Interpreting, Integrating, and Evaluating			
	Average Scale Score	Differences Between Years			Average Scale Score	Differences Between Years		
		2011	2006	2001		2011	2006	2001
Australia								
2016	541 (2.6)	14 ▲			549 (2.4)	20 ▲		
2011	527 (2.6)				529 (2.2)			
Austria								
² 2016	550 (2.8)	11 ▲	2		534 (2.5)	14 ▲	6	
2011	539 (2.3)		-9 ▼		521 (2.1)		-8 ▼	
2006	548 (2.2)				528 (2.5)			
Azerbaijan								
2016	476 (4.4)	7			463 (4.6)	14 ▲		
² 2011	469 (3.2)				449 (3.7)			
Belgium (Flemish)								
2016	526 (2.1)		-23 ▼		524 (2.2)		-22 ▼	
² † 2006	549 (2.1)				547 (1.9)			
Belgium (French)								
² 2016	501 (2.3)	-11 ▼	-4		494 (2.4)	-5	1	
² † 2011	512 (2.9)		8 ▲		499 (3.2)		6	
2006	504 (2.5)				493 (2.7)			
Bulgaria								
2016	550 (4.0)	18 ▲	10	-2	552 (4.3)	20 ▲	0	2
2011	532 (4.2)		-9	-20 ▼	532 (4.1)		-20 ▼	-18 ▼
² 2006	541 (4.1)			-11	552 (4.7)			1
2001	552 (4.0)				550 (3.7)			
Canada								
¹ ² 2016	541 (1.8)	-2			545 (1.8)	-8 ▼		
² 2011	543 (1.5)				554 (1.5)			
Chinese Taipei								
2016	560 (1.9)	8 ▲	15 ▲		558 (2.2)	3	31 ▲	
2011	551 (1.8)		7 ▲		555 (1.8)		27 ▲	
2006	545 (1.9)				527 (2.0)			
Czech Republic								
2016	551 (2.4)	3		8 ▲	538 (2.2)	-6 ▼		5
2011	548 (2.4)			5	544 (2.0)			12 ▲
² 2001	543 (2.7)				532 (2.4)			
Denmark								
² 2016	550 (2.1)	-7 ▼	-4		546 (2.2)	-7 ▼	5	
² 2011	556 (1.9)		3		553 (1.7)		12 ▲	
² 2006	554 (2.7)				541 (2.4)			
England								
2016	556 (2.0)	10 ▲	19 ▲	7	561 (1.9)	6	19 ▲	5
† 2011	546 (2.6)		9 ▲	-3	555 (2.7)		13 ▲	-1
2006	537 (2.7)			-12 ▼	542 (2.6)			-14 ▼
² † 2001	549 (3.4)				556 (3.6)			
Finland								
2016	572 (2.0)	3			562 (1.8)	-5		
2011	569 (2.0)				567 (1.8)			
France								
2016	521 (2.3)	-7 ▼	-6 ▼	-8 ▼	501 (2.4)	-10 ▼	-14 ▼	-22 ▼
2011	528 (2.5)		1	-1	512 (2.8)		-4	-11 ▼
2006	527 (2.1)			-2	515 (2.3)			-7 ▼
2001	529 (2.7)				523 (2.5)			

- ▲ More recent year significantly higher
- ▼ More recent year significantly lower

Trend results for Azerbaijan do not include students taught in Russian. Trend results for Lithuania do not include students taught in Polish or in Russian. See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡. () Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.6: Differences in Achievement for Comprehension Processes Across Assessment Years (Continued)

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

Country	Retrieving and Straightforward Inferencing				Interpreting, Integrating, and Evaluating			
	Average Scale Score	Differences Between Years			Average Scale Score	Differences Between Years		
		2011	2006	2001		2011	2006	2001
Georgia								
¹ 2016	486 (2.6)	2	6		490 (2.9)	-1	34 ▲	
¹ 2011	484 (2.9)		4		491 (3.0)		35 ▲	
^{1 2} 2006	480 (3.2)				456 (3.5)			
Germany								
2016	546 (3.3)	-3	-13 ▼	0	530 (3.2)	-6	-9 ▼	-5
2011	548 (2.4)		-10 ▼	3	536 (2.2)		-4	1
2006	558 (2.6)			13 ▲	540 (2.3)			5
2001	545 (1.8)				535 (2.0)			
Hong Kong SAR								
^{2 †} 2016	568 (2.7)	5	6	43 ▲	568 (2.9)	-9 ▼	2	38 ▲
³ 2011	562 (2.1)		1	37 ▲	578 (2.4)		12 ▲	48 ▲
2006	561 (2.5)			37 ▲	566 (2.5)			36 ▲
2001	525 (3.1)				530 (3.3)			
Hungary								
2016	552 (3.3)	14 ▲	4	8 ▲	557 (3.0)	15 ▲	3	12 ▲
2011	537 (2.7)		-10 ▼	-6	542 (2.7)		-12 ▼	-2
2006	547 (2.9)			4	554 (3.2)			10 ▲
2001	543 (2.1)				544 (2.2)			
Iran, Islamic Rep. of								
2016	429 (4.0)	-28 ▼	1	7	425 (4.1)	-32 ▼	16 ▲	26 ▲
2011	458 (3.0)		29 ▲	35 ▲	456 (3.0)		48 ▲	58 ▲
2006	429 (3.4)			6	409 (3.4)			10
2001	423 (4.5)				399 (4.9)			
Ireland								
2016	566 (2.6)	14 ▲			569 (2.9)	16 ▲		
2011	552 (2.8)				553 (2.3)			
Israel								
³ 2016	530 (2.4)	-8 ▼			530 (2.7)	-13 ▼		
³ 2011	538 (2.8)				543 (2.9)			
Italy								
2016	547 (2.1)	7 ▲	-1	5	550 (2.1)	6 ▲	-6	9 ▲
2011	539 (2.0)		-8 ▼	-2	544 (2.0)		-12 ▼	3
2006	547 (3.0)			6	556 (3.0)			16 ▲
2001	541 (2.5)				540 (2.6)			
Latvia								
² 2016	554 (1.9)		17 ▲	8 ▲	562 (1.7)		17 ▲	18 ▲
2006	537 (2.3)			-9 ▼	545 (2.1)			1
2001	546 (2.5)				544 (2.3)			
Lithuania								
2016	551 (2.8)	21 ▲	16 ▲	8 ▲	549 (2.8)	22 ▲	10 ▲	5
^{1 2} 2011	530 (1.9)		-5 ▼	-13 ▼	527 (2.0)		-11 ▼	-16 ▼
¹ 2006	536 (1.8)			-8 ▼	539 (1.8)			-5
¹ 2001	543 (3.0)				544 (2.7)			
Malta								
² 2016	452 (1.7)	-9 ▼			451 (1.9)	0		
2011	461 (2.4)				451 (1.7)			
Morocco								
2016	364 (3.9)	39 ▲			336 (4.5)	48 ▲		
✱ 2011	325 (3.1)				288 (4.3)			

▲ More recent year significantly higher
▼ More recent year significantly lower

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.6: Differences in Achievement for Comprehension Processes Across Assessment Years (Continued)

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

Country	Retrieving and Straightforward Inferencing				Interpreting, Integrating, and Evaluating			
	Average Scale Score	Differences Between Years			Average Scale Score	Differences Between Years		
		2011	2006	2001		2011	2006	2001
Netherlands								
† 2016	546 (2.0)	-2	-8 ▼	-13 ▼	544 (1.7)	1	3	-7 ▼
† 2011	549 (2.1)		-5 ▼	-10 ▼	543 (1.9)		1	-8 ▼
† 2006	554 (1.7)			-5	542 (1.7)			-10 ▼
† 2001	559 (2.6)				552 (2.5)			
New Zealand								
2016	521 (2.3)	-6 ▼	-6	-3	525 (2.4)	-11 ▼	-12 ▼	-10 ▼
2011	527 (2.0)		0	3	535 (1.9)		-1	1
2006	527 (2.3)			2	537 (2.3)			2
2001	525 (3.9)				534 (3.9)			
Northern Ireland								
2016	562 (2.1)	6			567 (2.2)	5		
† 2011	555 (2.5)				562 (2.4)			
Norway (4)								
2016	521 (2.0)	10 ▲	15 ▲	14 ▲	513 (1.9)	11 ▲	23 ▲	21 ▲
‡ 2011	511 (1.8)		5	4	502 (2.6)		11 ▲	10 ▲
‡ 2006	506 (2.6)			-1	490 (2.8)			-2
2001	508 (2.9)				492 (3.0)			
Oman								
2016	419 (3.2)	25 ▲			415 (3.6)	33 ▲		
ψ 2011	395 (2.4)				382 (3.0)			
Portugal								
² 2016	528 (2.2)	-11 ▼			526 (2.4)	-16 ▼		
2011	539 (2.8)				542 (2.6)			
Qatar								
2016	442 (1.8)	18 ▲			441 (1.9)	15 ▲		
² 2011	424 (3.5)				425 (3.6)			
Russian Federation								
2016	581 (2.3)	16 ▲	16 ▲	48 ▲	582 (2.2)	11 ▲	18 ▲	58 ▲
2011	565 (2.8)		0	32 ▲	571 (2.7)		7	47 ▲
² 2006	565 (3.4)			32 ▲	564 (3.4)			40 ▲
² 2001	533 (4.3)				524 (4.8)			
Saudi Arabia								
2016	425 (4.1)	-8			439 (4.1)	15 ▲		
2011	433 (4.5)				424 (4.6)			
Singapore								
³ 2016	573 (3.1)	8	10 ▲	39 ▲	579 (3.2)	9	22 ▲	53 ▲
² 2011	565 (3.4)		2	31 ▲	570 (3.4)		14 ▲	44 ▲
2006	563 (3.2)			29 ▲	557 (2.8)			31 ▲
2001	534 (5.6)				526 (5.1)			
Slovak Republic								
2016	538 (3.1)	3	5	13 ▲	531 (3.2)	-4	2	19 ▲
2011	534 (2.9)		2	10 ▲	536 (2.7)		6	24 ▲
2006	533 (2.8)			8 ▲	530 (2.9)			18 ▲
2001	524 (2.8)				512 (3.1)			
Slovenia								
2016	547 (2.3)	14 ▲	25 ▲	40 ▲	539 (2.5)	10 ▲	17 ▲	42 ▲
2011	533 (2.0)		11 ▲	26 ▲	530 (2.1)		8 ▲	32 ▲
2006	522 (2.2)			15 ▲	522 (2.2)			25 ▲
2001	506 (2.2)				497 (2.2)			

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

- ▲ More recent year significantly higher
- ▼ More recent year significantly lower

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

Exhibit 3.6: Differences in Achievement for Comprehension Processes Across Assessment Years (Continued)

Instructions: Read across the row to determine if the performance in the row year is significantly higher (▲) or significantly lower (▼) than the performance in the column year.

Country	Retrieving and Straightforward Inferencing				Interpreting, Integrating, and Evaluating			
	Average Scale Score	Differences Between Years			Average Scale Score	Differences Between Years		
		2011	2006	2001		2011	2006	2001
South Africa								
2016	321 (4.5)	-1			308 (5.3)	-13		
2011	323 (4.3)				322 (4.5)			
Spain								
2016	526 (1.7)	10 ▲	15 ▲		529 (1.7)	19 ▲	17 ▲	
2011	516 (2.2)		5		510 (2.3)		-3	
2006	511 (2.5)				513 (2.8)			
Sweden								
2016	560 (2.7)	17 ▲	6	-5	553 (2.5)	12 ▲	7 ▲	-6
2011	543 (2.1)		-11 ▼	-23 ▼	540 (2.2)		-6	-18 ▼
2006	554 (2.2)			-12 ▼	546 (2.3)			-13 ▼
2001	565 (2.6)				559 (2.2)			
Trinidad and Tobago								
2016	483 (3.6)	9	43 ▲		472 (3.6)	9	44 ▲	
2011	474 (3.8)		34 ▲		464 (4.1)		35 ▲	
2006	440 (4.9)				429 (5.3)			
United Arab Emirates								
2016	448 (3.2)	9 ▲			453 (3.3)	15 ▲		
2011	439 (2.3)				438 (2.3)			
United States								
[†] 2016	543 (3.0)	-6	8	5	555 (3.1)	-8 ▼	9 ▲	8
² 2011	549 (1.5)		14 ▲	11 ▲	563 (1.6)		17 ▲	16 ▲
^{2 †} 2006	535 (3.5)			-3	545 (3.7)			-2
[†] 2001	538 (4.2)				547 (3.8)			

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Benchmarking Participants

Ontario, Canada								
2016	539 (3.3)	-6	-8	-3	548 (3.2)	-11 ▼	-14 ▼	-5
² 2011	545 (2.4)		-3	3	559 (2.5)		-3	6
² 2006	547 (3.1)			6	563 (3.1)			9 ▲
2001	541 (3.4)				553 (3.1)			
Quebec, Canada								
≡ 2016	551 (3.0)	13 ▲	15 ▲	14 ▲	545 (3.0)	7	15 ▲	5
2011	538 (2.1)		2	1	538 (2.3)		8 ▲	-2
2006	536 (2.7)			0	530 (2.7)			-10 ▼
2001	537 (3.2)				540 (3.0)			
Eng/Afr/Zulu - RSA (5)								
2016	407 (6.1)		53 ▲		400 (6.2)		57 ▲	
2006	355 (8.4)				343 (8.8)			
Andalusia, Spain								
2016	522 (1.9)	4			527 (2.3)	17 ▲		
2011	518 (2.3)				510 (2.3)			
Abu Dhabi, UAE								
2016	413 (4.6)	-11			417 (4.7)	-8		
2011	424 (4.5)				425 (4.6)			
Dubai, UAE								
2016	512 (2.4)	34 ▲			519 (1.9)	45 ▲		
2011	478 (2.3)				474 (2.2)			

▲ More recent year significantly higher

▼ More recent year significantly lower

Exhibit 3.7: Achievement in Reading Purposes and Comprehension Processes by Gender

At the fourth grade, girls have a greater advantage compared to boys in literary reading than in informational reading. Exhibit 3.7 shows that girls had higher average achievement than boys in literary reading in 48 of the 50 PIRLS countries—all except two where reading achievement was similar for girls and boys. In informational reading, achievement was similar for girls and boys in 12 countries (although girls had higher achievement in the rest). They have a similar advantage in the two comprehension processes—higher reading achievement than boys in retrieving and straightforward inferencing in 47 countries and in interpreting, integrating, and evaluating in 48 countries. Boys did not have higher achievement than girls for either comprehension process.

Exhibit 3.7: Achievement in Reading Purposes and Comprehension Processes by Gender

Country	Reading Purposes				Comprehension Processes			
	Literary		Informational		Retrieving and Straightforward Inferencing		Interpreting, Integrating, and Evaluating	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Australia	561 (2.7) ▲	533 (2.9)	552 (2.7) ●	533 (2.9)	552 (2.7) ●	530 (3.0)	561 (2.6) ●	538 (2.7)
² Austria	550 (2.6) ▲	539 (2.6)	540 (2.9)	538 (2.9)	552 (3.1)	549 (3.3)	539 (2.5) ●	530 (3.3)
Azerbaijan	472 (4.1) ▲	460 (4.2)	485 (4.7) ●	471 (5.2)	484 (4.4) ●	471 (4.5)	472 (4.5) ●	458 (4.7)
Bahrain	462 (3.5) ▲	413 (4.0)	472 (2.6) ●	434 (3.4)	464 (2.8) ●	425 (3.6)	469 (3.3) ●	422 (3.8)
Belgium (Flemish)	530 (2.3) ▲	517 (2.5)	529 (2.3) ●	522 (2.2)	529 (2.4)	522 (2.5)	529 (2.3) ●	519 (2.5)
² Belgium (French)	512 (2.6) ▲	496 (2.6)	494 (2.9) ●	486 (2.8)	506 (2.5) ●	496 (3.0)	500 (2.5) ●	488 (3.1)
Bulgaria	561 (5.2) ▲	542 (4.6)	561 (4.6) ●	547 (4.5)	557 (4.5) ●	544 (4.2)	560 (4.9) ●	545 (4.3)
^{1 2} Canada	556 (2.3) ▲	538 (2.1)	543 (2.5) ●	537 (2.1)	546 (2.2) ●	537 (1.9)	552 (2.2) ●	539 (2.1)
Chile	511 (2.8) ▲	491 (3.6)	490 (3.0) ●	481 (3.7)	502 (2.9) ●	490 (3.3)	500 (3.3) ●	483 (3.9)
Chinese Taipei	555 (2.4) ▲	543 (2.2)	570 (2.7)	568 (2.3)	565 (2.5) ●	555 (2.0)	562 (2.4) ●	555 (2.7)
Czech Republic	554 (2.3) ▲	536 (2.6)	544 (2.3)	538 (3.1)	556 (2.5) ●	546 (2.9)	544 (2.6) ●	532 (2.5)
² Denmark	560 (2.6) ▲	542 (2.7)	548 (3.0) ●	539 (2.9)	556 (2.7) ●	544 (2.6)	552 (2.6) ●	539 (2.7)
Egypt	348 (5.4) ▲	308 (6.6)	350 (5.6) ●	314 (7.0)	347 (5.5) ●	311 (6.6)	359 (5.8) ●	321 (6.6)
England	572 (2.7) ▲	553 (2.5)	562 (2.6) ●	551 (2.7)	563 (2.4) ●	549 (2.5)	569 (2.4) ●	554 (2.3)
Finland	576 (2.0) ▲	554 (2.4)	579 (2.1) ●	559 (2.6)	582 (2.3) ●	562 (2.6)	573 (2.0) ●	552 (2.3)
France	518 (2.9) ▲	507 (2.8)	513 (2.8)	508 (2.9)	524 (2.8) ●	517 (2.6)	506 (2.9) ●	496 (3.1)
¹ Georgia	501 (2.5) ▲	479 (3.5)	495 (3.1) ●	478 (4.1)	495 (2.6) ●	477 (3.3)	501 (2.7) ●	479 (3.8)
Germany	551 (3.5) ▲	534 (3.8)	536 (3.6)	530 (3.8)	550 (3.5) ●	541 (3.8)	537 (3.5) ●	524 (3.8)
^{2 †} Hong Kong SAR	569 (3.3) ▲	557 (3.7)	580 (3.1)	573 (3.3)	571 (2.9) ●	565 (3.3)	574 (3.1) ●	563 (3.3)
Hungary	566 (3.4) ▲	549 (3.1)	555 (3.9) ●	547 (3.5)	558 (3.7) ●	545 (3.5)	563 (3.5) ●	550 (3.2)
Iran, Islamic Rep. of	457 (4.6) ▲	407 (5.1)	446 (4.5) ●	406 (5.0)	454 (4.6) ●	408 (5.1)	450 (4.8) ●	403 (5.1)
Ireland	580 (3.2) ▲	563 (3.4)	569 (3.2) ●	561 (3.4)	571 (3.2) ●	561 (3.5)	576 (3.4) ●	562 (3.6)
³ Israel	541 (3.4) ▲	523 (3.8)	533 (3.0)	525 (3.4)	536 (2.8) ●	523 (3.4)	537 (3.2) ●	523 (3.6)
Italy	554 (2.4) ▲	543 (2.8)	551 (2.7)	547 (2.6)	550 (2.3) ●	544 (2.8)	554 (2.4) ●	545 (2.4)
Kazakhstan	535 (3.0) ▲	520 (2.6)	547 (3.1) ●	540 (3.0)	534 (2.9) ●	525 (2.8)	548 (3.0) ●	537 (2.5)
Kuwait	405 (4.9) ▲	370 (6.6)	415 (5.0) ●	381 (6.9)	410 (4.7) ●	377 (6.5)	406 (5.2) ●	369 (6.7)
² Latvia	565 (2.2) ▲	545 (2.1)	569 (2.3) ●	553 (2.1)	562 (2.3) ●	546 (2.5)	571 (2.1) ●	553 (1.9)
Lithuania	558 (2.9) ▲	536 (3.1)	561 (2.9) ●	541 (3.1)	560 (2.7) ●	539 (3.0)	558 (2.7) ●	537 (3.0)
Macao SAR	538 (2.3)	534 (2.0)	555 (1.8)	556 (1.6)	548 (1.8)	550 (1.4)	544 (2.2)	542 (1.8)
² Malta	466 (3.0) ▲	439 (2.2)	461 (2.5) ●	443 (2.6)	463 (2.5) ●	441 (2.3)	462 (2.9) ●	441 (2.1)
Morocco	369 (4.3) ▲	338 (4.4)	372 (4.3) ●	346 (4.3)	378 (4.0) ●	350 (4.4)	352 (4.6) ●	321 (5.2)
[†] Netherlands	553 (1.8) ▲	539 (2.4)	549 (2.4) ●	540 (2.6)	551 (2.6) ●	542 (2.3)	550 (1.8) ●	538 (2.3)
New Zealand	539 (2.5) ▲	512 (3.0)	528 (2.9) ●	512 (3.4)	530 (2.5) ●	512 (3.1)	536 (2.8) ●	513 (2.9)
Northern Ireland	582 (3.0) ▲	559 (3.1)	569 (3.1) ●	552 (3.3)	570 (2.6) ●	553 (3.0)	577 (2.6) ●	558 (3.0)
Norway (5)	571 (2.7) ▲	550 (3.2)	568 (2.8) ●	549 (2.9)	570 (2.7) ●	553 (3.0)	568 (2.8) ●	548 (2.5)
Oman	434 (3.4) ▲	387 (3.8)	448 (3.3) ●	403 (3.9)	442 (3.1) ●	397 (3.9)	439 (3.6) ●	391 (4.2)
Poland	577 (2.4) ▲	556 (2.8)	573 (2.9) ●	556 (3.1)	568 (2.6) ●	551 (2.6)	580 (2.7) ●	559 (2.8)
² Portugal	529 (2.8)	527 (2.8)	527 (2.9)	529 (2.7)	527 (2.6)	528 (2.6)	528 (2.8)	525 (2.8)
Qatar	453 (2.3) ▲	415 (3.8)	466 (2.0) ●	433 (3.8)	460 (2.0) ●	424 (3.4)	458 (2.2) ●	423 (3.4)
Russian Federation	587 (2.5) ▲	572 (2.5)	591 (2.8) ●	578 (2.7)	588 (2.5) ●	575 (2.8)	589 (2.4) ●	575 (2.6)
Saudi Arabia	461 (5.1) ▲	401 (5.7)	465 (5.8) ●	395 (6.5)	458 (5.4) ●	395 (5.7)	472 (5.5) ●	408 (5.8)
³ Singapore	586 (3.6) ▲	563 (3.7)	586 (3.5) ●	571 (3.7)	580 (3.4) ●	566 (3.6)	589 (3.4) ●	568 (3.4)
Slovak Republic	545 (3.6) ▲	533 (3.1)	535 (3.6) ●	528 (3.2)	542 (3.4) ●	533 (3.3)	538 (3.4) ●	525 (3.6)
Slovenia	552 (2.9) ▲	531 (2.8)	552 (2.6) ●	536 (2.6)	554 (2.7) ●	539 (2.8)	550 (3.1) ●	529 (2.8)
South Africa	352 (4.2) ▲	296 (5.5)	340 (4.0) ●	290 (5.2)	348 (4.1) ●	297 (5.1)	338 (5.4) ●	281 (5.8)
Spain	536 (1.7) ▲	524 (2.9)	529 (1.5)	525 (2.4)	530 (1.5) ●	523 (2.5)	534 (1.5) ●	525 (2.7)
Sweden	564 (2.7) ▲	548 (2.7)	562 (3.3) ●	548 (2.8)	566 (3.1) ●	555 (3.0)	562 (2.7) ●	544 (2.8)
Trinidad and Tobago	489 (4.0) ▲	466 (4.5)	490 (3.8) ●	469 (4.7)	495 (4.1) ●	471 (4.6)	482 (4.2) ●	461 (4.9)
United Arab Emirates	456 (4.2) ▲	425 (4.6)	474 (4.2) ●	446 (4.6)	463 (4.1) ●	434 (4.5)	468 (4.3) ●	438 (4.5)
[†] United States	563 (3.5) ▲	552 (3.5)	546 (3.2)	540 (3.7)	547 (3.1) ●	539 (3.5)	559 (3.3) ●	551 (3.5)
International Avg.	522 (0.5) ▲	499 (0.5)	519 (0.5) ●	503 (0.5)	520 (0.4) ●	503 (0.5)	520 (0.5) ●	500 (0.5)

▲ Average significantly higher than other gender

See Appendix C.1 for target population coverage notes 1, 2, and 3. See Appendix C.4 for sampling guidelines and sampling participation notes †, ‡, and ≡.
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 3.7: Achievement in Reading Purposes and Comprehension Processes by Gender (Continued)

Country	Reading Purposes				Comprehension Processes				
	Literary		Informational		Retrieving and Straightforward Inferencing		Interpreting, Integrating, and Evaluating		
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	
Benchmarking Participants									
Buenos Aires, Argentina	491 (3.7) ⬆	477 (3.3)	477 (3.8)	473 (3.5)	487 (3.4) ⬆	479 (3.1)	478 (4.2) ⬆	468 (4.1)	
Ontario, Canada	558 (3.8) ⬆	540 (4.0)	543 (4.0)	536 (4.0)	544 (3.7) ⬆	534 (3.7)	555 (3.5) ⬆	542 (3.7)	
≡ Quebec, Canada	558 (3.2) ⬆	540 (3.3)	549 (3.5)	544 (3.3)	555 (3.4) ⬆	546 (3.3)	551 (3.4) ⬆	538 (3.3)	
² Denmark (3)	516 (3.5) ⬆	494 (2.8)	506 (3.3) ⬆	490 (2.8)	511 (3.1) ⬆	489 (2.9)	510 (3.3) ⬆	497 (2.8)	
Norway (4)	531 (2.6) ⬆	510 (2.3)	520 (2.8) ⬆	508 (2.2)	530 (2.8) ⬆	513 (2.2)	521 (2.4) ⬆	504 (2.0)	
Moscow City, Russian Fed.	624 (2.6) ⬆	603 (2.4)	620 (2.6) ⬆	606 (3.0)	620 (2.2) ⬆	603 (3.2)	622 (2.4) ⬆	606 (2.4)	
Eng/Afr/Zulu - RSA (5)	418 (6.2) ⬆	386 (6.9)	421 (6.0) ⬆	393 (6.5)	421 (6.1) ⬆	393 (6.6)	417 (5.9) ⬆	383 (7.1)	
Andalusia, Spain	529 (2.8) ⬆	522 (2.4)	523 (2.9)	524 (2.4)	523 (2.6)	521 (2.1)	529 (3.3)	525 (2.2)	
² Madrid, Spain	556 (2.7) ⬆	545 (2.7)	550 (2.5)	548 (2.6)	549 (2.4)	544 (2.5)	554 (2.3) ⬆	546 (2.6)	
Abu Dhabi, UAE	428 (7.2) ⬆	386 (6.6)	443 (7.3) ⬆	404 (7.1)	433 (7.1) ⬆	395 (6.3)	438 (7.3) ⬆	398 (6.3)	
Dubai, UAE	516 (3.8) ⬆	501 (3.1)	529 (3.8) ⬆	518 (2.7)	518 (3.8) ⬆	506 (3.2)	526 (3.5) ⬆	512 (2.9)	

⬆ Average significantly higher than other gender

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

PIRLS
2016

CHAPTER 4: HOME ENVIRONMENT SUPPORT

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016



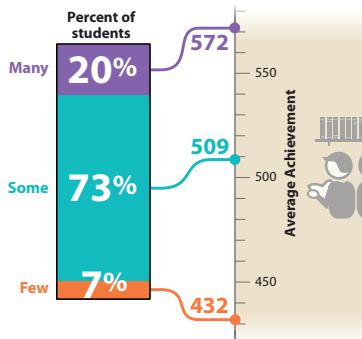
IEA

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Supportive Home Environment for Learning

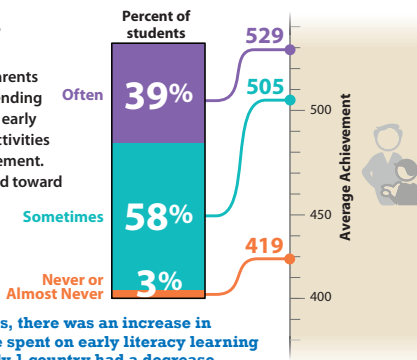
Home Resources for Learning

Students whose parents reported many home resources for learning had much higher achievement than students whose parents reported some or few resources.



Early Literacy Activities

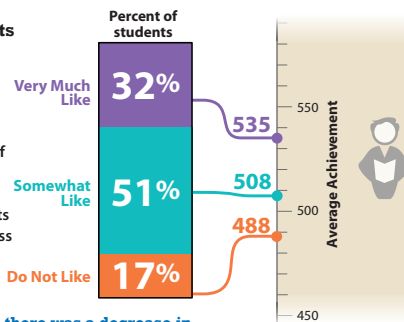
Students whose parents reported often spending time with them on early literacy learning activities had higher achievement. PIRLS shows a trend toward more parental involvement in children's literacy development.



In 16 countries, there was an increase in students' time spent on early literacy learning activities. Only 1 country had a decrease.

Students' Parents Like to Read

Students whose parents reported a greater enjoyment of reading had higher achievement than students with parents who liked reading less or disliked reading.

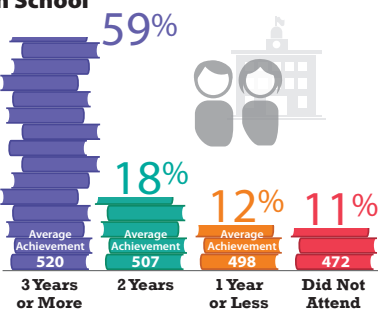


In 31 countries, there was a decrease in parents' positive attitudes toward reading. Only 2 countries had an increase.

An Early Start in School

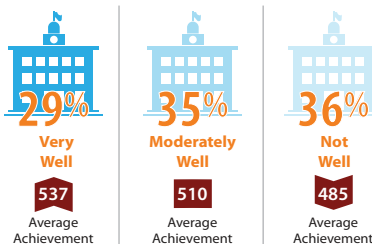
Preprimary Education

There was a positive relationship for students between the number of years they attended preprimary education programs and their reading achievement.



Could Do Literacy Tasks When Beginning Primary School

Parents' reports on whether students could perform early literacy tasks when beginning primary school illustrate that early preparation appears to have an effect through the fourth grade.



CHAPTER 4

Home Environment Support

Exhibit 4.1 and 4.2: Home Resources for Learning

The *Home Resources for Learning* scale combines data reported by students and their parents. The parents' data were collected using the PIRLS 2016 Learning to Read Survey in which students' parents were asked to provide information about their child's experiences learning to read. As explained in Exhibit 4.1, students provided information about the number of books in the home and other study supports, while the parents provided information about the number of children's books, the parents' levels of education, and their occupations. As also explained, students were assigned a score on the scale according to the availability of these five home resources for learning.

The PIRLS 2016 results add to the already extensive amounts of research showing a powerful positive relationship between students' socioeconomic environment and their educational achievement.

In Exhibit 4.1, countries are ordered by the percentage of students in the **Many Resources** category. However, on average, almost three-fourths of the students (73%) were assigned to the **Some Resources** category. Twenty percent were in the **Many Resources** category and 7 percent were in the **Few Resources** category, with a 140-point difference in their average reading achievement (572 vs. 432). Average reading achievement for the students in the **Some Resources** category was in between, at 509 points. The scatterplot on the third page of the exhibit shows the relationship between average reading achievement and home resources for learning for each country.

Exhibit 4.2 presents information about students' access to digital devices in the home. The percentages of students with **High, Medium, and Low Access** mirror the percentages with **Many, Some, and Few Resources**. There was a 122-point difference in average reading across the categories of digital access (536 vs. 414), with very low average achievement for those having low access.

Exhibit 4.1: Home Resources for Learning

Students Categorized by Parents' and Students' Reports

Students were scored according to their own and their parents' responses concerning the availability of five resources on the *Home Resources for Learning* scale. Students with **Many Resources** had a score of at least 11.8, which is the point on the scale corresponding to students reporting they had more than 100 books in the home and both of the home study supports, and parents reporting that they had more than 25 children's books in the home, that at least one parent had finished university, and that at least one parent had a professional occupation, on average. Students with **Few Resources** had a score no higher than 7.5, which is the scale point corresponding to students reporting that they had 25 or fewer books in the home and neither of the home study supports, and parents reporting that they had 10 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 had a clerical or professional occupation, on average. All other students were assigned to the **Some Resources** category.

Country	Many Resources		Some Resources		Few Resources		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Norway (5)	45 (1.2)	581 (2.3)	54 (1.2)	544 (2.5)	1 (0.1)	~ ~	11.4 (0.04)	--
Sweden	r 43 (1.7)	586 (2.3)	56 (1.7)	542 (2.7)	1 (0.1)	~ ~	11.4 (0.05)	r 0.0 (0.08)
Denmark	41 (1.4)	575 (2.2)	58 (1.4)	535 (2.5)	1 (0.2)	~ ~	11.3 (0.05)	0.0 (0.07)
Finland	37 (1.2)	594 (2.0)	63 (1.1)	555 (2.0)	0 (0.1)	~ ~	11.2 (0.03)	0.0 (0.06)
Canada	r 35 (1.0)	579 (1.9)	65 (1.0)	536 (1.9)	1 (0.1)	~ ~	11.2 (0.03)	r -0.2 (0.05)
Ireland	33 (1.4)	607 (2.5)	66 (1.4)	555 (2.2)	1 (0.3)	~ ~	11.0 (0.05)	0.2 (0.08)
Netherlands	s 33 (1.5)	577 (2.5)	67 (1.5)	541 (2.5)	0 (0.1)	~ ~	11.0 (0.05)	s 0.2 (0.08)
Belgium (French)	30 (1.3)	540 (2.5)	67 (1.2)	486 (3.0)	4 (0.4)	439 (7.5)	10.7 (0.05)	0.0 (0.10)
Singapore	29 (0.9)	624 (3.3)	69 (0.8)	562 (3.3)	2 (0.2)	~ ~	10.9 (0.03)	0.2 (0.05)
Hungary	28 (1.7)	603 (2.8)	65 (1.7)	543 (2.5)	6 (0.8)	467 (6.6)	10.6 (0.09)	0.5 (0.13)
Belgium (Flemish)	27 (1.2)	560 (2.1)	71 (1.1)	519 (1.9)	2 (0.3)	~ ~	10.8 (0.05)	--
Germany	s 25 (1.5)	591 (3.4)	74 (1.5)	539 (2.8)	1 (0.2)	~ ~	10.8 (0.06)	s 0.1 (0.09)
France	24 (1.3)	552 (3.5)	73 (1.3)	505 (2.1)	2 (0.3)	~ ~	10.6 (0.05)	0.0 (0.08)
Malta	23 (0.7)	486 (2.9)	76 (0.7)	455 (2.0)	1 (0.2)	~ ~	10.7 (0.02)	r 0.6 (0.03)
Israel	22 (1.3)	588 (3.0)	76 (1.3)	523 (2.9)	1 (0.2)	~ ~	10.9 (0.06)	r 0.1 (0.08)
Austria	22 (1.2)	584 (2.8)	77 (1.1)	533 (2.2)	2 (0.2)	~ ~	10.6 (0.05)	0.2 (0.08)
Slovenia	22 (1.1)	587 (2.6)	77 (1.1)	534 (2.1)	1 (0.2)	~ ~	10.6 (0.04)	0.2 (0.06)
Czech Republic	21 (1.2)	587 (2.0)	77 (1.2)	536 (1.8)	2 (0.3)	~ ~	10.5 (0.05)	0.0 (0.07)
Poland	21 (0.9)	605 (3.1)	76 (1.0)	556 (2.1)	3 (0.4)	509 (10.1)	10.4 (0.05)	--
Chinese Taipei	21 (1.3)	593 (2.8)	74 (1.2)	553 (1.9)	5 (0.4)	513 (6.7)	10.3 (0.06)	0.1 (0.08)
Hong Kong SAR	21 (1.8)	579 (4.9)	74 (1.8)	568 (3.0)	5 (0.5)	553 (7.3)	10.3 (0.08)	0.5 (0.11)
Latvia	21 (1.0)	589 (2.4)	77 (1.0)	552 (1.8)	2 (0.3)	~ ~	10.6 (0.04)	--
Spain	19 (0.7)	565 (1.8)	77 (0.8)	526 (1.7)	4 (0.5)	476 (5.1)	10.3 (0.04)	0.0 (0.07)
Portugal	18 (1.0)	568 (4.2)	76 (0.9)	523 (2.2)	6 (0.5)	487 (4.3)	10.1 (0.05)	0.2 (0.08)
Lithuania	16 (1.0)	594 (3.5)	81 (1.1)	543 (2.6)	3 (0.6)	466 (8.1)	10.2 (0.05)	0.4 (0.07)
Slovak Republic	16 (0.9)	592 (3.4)	77 (1.4)	539 (2.2)	8 (1.1)	397 (13.5)	10.1 (0.05)	0.1 (0.08)
Bulgaria	15 (1.1)	610 (3.9)	71 (1.8)	558 (3.4)	14 (1.8)	466 (10.3)	9.8 (0.09)	0.4 (0.15)
Russian Federation	14 (0.8)	618 (3.2)	84 (0.8)	576 (2.2)	2 (0.3)	~ ~	10.3 (0.04)	-0.1 (0.06)
United Arab Emirates	12 (0.5)	539 (4.7)	85 (0.5)	450 (3.0)	3 (0.2)	369 (8.3)	10.2 (0.03)	0.2 (0.05)
Georgia	12 (0.9)	529 (4.3)	82 (1.2)	488 (2.9)	6 (0.9)	439 (7.9)	10.0 (0.05)	0.1 (0.09)
Qatar	r 11 (0.5)	519 (3.9)	86 (0.6)	449 (2.0)	3 (0.3)	363 (8.6)	10.2 (0.02)	r 0.0 (0.05)
Macao SAR	11 (0.4)	581 (3.7)	81 (0.6)	542 (1.1)	7 (0.4)	530 (3.4)	9.8 (0.02)	--
Trinidad and Tobago	r 10 (0.8)	554 (5.1)	86 (0.9)	480 (3.6)	4 (0.4)	430 (10.2)	10.0 (0.04)	r 0.2 (0.07)
Italy	8 (0.8)	595 (3.3)	86 (0.9)	550 (2.2)	6 (0.6)	507 (6.2)	9.7 (0.05)	0.0 (0.07)
Bahrain	8 (0.6)	519 (6.2)	87 (0.6)	447 (2.7)	5 (0.4)	388 (7.2)	9.8 (0.03)	--
Kazakhstan	8 (0.9)	573 (7.1)	88 (1.0)	534 (2.3)	4 (0.6)	516 (7.4)	9.9 (0.05)	--
Chile	6 (0.4)	557 (4.4)	85 (0.8)	497 (2.6)	10 (0.7)	461 (6.8)	9.3 (0.05)	--
Oman	5 (0.4)	505 (7.8)	81 (0.7)	427 (3.3)	14 (0.6)	368 (4.7)	9.3 (0.03)	0.6 (0.05)
Iran, Islamic Rep. of	4 (0.5)	525 (5.8)	67 (1.4)	449 (3.5)	29 (1.4)	373 (5.4)	8.5 (0.06)	0.4 (0.11)
Kuwait	r 3 (0.6)	479 (12.3)	92 (0.9)	401 (4.2)	5 (0.7)	365 (13.7)	9.6 (0.05)	--
Saudi Arabia	2 (0.3)	~ ~	85 (1.0)	436 (4.0)	13 (1.1)	418 (11.5)	9.1 (0.05)	0.1 (0.09)
Azerbaijan	2 (0.2)	~ ~	75 (1.0)	486 (3.6)	24 (1.1)	440 (6.4)	8.7 (0.05)	0.2 (0.07)
Morocco	r 1 (0.1)	~ ~	38 (1.2)	401 (3.5)	61 (1.2)	342 (4.8)	6.9 (0.06)	s -0.2 (0.11)
Egypt	0 (0.1)	~ ~	61 (1.8)	366 (5.4)	38 (1.8)	277 (8.3)	7.9 (0.08)	--
England	--	--	--	--	--	--	--	--
United States	--	--	--	--	--	--	--	--
Australia	x 46 (1.6)	592 (3.4)	53 (1.6)	541 (3.1)	1 (0.2)	~ ~	11.6 (0.06)	x 0.0 (0.08)
Northern Ireland	x 42 (1.5)	615 (4.3)	57 (1.5)	569 (3.7)	1 (0.2)	~ ~	11.4 (0.05)	x 0.5 (0.09)
New Zealand	x 39 (1.4)	581 (3.2)	60 (1.4)	522 (3.0)	2 (0.4)	~ ~	11.2 (0.05)	x 0.0 (0.07)
South Africa	x 1 (0.4)	~ ~	70 (1.5)	354 (6.4)	29 (1.6)	295 (5.6)	8.3 (0.07)	x -0.1 (0.10)
International Avg.	20 (0.2)	572 (0.6)	73 (0.2)	509 (0.4)	7 (0.1)	432 (1.5)		

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2011 based on the combined response distribution of all 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.

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

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 less than 50% of the students—interpret with caution.

Significantly higher than 2011 ●
Significantly lower than 2011 ○

Exhibit 4.1: Home Resources for Learning (Continued)

Country	Many Resources		Some Resources		Few Resources		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Benchmarking Participants								
Norway (4)	44 (1.4)	543 (2.3)	56 (1.4)	501 (2.3)	1 (0.1)	~ ~	11.4 (0.04)	-0.1 (0.07)
Denmark (3)	41 (1.4)	527 (3.2)	58 (1.4)	488 (3.2)	1 (0.2)	~ ~	11.3 (0.05)	--
Moscow City, Russian Fed.	37 (1.7)	633 (2.1)	62 (1.7)	600 (2.2)	0 (0.1)	~ ~	11.3 (0.05)	--
Ontario, Canada	r 36 (2.0)	580 (3.6)	63 (2.0)	535 (3.3)	0 (0.2)	~ ~	11.2 (0.06)	r -0.1 (0.09)
Quebec, Canada	31 (1.9)	577 (3.4)	68 (1.9)	540 (2.6)	1 (0.2)	~ ~	11.1 (0.06)	0.0 (0.08)
Madrid, Spain	30 (1.6)	576 (2.7)	67 (1.5)	543 (1.9)	2 (0.4)	~ ~	10.8 (0.06)	--
Dubai, UAE	21 (0.5)	579 (2.4)	77 (0.5)	509 (2.2)	2 (0.1)	~ ~	10.7 (0.02)	0.1 (0.03)
Andalusia, Spain	15 (1.2)	563 (2.6)	79 (1.1)	526 (1.8)	6 (0.6)	477 (6.4)	10.0 (0.06)	0.2 (0.09)
Buenos Aires, Argentina	s 14 (1.2)	544 (4.5)	79 (1.2)	486 (3.1)	8 (0.6)	432 (6.7)	10.0 (0.07)	--
Abu Dhabi, UAE	r 10 (0.8)	505 (9.2)	87 (0.9)	420 (4.0)	3 (0.4)	330 (13.5)	10.0 (0.04)	r 0.2 (0.08) ●
Eng/Afr/Zulu - RSA (5)	s 3 (0.9)	564 (11.0)	75 (1.8)	439 (7.8)	22 (2.0)	370 (5.0)	8.7 (0.11)	--

Significantly higher than 2011 ●

Significantly lower than 2011 ○

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Number of books in the home (students):

- 1) 0-10
- 2) 11-25
- 3) 26-100
- 4) 101-200
- 5) More than 200

Number of home study supports (students):

- 1) None
- 2) Internet connection or own room
- 3) Both

Highest level of occupation of either parent (parents):

- 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)

Number of children's books in the home (parents):

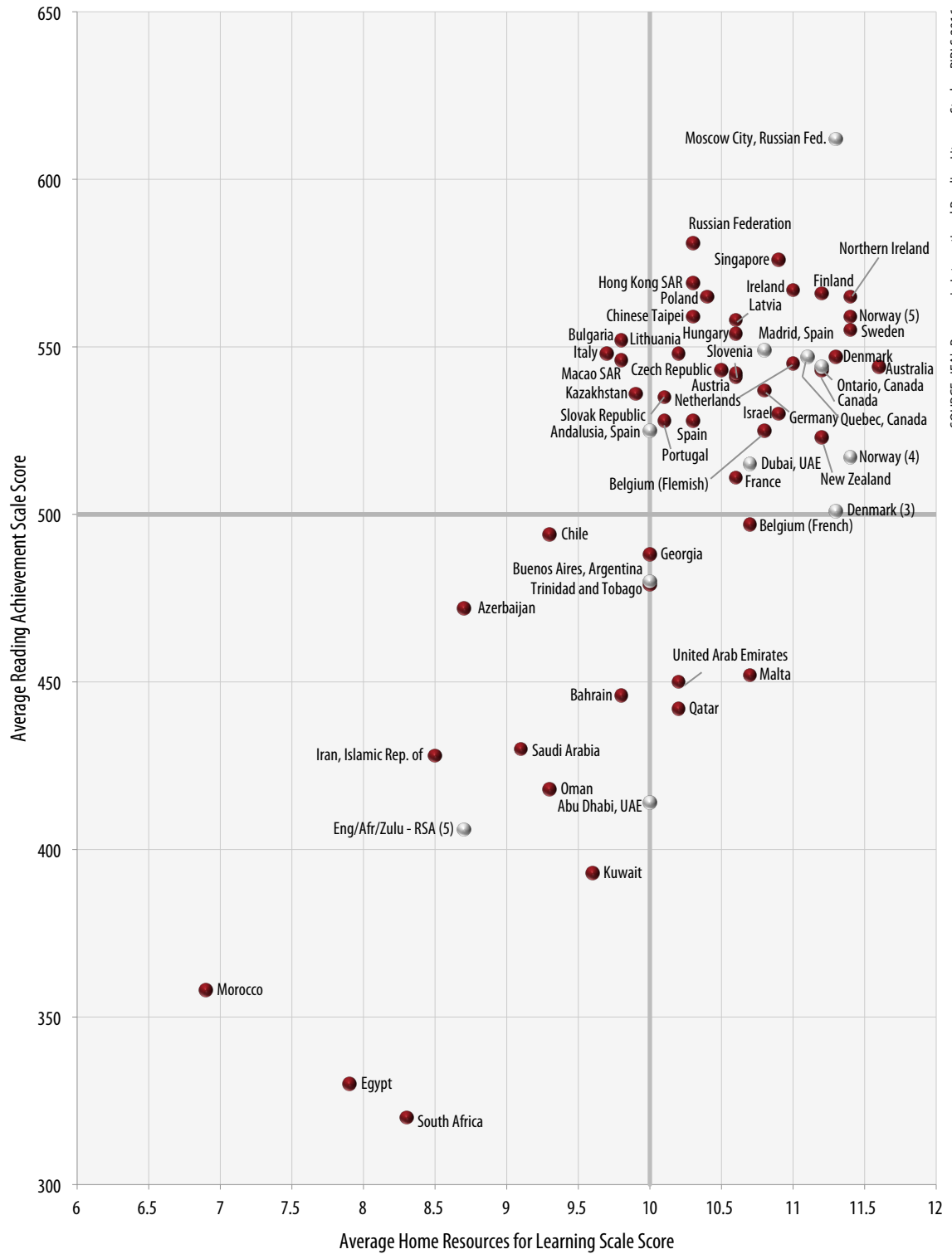
- 1) 0-10
- 2) 11-25
- 3) 26-50
- 4) 51-100
- 5) More than 100

Highest level of education of either parent (parents):

- 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

Exhibit 4.1: Home Resources for Learning (Continued)

Average Reading Achievement by Home Resources for Learning



SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 4.2: Digital Devices in the Home*Students Categorized by Parents' and Students' Reports*

Students were scored according to their own and their parents' responses concerning the availability of four items on the *Digital Devices in the Home* scale. Students with **High Access** had a score of at least 12.1, which is the point on the scale corresponding to students reporting they had a computer and Internet connection, and parents reporting they had seven or more digital information devices in the home as well as a digital device for reading for both themselves and their child. Students with **Low Access** had a score no higher than 6.0, which is the scale point corresponding to students reporting that they did not have a computer or Internet connection, and parents reporting that they had less than four digital information devices in the home and no digital devices for reading for either themselves or their child. All other students were assigned to the **Medium Access** category.

Country	High Access		Medium Access		Low Access		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Norway (5)	58 (1.0)	566 (2.4)	42 (1.0)	552 (2.7)	0 (0.0)	~ ~	11.8 (0.04)
Finland	53 (0.9)	577 (2.0)	47 (0.9)	560 (2.3)	0 (0.0)	~ ~	11.6 (0.03)
Denmark	49 (1.0)	554 (2.9)	51 (1.0)	546 (2.4)	0 (0.0)	~ ~	11.5 (0.04)
Sweden	42 (1.2)	567 (2.7)	58 (1.2)	554 (2.8)	0 (0.1)	~ ~	11.3 (0.05)
Netherlands	s 32 (1.3)	557 (3.4)	68 (1.3)	551 (2.3)	0 (0.0)	~ ~	10.8 (0.05)
Qatar	r 29 (0.5)	474 (2.5)	69 (0.5)	445 (2.5)	1 (0.1)	~ ~	10.6 (0.02)
Belgium (Flemish)	29 (0.7)	535 (2.2)	71 (0.7)	526 (2.1)	0 (0.1)	~ ~	10.6 (0.03)
Hungary	28 (1.2)	575 (3.8)	70 (1.0)	549 (3.0)	2 (0.3)	~ ~	10.6 (0.06)
Canada	r 28 (0.6)	563 (1.8)	71 (0.6)	545 (2.2)	1 (0.1)	~ ~	10.6 (0.02)
Kuwait	r 28 (1.1)	411 (5.5)	71 (1.1)	397 (4.5)	1 (0.2)	~ ~	10.6 (0.05)
United Arab Emirates	26 (0.6)	474 (3.9)	74 (0.6)	451 (3.4)	1 (0.1)	~ ~	10.5 (0.03)
Ireland	25 (0.8)	580 (3.0)	75 (0.8)	568 (2.4)	0 (0.1)	~ ~	10.4 (0.03)
Bahrain	24 (0.8)	470 (3.2)	74 (0.7)	444 (2.6)	2 (0.2)	~ ~	10.2 (0.03)
Singapore	24 (0.6)	605 (3.1)	76 (0.6)	571 (3.3)	1 (0.1)	~ ~	10.4 (0.03)
Israel	23 (0.9)	546 (3.4)	76 (0.9)	534 (3.0)	2 (0.3)	~ ~	10.3 (0.04)
Portugal	21 (0.9)	549 (4.3)	78 (0.9)	524 (2.1)	1 (0.2)	~ ~	10.4 (0.03)
Trinidad and Tobago	r 21 (1.0)	514 (5.0)	75 (1.0)	481 (3.4)	4 (0.4)	417 (11.7)	10.0 (0.05)
Spain	20 (0.6)	550 (2.3)	79 (0.6)	526 (1.9)	1 (0.2)	~ ~	10.1 (0.03)
Bulgaria	19 (0.8)	592 (3.3)	75 (1.0)	549 (4.3)	6 (0.9)	473 (15.8)	9.9 (0.08)
Malta	19 (0.6)	468 (3.6)	80 (0.6)	457 (1.8)	0 (0.1)	~ ~	10.3 (0.02)
Poland	19 (0.8)	586 (3.0)	80 (0.8)	561 (2.1)	1 (0.3)	~ ~	10.5 (0.03)
Lithuania	19 (0.9)	568 (3.7)	79 (0.9)	547 (2.9)	2 (0.4)	~ ~	10.2 (0.05)
Slovak Republic	17 (0.6)	561 (3.4)	80 (0.7)	536 (3.0)	3 (0.6)	389 (19.9)	10.0 (0.05)
Austria	17 (0.7)	557 (3.6)	82 (0.7)	540 (2.4)	1 (0.1)	~ ~	9.9 (0.03)
Latvia	17 (0.6)	572 (3.1)	82 (0.8)	556 (1.9)	1 (0.3)	~ ~	10.2 (0.03)
Saudi Arabia	17 (0.9)	454 (4.6)	78 (0.9)	432 (4.3)	5 (0.5)	415 (12.2)	9.7 (0.06)
Oman	16 (0.6)	452 (5.0)	78 (0.6)	421 (3.4)	6 (0.3)	375 (7.3)	9.5 (0.04)
Czech Republic	16 (0.6)	557 (3.1)	83 (0.6)	544 (2.2)	1 (0.2)	~ ~	9.9 (0.03)
Germany	s 15 (0.7)	558 (3.8)	84 (0.7)	550 (2.7)	1 (0.2)	~ ~	9.7 (0.04)
Belgium (French)	15 (0.7)	507 (4.3)	84 (0.7)	499 (2.8)	1 (0.2)	~ ~	9.9 (0.03)
Macao SAR	14 (0.5)	563 (3.0)	85 (0.5)	543 (1.1)	1 (0.1)	~ ~	9.9 (0.02)
Italy	14 (0.7)	557 (3.7)	85 (0.8)	550 (2.3)	1 (0.2)	~ ~	9.8 (0.03)
Slovenia	13 (0.7)	568 (3.9)	86 (0.6)	541 (2.2)	1 (0.2)	~ ~	9.9 (0.03)
France	13 (0.6)	516 (4.5)	86 (0.6)	514 (2.2)	1 (0.2)	~ ~	9.8 (0.03)
Hong Kong SAR	13 (1.0)	577 (4.6)	87 (1.0)	569 (2.9)	1 (0.2)	~ ~	9.9 (0.05)
Russian Federation	12 (0.7)	604 (3.0)	85 (0.7)	580 (2.2)	3 (0.3)	519 (11.6)	10.0 (0.04)
Chinese Taipei	11 (0.5)	575 (3.5)	87 (0.5)	559 (2.1)	2 (0.2)	~ ~	9.7 (0.03)
Kazakhstan	10 (0.8)	561 (5.0)	81 (0.9)	535 (2.4)	8 (0.8)	516 (5.6)	9.5 (0.08)
Chile	8 (0.5)	540 (3.7)	83 (1.0)	495 (2.6)	9 (0.9)	470 (7.3)	9.0 (0.06)
Egypt	4 (0.6)	407 (14.0)	66 (1.8)	352 (5.1)	30 (1.8)	281 (9.3)	7.8 (0.10)
Georgia	4 (0.3)	513 (6.6)	87 (0.9)	492 (2.7)	9 (1.0)	468 (9.3)	9.0 (0.06)
Azerbaijan	3 (0.5)	523 (6.7)	63 (1.4)	490 (3.4)	34 (1.5)	448 (5.6)	7.6 (0.08)
Morocco	3 (0.2)	431 (7.8)	50 (1.1)	386 (3.9)	47 (1.2)	335 (4.7)	6.9 (0.07)
South Africa	s 3 (0.5)	429 (15.6)	64 (1.5)	341 (6.3)	33 (1.6)	313 (4.5)	7.4 (0.09)
Iran, Islamic Rep. of	2 (0.2)	~ ~	75 (1.4)	445 (4.2)	23 (1.5)	381 (6.7)	8.1 (0.07)
England	--	--	--	--	--	--	--
United States	--	--	--	--	--	--	--
Northern Ireland	x 32 (1.4)	599 (5.0)	67 (1.4)	582 (3.6)	0 (0.2)	~ ~	10.9 (0.06)
Australia	x 29 (1.0)	572 (4.6)	71 (1.0)	560 (3.1)	0 (0.1)	~ ~	10.7 (0.04)
New Zealand	x 22 (1.0)	559 (4.2)	76 (1.1)	540 (2.8)	2 (0.3)	~ ~	10.2 (0.04)
International Avg.	20 (0.1)	536 (0.7)	74 (0.1)	512 (0.4)	5 (0.1)	414 (2.8)	

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

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

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 less than 50% of the students—interpret with caution.

Exhibit 4.2: Digital Devices in the Home (Continued)

Country	High Access		Medium Access		Low Access		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Benchmarking Participants							
Norway (4)	54 (1.2)	528 (2.0)	46 (1.2)	508 (2.9)	0 (0.1)	~ ~	11.7 (0.04)
Denmark (3)	45 (1.1)	512 (3.4)	55 (1.1)	495 (3.6)	0 (0.0)	~ ~	11.4 (0.03)
Ontario, Canada r	32 (1.0)	561 (3.8)	68 (1.0)	547 (3.6)	0 (0.1)	~ ~	10.8 (0.04)
Dubai, UAE	30 (0.5)	531 (3.0)	70 (0.5)	516 (2.2)	0 (0.1)	~ ~	10.8 (0.02)
Madrid, Spain	27 (0.8)	567 (2.6)	72 (0.8)	546 (2.1)	0 (0.1)	~ ~	10.5 (0.04)
Abu Dhabi, UAE r	26 (1.0)	445 (6.3)	73 (1.0)	416 (4.5)	1 (0.1)	~ ~	10.5 (0.04)
Moscow City, Russian Fed.	25 (0.9)	625 (2.6)	75 (0.9)	608 (2.3)	0 (0.1)	~ ~	10.8 (0.03)
Buenos Aires, Argentina s	23 (1.4)	518 (4.6)	76 (1.3)	482 (3.3)	1 (0.2)	~ ~	10.2 (0.06)
Quebec, Canada	19 (0.8)	565 (4.0)	80 (0.8)	548 (3.1)	0 (0.2)	~ ~	10.2 (0.04)
Andalusia, Spain	18 (0.9)	548 (3.0)	80 (0.9)	524 (2.0)	2 (0.3)	~ ~	10.0 (0.04)
Eng/Afr/Zulu - RSA (5) s	6 (0.7)	503 (13.8)	70 (1.6)	427 (7.7)	24 (1.8)	376 (5.3)	8.0 (0.12)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

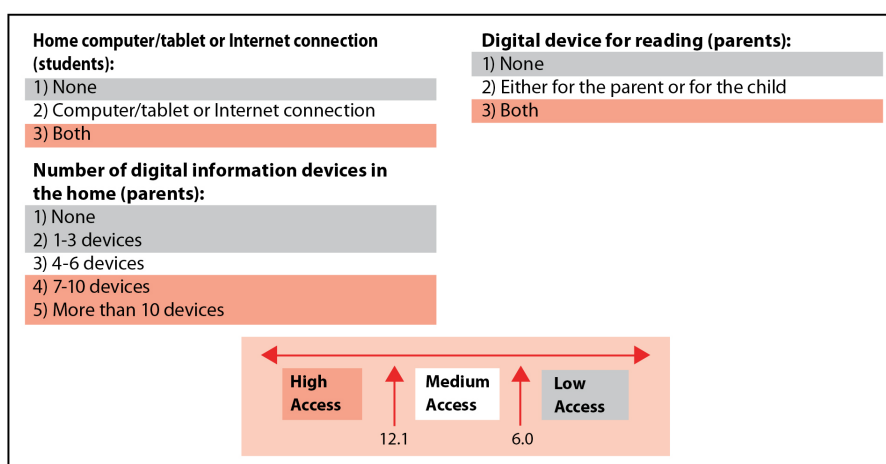


Exhibit 4.3: Students Speak the Language of the Test at Home

Because learning to read is dependent on children’s early language experience, the language or languages spoken at home can be important influences in reading literacy development. Exhibit 4.3 shows, on average, that 63 percent of the students reported “always” speaking the language of the test at home and most of the rest (31%) speaking it “almost always” or “sometimes.” There was relatively small variation in average achievement across these categories (511, 520, and 504, respectively), probably because of the many different interactions between the different languages which are spoken in homes and the various policies for the language(s) spoken in school, described in the [PIRLS 2016 Encyclopedia](#). However, the few students (5% on average) who “never” spoke the language of the test at home had much lower average reading achievement (433).

Exhibit 4.3: Students Speak the Language of the Test at Home*Students' Reports*

Country	Always		Almost Always		Sometimes		Never	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	72 (1.0)	546 (2.6)	13 (0.6)	557 (4.4)	14 (0.7)	532 (5.1)	1 (0.1)	~ ~
Austria	69 (1.4)	553 (1.7)	13 (0.8)	536 (4.8)	16 (0.9)	501 (5.3)	3 (0.2)	495 (9.6)
Azerbaijan	76 (1.4)	472 (4.0)	12 (0.8)	473 (9.0)	11 (0.8)	490 (5.1)	1 (0.2)	~ ~
Bahrain	52 (1.0)	437 (2.7)	13 (0.5)	467 (5.7)	29 (0.8)	467 (4.1)	5 (0.4)	407 (9.5)
Belgium (Flemish)	66 (1.2)	536 (1.8)	10 (0.5)	524 (3.6)	19 (0.8)	500 (3.2)	4 (0.4)	486 (7.3)
Belgium (French)	61 (1.2)	504 (2.4)	17 (0.8)	504 (4.0)	20 (0.9)	478 (4.1)	2 (0.2)	~ ~
Bulgaria	75 (2.1)	567 (3.5)	8 (0.6)	556 (6.0)	11 (1.3)	508 (8.6)	6 (1.2)	445 (14.8)
Canada	60 (1.1)	542 (2.1)	18 (0.6)	559 (2.5)	19 (0.8)	539 (2.4)	3 (0.3)	518 (8.5)
Chile	78 (0.8)	498 (2.5)	9 (0.4)	515 (5.8)	7 (0.4)	491 (5.4)	6 (0.5)	441 (6.6)
Chinese Taipei	39 (0.9)	555 (2.7)	20 (0.7)	574 (3.1)	40 (0.9)	557 (2.2)	1 (0.2)	~ ~
Czech Republic	77 (0.7)	542 (2.2)	16 (0.7)	556 (3.4)	7 (0.4)	531 (3.7)	1 (0.1)	~ ~
Denmark	69 (1.1)	553 (2.1)	20 (0.8)	547 (4.0)	10 (0.8)	521 (6.3)	1 (0.2)	~ ~
Egypt	57 (3.0)	328 (7.7)	11 (1.4)	346 (9.8)	16 (2.2)	354 (10.5)	16 (2.2)	317 (11.6)
England	73 (1.1)	559 (2.1)	11 (0.6)	575 (3.4)	14 (0.8)	555 (3.6)	2 (0.2)	~ ~
Finland	71 (1.2)	570 (1.8)	19 (0.8)	568 (3.2)	9 (0.9)	541 (5.1)	1 (0.2)	~ ~
France	71 (1.1)	514 (2.4)	13 (0.7)	520 (4.1)	15 (0.7)	494 (3.6)	1 (0.2)	~ ~
Georgia	75 (1.2)	490 (2.9)	9 (0.5)	511 (5.9)	14 (1.0)	484 (5.3)	2 (0.6)	~ ~
Germany	67 (1.4)	552 (2.6)	16 (1.0)	536 (7.3)	15 (0.9)	510 (4.8)	1 (0.2)	~ ~
Hong Kong SAR	54 (1.4)	566 (2.9)	14 (0.7)	577 (4.4)	28 (1.2)	573 (4.4)	4 (0.4)	554 (8.8)
Hungary	82 (0.8)	556 (2.8)	15 (0.8)	554 (5.2)	2 (0.4)	~ ~	0 (0.1)	~ ~
Iran, Islamic Rep. of	59 (2.5)	448 (3.9)	8 (0.7)	435 (9.4)	14 (0.9)	436 (9.0)	19 (2.1)	360 (9.9)
Ireland	79 (1.2)	567 (2.4)	10 (0.7)	587 (5.1)	10 (0.8)	559 (5.5)	2 (0.3)	~ ~
Israel	69 (1.3)	527 (2.7)	13 (0.6)	553 (4.9)	16 (0.9)	539 (3.9)	2 (0.3)	~ ~
Italy	70 (1.1)	554 (2.4)	14 (0.8)	552 (3.7)	14 (0.8)	523 (3.6)	2 (0.4)	~ ~
Kazakhstan	78 (1.2)	537 (2.5)	8 (0.5)	546 (4.6)	13 (0.9)	530 (4.5)	1 (0.2)	~ ~
Kuwait	13 (0.9)	374 (9.0)	24 (1.3)	393 (5.2)	33 (1.4)	420 (5.7)	30 (2.0)	384 (5.3)
Latvia	67 (1.3)	560 (2.1)	20 (1.0)	562 (2.8)	11 (0.8)	543 (3.7)	2 (0.3)	~ ~
Lithuania	70 (1.2)	549 (2.6)	19 (0.8)	562 (3.8)	10 (0.8)	526 (6.0)	1 (0.2)	~ ~
Macao SAR	54 (0.7)	550 (1.4)	15 (0.5)	561 (3.3)	29 (0.7)	535 (2.2)	2 (0.2)	~ ~
Malta	49 (0.9)	459 (2.3)	20 (0.7)	463 (3.6)	26 (0.7)	451 (3.4)	5 (0.4)	378 (7.3)
Morocco	12 (0.9)	338 (6.9)	15 (1.1)	369 (9.2)	26 (1.1)	392 (4.7)	47 (1.8)	340 (4.3)
Netherlands	66 (1.1)	549 (2.0)	16 (0.8)	549 (3.4)	15 (0.9)	527 (3.9)	3 (0.6)	527 (10.8)
New Zealand	--	--	--	--	--	--	--	--
Northern Ireland	85 (0.9)	565 (2.3)	9 (0.7)	578 (5.5)	5 (0.5)	555 (7.6)	1 (0.2)	~ ~
Norway (5)	68 (1.2)	563 (2.5)	21 (1.0)	557 (3.2)	10 (0.7)	542 (4.5)	1 (0.2)	~ ~
Oman	59 (1.6)	420 (3.6)	16 (0.9)	419 (5.1)	18 (0.7)	438 (4.6)	8 (0.6)	392 (7.5)
Poland	81 (1.0)	560 (2.2)	16 (0.9)	588 (3.5)	3 (0.4)	573 (7.0)	0 (0.1)	~ ~
Portugal	83 (0.8)	528 (2.5)	9 (0.5)	538 (4.1)	8 (0.5)	512 (3.8)	1 (0.2)	~ ~
Qatar	37 (0.8)	423 (2.5)	15 (0.4)	455 (3.3)	38 (0.7)	470 (2.5)	10 (0.5)	408 (5.2)
Russian Federation	79 (1.0)	583 (2.3)	11 (0.7)	584 (4.4)	8 (0.8)	569 (7.0)	1 (0.3)	~ ~
Saudi Arabia	27 (1.6)	408 (5.2)	22 (1.4)	452 (5.4)	24 (1.2)	454 (5.9)	28 (1.6)	438 (7.4)
Singapore	30 (0.6)	585 (3.4)	22 (0.6)	599 (3.2)	45 (0.7)	564 (3.7)	3 (0.2)	508 (9.0)
Slovak Republic	69 (1.3)	543 (2.8)	17 (0.7)	554 (3.3)	11 (1.1)	494 (10.6)	2 (0.6)	~ ~
Slovenia	74 (1.6)	547 (2.0)	14 (0.7)	552 (4.1)	10 (0.8)	508 (4.5)	3 (0.7)	487 (10.4)
South Africa	66 (1.3)	314 (4.1)	9 (0.4)	313 (8.0)	19 (0.9)	363 (7.5)	6 (0.4)	308 (8.1)
Spain	57 (1.3)	531 (1.4)	13 (0.6)	542 (3.0)	20 (0.8)	523 (3.8)	10 (0.8)	502 (4.3)
Sweden	68 (1.4)	562 (2.5)	18 (0.9)	550 (3.6)	13 (0.9)	531 (6.0)	1 (0.1)	~ ~
Trinidad and Tobago	81 (1.3)	479 (3.2)	8 (0.7)	498 (9.6)	9 (0.9)	486 (6.9)	2 (0.3)	~ ~
United Arab Emirates	39 (0.8)	431 (3.4)	16 (0.6)	482 (4.2)	37 (0.7)	479 (4.4)	8 (0.5)	405 (6.4)
United States	72 (1.3)	555 (2.8)	11 (0.7)	553 (4.9)	16 (1.2)	529 (6.2)	1 (0.2)	~ ~
International Avg.	63 (0.2)	511 (0.5)	14 (0.1)	520 (0.7)	17 (0.1)	504 (0.8)	5 (0.1)	433 (1.9)

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

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

Exhibit 4.3: Students Speak the Language of the Test at Home (Continued)

Country	Always		Almost Always		Sometimes		Never	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants								
Buenos Aires, Argentina	75 (0.7)	479 (3.4)	11 (0.5)	505 (5.3)	12 (0.6)	489 (5.1)	2 (0.2)	~ ~
Ontario, Canada	57 (1.8)	541 (3.7)	19 (0.9)	563 (3.9)	21 (1.3)	540 (4.3)	3 (0.3)	510 (10.8)
Quebec, Canada	53 (2.2)	548 (3.5)	21 (1.2)	557 (3.9)	21 (1.6)	535 (4.4)	5 (0.7)	550 (7.6)
Denmark (3)	67 (1.2)	508 (3.2)	20 (0.9)	501 (3.9)	11 (0.9)	471 (6.4)	1 (0.2)	~ ~
Norway (4)	65 (1.1)	521 (1.9)	21 (0.9)	521 (3.5)	13 (0.8)	499 (4.3)	2 (0.2)	~ ~
Moscow City, Russian Fed.	79 (0.8)	613 (2.1)	14 (0.7)	617 (3.9)	6 (0.4)	591 (5.7)	0 (0.1)	~ ~
Eng/Afr/Zulu - RSA (5)	51 (2.0)	400 (5.8)	10 (0.7)	414 (11.8)	34 (2.0)	427 (8.2)	5 (0.8)	357 (9.0)
Andalusia, Spain	76 (0.9)	524 (2.1)	11 (0.7)	545 (3.6)	10 (0.6)	521 (4.4)	3 (0.3)	467 (9.9)
Madrid, Spain	64 (0.9)	548 (2.2)	18 (0.7)	561 (2.6)	15 (0.6)	547 (3.6)	2 (0.3)	~ ~
Abu Dhabi, UAE	41 (1.3)	390 (5.7)	14 (0.8)	449 (7.3)	35 (1.0)	452 (7.2)	10 (0.9)	386 (8.9)
Dubai, UAE	29 (0.7)	511 (2.8)	21 (0.6)	532 (2.6)	44 (0.8)	524 (2.6)	6 (0.5)	459 (6.0)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 4.4: Parents Like Reading

Young students who see adults and older children reading or using texts in different ways are learning to appreciate and use materials. Exhibit 4.4 presents the PIRLS 2016 *Parents Like Reading* scale. As described in the exhibit, students' parents were asked a series of questions about their reading enjoyment and students were scored according to their parents' responses. Exhibit 4.4 shows students' average reading achievement in relation to how much their parents like to read. Across the PIRLS 2016 countries, the students whose parents **Very Much Like** to read (32%) had higher average achievement than the 51 percent of the students whose parents only like to read **Somewhat** (535 vs. 508). In turn, the students with parents who **Do Not Like** to read (17%) had the lowest achievement (488).

Compared to PIRLS 2011, parental attitudes toward reading in 2016 were less positive on average in 31 countries, and more positive in only 2 countries.

Exhibit 4.4: Parents Like Reading

Students Categorized by Parents' Reports

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. Students whose parents **Very Much Like** reading had a score on the scale of at least 10.5, which corresponds 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 no higher than 8.1, which corresponds 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.

Country	Very Much Like		Somewhat Like		Do Not Like		Average Scale Score	Difference in Average Scale Score from 2011	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement			
Ireland	47 (1.1)	588 (2.9)	40 (1.0)	560 (2.9)	13 (0.7)	544 (5.2)	10.3 (0.05)	-0.4 (0.07)	↕
Netherlands	46 (1.5)	566 (2.8)	39 (1.2)	548 (3.1)	16 (0.9)	525 (4.3)	10.0 (0.05)	-0.4 (0.08)	↕
Malta	45 (0.8)	471 (2.3)	42 (0.9)	451 (2.6)	13 (0.5)	439 (3.9)	10.2 (0.03)	-0.4 (0.05)	↕
Denmark	44 (1.1)	564 (2.3)	38 (1.0)	542 (2.7)	17 (0.7)	530 (3.6)	10.1 (0.05)	-0.6 (0.06)	↕
Sweden	44 (1.1)	576 (2.9)	42 (1.1)	551 (3.0)	13 (0.8)	529 (4.4)	10.1 (0.05)	-0.8 (0.07)	↕
Azerbaijan	44 (1.3)	481 (5.1)	46 (1.1)	470 (4.4)	10 (0.9)	453 (6.8)	10.4 (0.06)	0.7 (0.08)	⬆
Norway (5)	42 (1.0)	574 (2.6)	44 (0.9)	556 (2.5)	15 (0.9)	532 (3.9)	10.1 (0.05)	-	-
Trinidad and Tobago	41 (1.0)	499 (3.6)	49 (0.9)	478 (4.3)	10 (0.6)	468 (6.1)	10.2 (0.04)	-0.5 (0.06)	↕
Finland	41 (1.0)	585 (2.2)	43 (0.9)	563 (2.5)	16 (0.7)	542 (3.4)	10.0 (0.05)	-0.5 (0.07)	↕
Spain	41 (0.8)	545 (2.1)	43 (0.7)	524 (2.3)	16 (0.7)	512 (2.5)	10.0 (0.04)	0.0 (0.05)	-
Israel	40 (1.1)	554 (3.1)	47 (0.9)	522 (3.2)	13 (0.6)	519 (6.4)	10.0 (0.04)	-0.5 (0.06)	↕
Austria	40 (1.1)	564 (2.3)	42 (0.8)	534 (2.7)	18 (0.8)	516 (3.7)	9.9 (0.05)	-0.4 (0.08)	↕
Canada	40 (0.8)	566 (2.1)	46 (0.7)	540 (2.5)	15 (0.5)	531 (3.3)	10.0 (0.03)	-0.5 (0.05)	↕
Bulgaria	39 (1.4)	587 (3.1)	43 (1.4)	548 (4.2)	19 (1.7)	493 (9.1)	9.8 (0.09)	-0.2 (0.13)	-
Hungary	38 (1.4)	583 (3.0)	45 (1.2)	547 (3.3)	17 (1.0)	516 (4.6)	9.8 (0.06)	-0.1 (0.08)	-
Czech Republic	37 (1.0)	565 (2.4)	45 (0.7)	540 (2.2)	18 (0.8)	514 (4.2)	9.8 (0.05)	-0.2 (0.06)	↕
Italy	37 (1.0)	566 (2.5)	47 (0.9)	546 (2.7)	16 (0.8)	530 (3.8)	9.9 (0.04)	0.1 (0.06)	-
Germany	36 (1.1)	578 (2.7)	44 (0.9)	540 (3.3)	20 (0.9)	509 (5.0)	9.7 (0.05)	-0.4 (0.08)	↕
Poland	35 (0.8)	581 (2.9)	50 (0.8)	561 (2.3)	14 (0.8)	540 (4.3)	9.9 (0.04)	-	-
Slovak Republic	35 (1.0)	566 (2.6)	46 (1.0)	532 (3.2)	19 (1.0)	489 (9.5)	9.6 (0.06)	-0.3 (0.08)	↕
Portugal	35 (0.9)	546 (3.0)	50 (0.9)	522 (2.4)	15 (0.7)	510 (5.4)	9.8 (0.04)	0.2 (0.05)	⬆
Georgia	32 (1.0)	512 (2.9)	60 (1.1)	482 (2.9)	8 (0.8)	460 (11.3)	9.9 (0.04)	-0.2 (0.06)	↕
Belgium (French)	29 (0.9)	526 (2.8)	48 (0.9)	495 (3.2)	23 (0.8)	473 (3.6)	9.4 (0.04)	-0.4 (0.07)	↕
Belgium (Flemish)	28 (0.8)	546 (2.0)	48 (0.8)	527 (2.1)	24 (0.7)	509 (2.9)	9.3 (0.04)	-	-
Lithuania	27 (1.0)	572 (3.2)	48 (1.3)	546 (3.5)	25 (1.1)	530 (3.9)	9.3 (0.04)	-0.3 (0.06)	↕
Slovenia	27 (0.9)	571 (3.0)	58 (1.1)	539 (2.2)	16 (0.7)	517 (3.6)	9.5 (0.03)	-0.3 (0.05)	↕
Bahrain	26 (0.7)	471 (3.2)	60 (0.9)	444 (2.9)	14 (0.6)	417 (4.3)	9.6 (0.02)	-	-
Kazakhstan	26 (1.1)	545 (3.2)	67 (1.1)	533 (2.9)	7 (0.5)	531 (4.7)	9.9 (0.04)	-	-
Latvia	26 (0.8)	579 (2.6)	62 (0.9)	557 (2.2)	22 (0.8)	541 (3.3)	9.4 (0.04)	-	-
Kuwait	25 (1.0)	425 (6.1)	57 (1.0)	395 (4.5)	18 (0.8)	378 (7.5)	9.5 (0.04)	-	-
Russian Federation	25 (0.8)	602 (2.5)	56 (0.8)	578 (2.3)	20 (0.7)	560 (3.6)	9.4 (0.03)	-0.2 (0.05)	↕
Singapore	25 (0.6)	603 (3.3)	57 (0.7)	572 (3.2)	18 (0.6)	561 (4.0)	9.4 (0.02)	-0.3 (0.03)	↕
Iran, Islamic Rep. of	25 (1.1)	459 (4.9)	62 (1.1)	429 (3.5)	14 (1.0)	374 (11.2)	9.5 (0.05)	-0.3 (0.06)	↕
South Africa	24 (0.7)	359 (7.0)	63 (1.1)	322 (5.3)	13 (0.9)	307 (7.0)	9.7 (0.03)	-0.2 (0.05)	↕
Qatar	24 (0.7)	489 (3.3)	62 (0.8)	441 (2.0)	14 (0.4)	428 (4.3)	9.5 (0.02)	-0.2 (0.05)	↕
France	22 (0.8)	539 (3.2)	56 (0.8)	513 (2.2)	21 (0.9)	491 (4.0)	9.3 (0.04)	-0.2 (0.06)	↕
United Arab Emirates	22 (0.5)	496 (3.6)	65 (0.5)	445 (3.4)	13 (0.4)	436 (4.5)	9.5 (0.02)	-0.1 (0.03)	↕
Morocco	22 (0.9)	397 (4.3)	47 (1.5)	365 (4.4)	31 (1.8)	330 (6.0)	9.0 (0.06)	-0.3 (0.10)	↕
Chile	21 (0.8)	529 (3.3)	52 (0.9)	491 (2.8)	27 (0.9)	480 (3.7)	9.2 (0.04)	-	-
Oman	21 (0.5)	450 (4.7)	67 (0.6)	418 (3.3)	12 (0.5)	380 (5.3)	9.5 (0.02)	0.0 (0.03)	-
Saudi Arabia	21 (0.9)	454 (4.7)	62 (1.0)	428 (4.8)	17 (0.8)	414 (6.2)	9.4 (0.04)	-0.2 (0.06)	↕
Chinese Taipei	19 (0.8)	584 (2.9)	61 (0.7)	556 (2.5)	20 (0.8)	548 (2.8)	9.2 (0.03)	-0.2 (0.05)	↕
Hong Kong SAR	17 (0.8)	580 (3.1)	61 (0.9)	569 (3.2)	22 (0.8)	562 (3.5)	9.1 (0.03)	-0.2 (0.04)	↕
Macao SAR	17 (0.6)	563 (2.4)	62 (0.8)	544 (1.4)	22 (0.6)	538 (2.7)	9.1 (0.02)	-	-
Egypt	13 (1.0)	385 (8.1)	54 (1.6)	345 (5.0)	33 (1.8)	286 (8.4)	8.7 (0.07)	-	-
England	--	--	--	--	--	--	--	--	--
United States	--	--	--	--	--	--	--	--	--
Northern Ireland	x 49 (1.5)	602 (3.9)	36 (1.5)	577 (5.1)	15 (1.0)	568 (6.0)	10.3 (0.07)	-0.4 (0.08)	↕
Australia	x 48 (1.4)	582 (3.5)	40 (1.3)	551 (3.6)	12 (0.9)	535 (5.3)	10.3 (0.06)	-0.4 (0.09)	↕
New Zealand	x 47 (1.6)	567 (3.0)	40 (1.5)	524 (4.0)	13 (0.7)	511 (6.2)	10.3 (0.06)	-0.6 (0.07)	↕
International Avg.	32 (0.1)	535 (0.5)	51 (0.1)	508 (0.5)	17 (0.1)	488 (0.8)			

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2011 based on the combined response distribution of all 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.

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

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 less than 50% of the students—interpret with caution.

Significantly higher than 2011 ⬆
Significantly lower than 2011 ↕



Exhibit 4.4: Parents Like Reading (Continued)

Country	Very Much Like		Somewhat Like		Do Not Like		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Benchmarking Participants								
Madrid, Spain	48 (1.2)	562 (2.3)	41 (1.0)	544 (2.0)	12 (0.6)	534 (4.5)	10.4 (0.05)	--
Ontario, Canada	42 (1.2)	567 (3.8)	45 (1.0)	540 (3.7)	13 (0.8)	533 (4.7)	10.1 (0.06)	-0.5 (0.08) ▼
Denmark (3)	42 (1.2)	518 (3.4)	41 (1.1)	497 (3.2)	17 (0.7)	480 (4.2)	10.0 (0.05)	--
Andalusia, Spain	41 (1.0)	543 (1.9)	42 (0.8)	524 (2.7)	17 (1.0)	504 (3.8)	10.0 (0.05)	0.2 (0.07)
Norway (4)	40 (0.9)	536 (2.5)	45 (0.9)	513 (2.2)	15 (0.6)	489 (3.5)	9.9 (0.03)	-0.6 (0.08) ▼
Moscow City, Russian Fed.	38 (1.1)	626 (2.5)	51 (0.9)	606 (2.4)	10 (0.6)	586 (4.0)	10.0 (0.04)	--
Buenos Aires, Argentina	34 (1.1)	515 (3.6)	51 (1.1)	475 (3.9)	15 (0.8)	474 (5.7)	9.9 (0.05)	--
Quebec, Canada	31 (1.3)	564 (3.3)	51 (1.2)	547 (3.5)	17 (1.0)	536 (3.7)	9.6 (0.06)	-0.3 (0.08) ▼
Eng/Afr/Zulu - RSA (5)	30 (1.1)	446 (7.5)	58 (1.1)	406 (7.9)	12 (0.6)	401 (9.9)	9.8 (0.04)	--
Dubai, UAE	28 (0.6)	552 (2.7)	59 (0.8)	508 (2.4)	12 (0.6)	497 (3.5)	9.7 (0.02)	-0.2 (0.03) ▼
Abu Dhabi, UAE	21 (0.8)	461 (6.7)	66 (1.0)	414 (4.3)	13 (0.7)	400 (7.0)	9.4 (0.03)	-0.1 (0.05) ▼

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

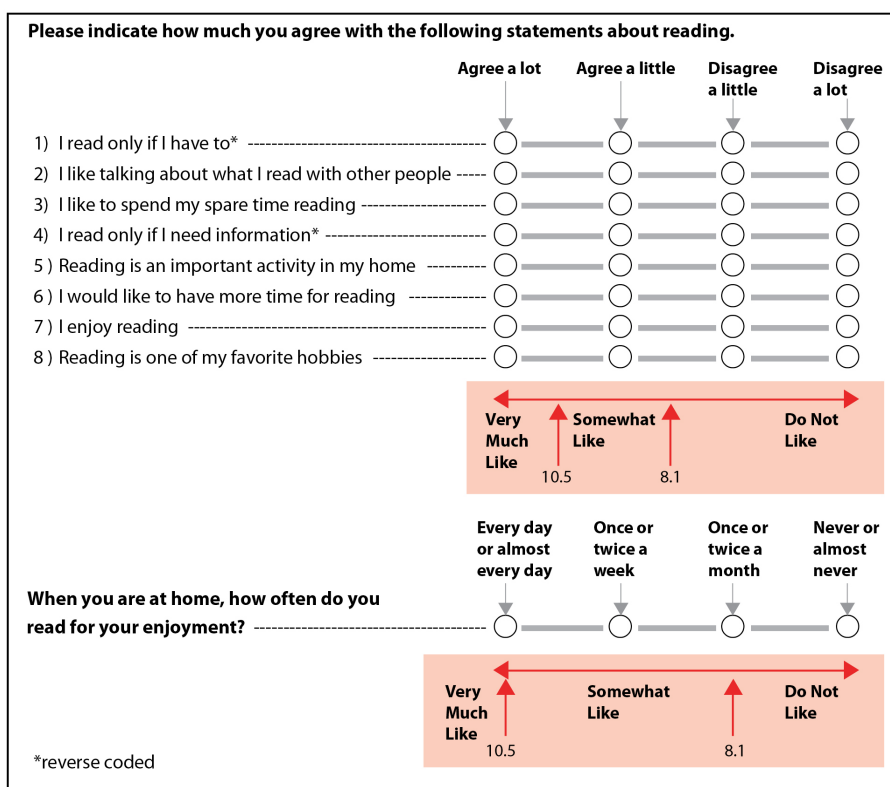


Exhibit 4.5: Early Literacy Activities Before Beginning Primary School

PIRLS has included an *Early Literacy Activities* scale in each assessment, and the results consistently show a strong relationship with achievement. Exhibit 4.5 shows that 39 percent of the students had parents who **Often** engaged them in early literacy activities and an additional 58 percent had parents who **Sometimes** engaged them in early literacy activities, with the students in the **Often** category having higher average achievement (529 vs. 505, respectively). In several countries, a small percentage of students (3% on average) had parents who **Never or Almost Never** engaged them in early literacy activities and these students typically had low average reading achievement (419).

As some good news, PIRLS shows a trend toward more parental involvement in their children's literacy development. In 16 countries, there was an increase between PIRLS 2011 and 2016 in the time spent on early literacy activities and only 1 country had a decrease.

Exhibit 4.5: Early Literacy Activities Before Beginning Primary School

Students Categorized by Parents' Reports

Students were scored according to their parents' frequency of doing the nine activities on the *Early Literacy Activities* scale. Students **Often** engaged in early literacy activities had a score on the scale of at least 10.7, which corresponds to their parents "often" doing five of the nine activities with them and "sometimes" doing the other four, on average. Students **Never or Almost Never** engaged in such activities had a score no higher than 6.2, which corresponds to parents "never or almost never" doing five of the nine activities with them and "sometimes" doing the other four, on average. All other students had parents who **Sometimes** engaged them in early literacy activities.

Country	Often		Sometimes		Never or Almost Never		Average Scale Score	Difference in Average Scale Score from 2011	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement			
Russian Federation	65 (1.0)	587 (2.3)	34 (1.0)	569 (3.1)	1 (0.1)	~ ~	11.3 (0.04)	0.2 (0.07)	⬆
Kazakhstan	65 (1.3)	539 (2.7)	35 (1.3)	531 (3.0)	0 (0.1)	~ ~	11.2 (0.06)	--	
Georgia	56 (1.5)	496 (3.0)	42 (1.4)	482 (3.5)	2 (0.4)	~ ~	10.8 (0.06)	0.1 (0.09)	
Ireland	55 (0.8)	586 (2.4)	45 (0.8)	554 (2.9)	1 (0.2)	~ ~	10.9 (0.04)	0.1 (0.06)	
Trinidad and Tobago	53 (1.3)	504 (3.5)	46 (1.2)	467 (4.0)	1 (0.2)	~ ~	10.8 (0.05)	0.2 (0.07)	⬆
Slovak Republic	51 (0.9)	548 (3.1)	48 (0.8)	529 (3.7)	1 (0.5)	~ ~	10.6 (0.05)	0.1 (0.07)	
Poland	51 (0.9)	572 (2.5)	49 (1.0)	558 (2.5)	0 (0.2)	~ ~	10.7 (0.03)	--	
Malta	51 (0.9)	473 (2.4)	48 (0.9)	445 (2.3)	1 (0.1)	~ ~	10.7 (0.03)	0.3 (0.05)	⬆
Israel	50 (1.1)	546 (2.9)	49 (1.0)	525 (3.2)	1 (0.2)	~ ~	10.7 (0.05)	r 0.0 (0.06)	
Spain	50 (0.7)	542 (2.0)	49 (0.7)	519 (2.0)	1 (0.1)	~ ~	10.6 (0.03)	0.3 (0.05)	⬆
Canada	r 50 (0.8)	561 (1.9)	49 (0.8)	539 (2.3)	1 (0.2)	~ ~	10.7 (0.04)	r 0.0 (0.05)	
Latvia	50 (0.9)	566 (2.2)	50 (0.9)	552 (2.1)	0 (0.1)	~ ~	10.7 (0.03)	--	
Italy	49 (1.0)	558 (2.1)	50 (1.0)	544 (2.9)	1 (0.2)	~ ~	10.6 (0.04)	0.1 (0.05)	
Slovenia	48 (1.1)	557 (2.3)	51 (1.1)	532 (2.6)	1 (0.2)	~ ~	10.6 (0.04)	0.0 (0.06)	
Czech Republic	46 (0.8)	552 (2.4)	54 (0.8)	539 (2.3)	1 (0.1)	~ ~	10.5 (0.03)	0.2 (0.04)	⬆
Chile	45 (0.9)	513 (3.0)	54 (0.9)	483 (2.9)	1 (0.2)	~ ~	10.4 (0.04)	--	
Bulgaria	43 (1.3)	580 (3.2)	49 (1.3)	545 (4.6)	8 (1.3)	453 (14.6)	10.0 (0.10)	0.3 (0.16)	
Hungary	42 (1.0)	562 (3.7)	57 (1.0)	553 (2.8)	2 (0.6)	~ ~	10.3 (0.05)	0.0 (0.07)	
Netherlands	s 41 (1.3)	560 (2.7)	58 (1.3)	547 (2.6)	1 (0.2)	~ ~	10.3 (0.04)	s 0.1 (0.05)	
Lithuania	41 (1.0)	560 (3.0)	58 (1.0)	544 (3.0)	1 (0.3)	~ ~	10.3 (0.04)	0.2 (0.05)	⬆
Germany	r 39 (0.9)	561 (2.8)	60 (0.9)	539 (4.0)	1 (0.2)	~ ~	10.2 (0.04)	r 0.0 (0.05)	
Norway (5)	38 (0.7)	573 (2.5)	61 (0.7)	552 (2.6)	1 (0.2)	~ ~	10.1 (0.03)	--	
Austria	38 (0.9)	557 (2.9)	61 (0.8)	534 (2.4)	1 (0.2)	~ ~	10.1 (0.03)	0.1 (0.05)	⬆
France	38 (1.0)	523 (3.3)	61 (1.0)	510 (2.4)	2 (0.2)	~ ~	10.1 (0.04)	0.1 (0.05)	
Portugal	38 (1.0)	542 (2.8)	61 (0.9)	521 (2.5)	1 (0.2)	~ ~	10.1 (0.04)	0.2 (0.06)	⬆
Denmark	36 (1.0)	564 (2.8)	63 (1.0)	542 (2.3)	1 (0.2)	~ ~	10.0 (0.04)	0.1 (0.05)	
Sweden	35 (0.9)	575 (2.9)	63 (0.9)	552 (2.7)	2 (0.3)	~ ~	10.0 (0.03)	0.0 (0.05)	
South Africa	s 34 (1.6)	341 (7.8)	62 (1.4)	327 (5.0)	4 (0.7)	269 (13.0)	9.9 (0.08)	s 0.1 (0.10)	
Finland	32 (0.8)	583 (2.5)	67 (0.8)	562 (1.9)	1 (0.2)	~ ~	9.9 (0.03)	0.2 (0.04)	⬆
United Arab Emirates	31 (0.7)	488 (3.7)	67 (0.6)	442 (3.3)	2 (0.2)	~ ~	9.8 (0.03)	0.2 (0.04)	⬆
Bahrain	31 (0.6)	476 (3.2)	68 (0.6)	436 (2.5)	1 (0.2)	~ ~	9.9 (0.02)	--	
Singapore	30 (0.7)	601 (2.9)	66 (0.7)	569 (3.3)	4 (0.2)	542 (7.1)	9.7 (0.03)	0.2 (0.05)	⬆
Belgium (French)	29 (0.8)	515 (3.0)	69 (0.8)	493 (3.0)	2 (0.3)	~ ~	9.7 (0.04)	0.0 (0.05)	
Qatar	29 (0.6)	483 (2.7)	68 (0.6)	439 (2.1)	3 (0.2)	410 (9.8)	9.7 (0.02)	0.1 (0.05)	
Azerbaijan	28 (1.2)	490 (4.8)	67 (1.3)	468 (4.6)	5 (0.9)	447 (8.9)	9.5 (0.07)	0.0 (0.10)	
Kuwait	27 (0.9)	424 (5.7)	70 (0.8)	391 (4.6)	3 (0.3)	357 (13.7)	9.6 (0.03)	--	
Belgium (Flemish)	25 (0.6)	543 (2.8)	72 (0.7)	524 (1.9)	3 (0.3)	499 (7.3)	9.5 (0.03)	--	
Saudi Arabia	24 (0.8)	454 (4.4)	73 (0.8)	426 (4.5)	3 (0.5)	396 (13.6)	9.5 (0.04)	-0.1 (0.07)	
Oman	23 (0.7)	453 (4.3)	74 (0.7)	413 (3.5)	3 (0.2)	341 (6.5)	9.5 (0.03)	0.3 (0.04)	⬆
Egypt	21 (1.6)	384 (6.2)	63 (1.5)	331 (5.3)	16 (1.6)	260 (11.2)	8.7 (0.13)	--	
Iran, Islamic Rep. of	20 (1.0)	451 (5.7)	73 (1.2)	430 (3.5)	7 (1.1)	348 (13.8)	9.1 (0.08)	0.3 (0.10)	⬆
Chinese Taipei	17 (0.7)	586 (2.8)	75 (0.7)	556 (2.1)	7 (0.6)	536 (5.2)	9.0 (0.04)	0.3 (0.06)	⬆
Hong Kong SAR	13 (0.6)	580 (3.6)	81 (0.7)	568 (3.0)	6 (0.4)	568 (6.0)	8.9 (0.04)	0.2 (0.05)	⬆
Morocco	12 (0.6)	385 (7.0)	60 (1.3)	371 (3.9)	29 (1.5)	327 (6.3)	7.7 (0.09)	-0.7 (0.16)	⬇
Macao SAR	10 (0.4)	560 (3.7)	82 (0.6)	545 (1.2)	9 (0.4)	535 (3.3)	8.5 (0.03)	--	
England	--	--	--	--	--	--	--	--	
United States	--	--	--	--	--	--	--	--	
Northern Ireland	x 65 (1.5)	597 (3.9)	34 (1.4)	571 (4.0)	0 (0.2)	~ ~	11.5 (0.06)	x 0.3 (0.08)	⬆
New Zealand	x 57 (1.0)	560 (3.1)	42 (1.0)	521 (3.3)	1 (0.2)	~ ~	11.1 (0.05)	x 0.1 (0.07)	
Australia	x 57 (1.4)	572 (3.9)	43 (1.4)	553 (3.3)	1 (0.2)	~ ~	11.0 (0.07)	x 0.2 (0.09)	
International Avg.	39 (0.1)	529 (0.5)	58 (0.1)	505 (0.5)	3 (0.1)	419 (2.6)			

This PIRLS questionnaire scale was established in 2011 based on the combined response distribution of all 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.

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

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 less than 50% of the students—interpret with caution.

Significantly higher than 2011 ⬆
Significantly lower than 2011 ⬇

Exhibit 4.5: Early Literacy Activities Before Beginning Primary School (Continued)

Country	Often		Sometimes		Never or Almost Never		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Benchmarking Participants								
Moscow City, Russian Fed.	71 (0.8)	617 (2.1)	28 (0.8)	600 (2.8)	0 (0.1)	~ ~	11.6 (0.04)	- -
Madrid, Spain	57 (0.9)	559 (2.0)	43 (0.9)	541 (2.7)	0 (0.1)	~ ~	10.9 (0.03)	- -
Ontario, Canada	55 (1.4)	561 (3.4)	44 (1.3)	538 (3.7)	1 (0.3)	~ ~	10.9 (0.06)	0.0 (0.08)
Andalusia, Spain	52 (1.2)	539 (2.1)	47 (1.1)	517 (2.4)	1 (0.2)	~ ~	10.7 (0.05)	0.4 (0.06) ▲
Buenos Aires, Argentina	50 (1.2)	506 (3.5)	49 (1.2)	471 (3.9)	1 (0.2)	~ ~	10.7 (0.05)	- -
Quebec, Canada	41 (1.2)	563 (3.3)	58 (1.3)	543 (3.0)	1 (0.4)	~ ~	10.2 (0.04)	0.0 (0.06)
Dubai, UAE	36 (1.0)	548 (2.7)	62 (0.9)	504 (2.2)	1 (0.1)	~ ~	10.1 (0.03)	0.1 (0.04) ▲
Norway (4)	36 (0.8)	535 (2.3)	63 (0.9)	509 (2.2)	1 (0.2)	~ ~	10.1 (0.03)	0.1 (0.06)
Denmark (3)	35 (0.9)	518 (3.5)	64 (0.9)	495 (2.9)	1 (0.2)	~ ~	10.0 (0.04)	- -
Eng/Afr/Zulu - RSA (5)	34 (1.3)	440 (8.1)	63 (1.3)	407 (7.3)	3 (0.3)	405 (21.2)	9.9 (0.06)	- -
Abu Dhabi, UAE	29 (0.9)	452 (5.5)	69 (0.9)	411 (4.7)	2 (0.3)	~ ~	9.7 (0.04)	0.2 (0.06) ▼

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

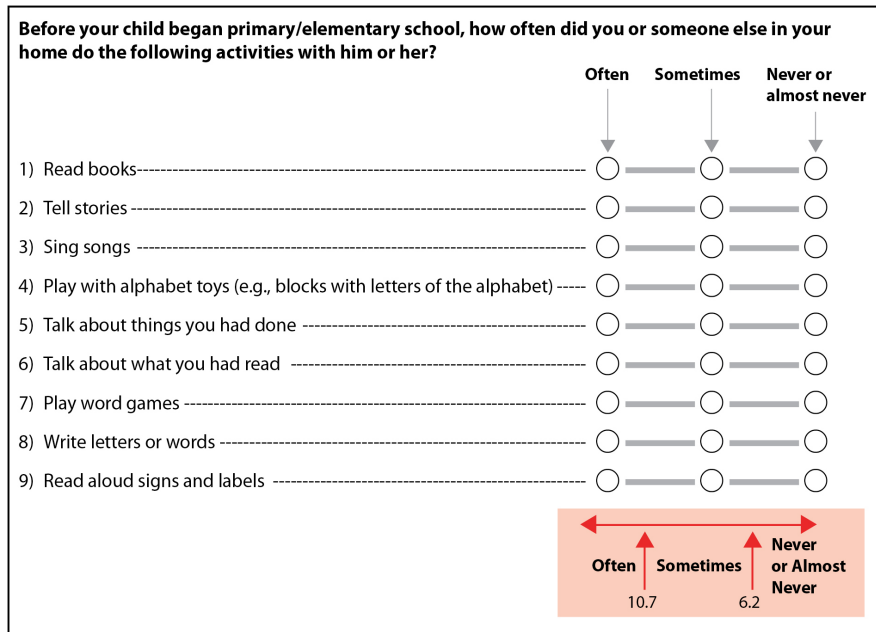


Exhibit 4.6 and 4.7: Attended Preprimary Education

There was a positive relationship for fourth grade students between the number of years students attended preprimary education and their reading achievement. According to their parents, across countries a majority of the PIRLS 2016 students had attended 3 years or more of preprimary school—59 percent. Beyond that, on average 18 percent had attended 2 years, 12 percent attended 1 year or less, and only 11 percent had not attended preprimary school. The students who attended 3 years or more had the highest average reading achievement (520), with those with less preprimary school attendance having successively lower average achievement (507, 498, and 472, respectively).

Although there is considerable variation across countries, according to the [PIRLS 2016 Encyclopedia](#), some countries already have mandatory preprimary education (e.g., Denmark, Latvia, Macao, and Trinidad and Tobago), some have nearly 100 percent enrollment even though attendance is not mandatory (e.g., Ireland, Czech Republic, and France), and a number of the remaining countries are working to increase enrollment in preprimary education. Of course, school policies of entering primary school at older ages (e.g., age 7 in Finland, Lithuania, South Africa, and Sweden) permit opportunities for more years of preschool attendance than when children start primary school at younger ages (e.g., age 4 or 5 in Malta, England, and Northern Ireland). Exhibit 2 in About PIRLS contains information across countries about the different policies and practices about the age of entry to primary school.

The results in Exhibit 4.7 indicate, however, that preprimary education cannot completely replace parental involvement in developing children's reading literacy. At each level of preprimary attendance from 3 years or more down through 1 year or less, the students whose parents **Often** engaged them in early literacy activities had higher average reading achievement than those engaged only **Sometimes** or **Never**.

Exhibit 4.6: Students Attended Preprimary Education

Students Categorized by Parents' Reports

Country	Students Attended Preprimary Education							
	3 Years or More		2 Years		1 Year or Less		Did Not Attend	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Denmark	96 (0.4)	552 (2.1)	3 (0.3)	521 (9.0)	1 (0.2)	~ ~	1 (0.2)	~ ~
Hungary	93 (0.8)	558 (2.8)	4 (0.6)	535 (8.0)	2 (0.2)	~ ~	1 (0.3)	~ ~
Belgium (French)	93 (0.4)	502 (2.6)	5 (0.4)	480 (6.1)	2 (0.3)	~ ~	0 (0.0)	~ ~
Sweden	91 (0.6)	563 (2.3)	3 (0.3)	542 (7.9)	3 (0.4)	528 (7.4)	2 (0.3)	~ ~
Belgium (Flemish)	89 (0.7)	532 (1.7)	5 (0.5)	506 (6.8)	3 (0.3)	508 (5.8)	3 (0.4)	488 (5.3)
Italy	87 (0.8)	555 (2.2)	8 (0.6)	528 (5.4)	3 (0.4)	531 (8.1)	3 (0.3)	530 (9.4)
Netherlands	84 (1.2)	555 (2.2)	11 (1.0)	538 (6.2)	3 (0.5)	538 (9.5)	2 (0.4)	~ ~
Hong Kong SAR	84 (0.7)	570 (2.8)	3 (0.3)	574 (6.3)	7 (0.5)	568 (5.7)	5 (0.5)	566 (5.7)
Israel	83 (0.9)	549 (2.6)	10 (0.7)	477 (5.6)	4 (0.4)	477 (10.1)	3 (0.3)	456 (14.0)
Latvia	83 (0.9)	562 (1.7)	10 (0.8)	540 (4.5)	5 (0.4)	541 (6.2)	1 (0.2)	~ ~
Norway (5)	82 (0.9)	565 (2.2)	5 (0.4)	530 (6.6)	10 (0.7)	549 (4.5)	3 (0.3)	537 (8.9)
Slovenia	81 (1.1)	549 (2.1)	9 (0.7)	524 (6.5)	5 (0.4)	525 (6.6)	5 (0.5)	512 (10.6)
Singapore	81 (0.6)	586 (2.9)	12 (0.4)	549 (5.0)	4 (0.2)	541 (6.8)	4 (0.3)	521 (8.0)
France	80 (0.8)	519 (2.5)	6 (0.5)	509 (5.7)	6 (0.4)	490 (5.1)	8 (0.5)	494 (5.6)
Czech Republic	80 (1.0)	549 (2.0)	13 (0.7)	542 (4.0)	5 (0.4)	523 (8.8)	3 (0.5)	481 (16.6)
Austria	79 (1.1)	548 (2.2)	14 (0.8)	533 (3.6)	5 (0.4)	524 (6.2)	2 (0.3)	~ ~
Bulgaria	79 (1.7)	564 (3.9)	8 (0.6)	527 (8.8)	10 (1.1)	511 (9.1)	3 (0.6)	489 (14.5)
Macao SAR	77 (0.7)	547 (1.3)	7 (0.3)	547 (4.4)	12 (0.5)	541 (2.9)	5 (0.3)	533 (5.2)
Slovak Republic	76 (1.5)	550 (2.4)	11 (0.8)	517 (7.0)	9 (0.8)	507 (8.4)	5 (1.0)	415 (27.8)
Russian Federation	75 (1.1)	586 (1.9)	7 (0.5)	581 (4.6)	5 (0.3)	573 (5.6)	13 (0.9)	553 (5.3)
Portugal	73 (1.0)	532 (2.5)	15 (0.8)	527 (3.8)	6 (0.5)	525 (5.6)	5 (0.4)	503 (5.6)
Lithuania	69 (1.3)	558 (2.4)	7 (0.5)	546 (8.1)	16 (0.8)	520 (5.5)	9 (0.7)	534 (8.5)
Finland	68 (1.1)	569 (1.9)	12 (0.6)	565 (3.7)	18 (1.0)	571 (3.4)	1 (0.2)	~ ~
Poland	65 (1.5)	572 (2.3)	19 (0.8)	556 (3.5)	16 (1.2)	546 (4.1)	0 (0.1)	~ ~
Germany	64 (1.1)	555 (2.7)	9 (0.6)	542 (5.5)	17 (0.9)	541 (6.3)	10 (0.7)	520 (6.4)
Spain	60 (0.8)	538 (1.6)	17 (0.6)	528 (2.5)	13 (0.5)	519 (3.5)	10 (0.5)	513 (3.6)
Georgia	56 (1.4)	496 (3.1)	20 (0.9)	492 (4.6)	9 (0.7)	488 (6.7)	16 (1.4)	468 (6.5)
Chile	53 (1.3)	499 (2.9)	28 (0.9)	495 (3.4)	12 (0.7)	486 (5.7)	6 (0.6)	493 (7.0)
Chinese Taipei	53 (1.0)	564 (2.2)	35 (0.8)	561 (2.4)	8 (0.5)	549 (5.1)	4 (0.3)	523 (7.1)
South Africa	47 (1.4)	337 (6.8)	16 (0.9)	337 (8.2)	22 (0.8)	319 (5.5)	15 (0.9)	311 (4.8)
Canada	43 (0.8)	558 (2.0)	25 (0.7)	550 (2.6)	15 (0.5)	542 (2.9)	16 (0.6)	534 (2.6)
Kazakhstan	38 (1.7)	550 (3.1)	14 (0.8)	533 (3.2)	22 (1.5)	533 (3.9)	26 (1.6)	522 (3.7)
Bahrain	32 (0.8)	455 (3.5)	32 (0.8)	451 (3.0)	17 (0.7)	451 (5.8)	20 (0.8)	431 (3.9)
Ireland	31 (0.8)	578 (3.0)	40 (1.1)	573 (3.1)	24 (1.0)	565 (3.4)	4 (0.4)	543 (7.9)
Egypt	31 (2.1)	359 (6.2)	26 (1.8)	355 (6.7)	10 (1.0)	312 (9.3)	33 (2.3)	290 (9.6)
Malta	28 (0.8)	464 (3.5)	59 (0.8)	462 (2.1)	9 (0.5)	445 (4.9)	5 (0.4)	442 (7.0)
Trinidad and Tobago	27 (1.0)	479 (4.6)	55 (1.2)	494 (3.6)	11 (0.9)	482 (7.8)	6 (0.5)	466 (8.4)
Morocco	27 (1.2)	397 (3.4)	22 (1.1)	385 (4.8)	16 (0.9)	352 (5.3)	35 (1.7)	324 (6.5)
Qatar	25 (0.4)	461 (2.3)	33 (0.6)	464 (2.7)	22 (0.7)	459 (3.6)	20 (0.4)	413 (3.6)
Kuwait	20 (1.1)	409 (5.2)	39 (1.2)	396 (5.2)	18 (1.1)	412 (8.4)	22 (1.4)	390 (6.1)
Azerbaijan	20 (1.2)	490 (5.0)	10 (0.7)	493 (5.7)	16 (0.8)	480 (6.3)	55 (1.8)	462 (5.5)
United Arab Emirates	18 (0.4)	483 (4.2)	42 (1.0)	450 (3.5)	21 (0.7)	463 (4.3)	19 (0.9)	434 (4.0)
Oman	14 (0.5)	443 (6.0)	31 (0.8)	442 (3.9)	28 (0.8)	420 (4.2)	28 (0.8)	385 (3.7)
Iran, Islamic Rep. of	12 (0.7)	469 (5.9)	16 (0.8)	454 (5.8)	49 (1.6)	429 (4.5)	22 (1.1)	387 (6.4)
Saudi Arabia	6 (0.5)	453 (8.9)	15 (1.1)	454 (5.7)	35 (1.2)	434 (4.6)	45 (1.6)	422 (5.7)
England	--	--	--	--	--	--	--	--
Northern Ireland	--	--	--	--	--	--	--	--
United States	--	--	--	--	--	--	--	--
New Zealand	x 60 (1.3)	549 (2.9)	31 (1.1)	544 (3.3)	6 (0.7)	525 (7.7)	3 (0.4)	507 (13.7)
Australia	x 41 (1.2)	565 (4.3)	33 (0.9)	568 (3.6)	22 (1.3)	565 (4.9)	5 (0.5)	525 (10.9)
International Avg.	59 (0.2)	520 (0.5)	18 (0.1)	507 (0.8)	12 (0.1)	498 (0.9)	11 (0.1)	472 (1.5)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

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

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

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 less than 50% of the students—interpret with caution.

Exhibit 4.6: Students Attended Preprimary Education (Continued)

Country	Students Attended Preprimary Education							
	3 Years or More		2 Years		1 Year or Less		Did Not Attend	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants								
Denmark (3)	96 (0.4)	504 (2.7)	2 (0.3)	~ ~	1 (0.2)	~ ~	1 (0.1)	~ ~
Norway (4)	82 (0.7)	522 (2.2)	4 (0.4)	499 (7.2)	11 (0.6)	511 (4.1)	3 (0.4)	497 (9.0)
Moscow City, Russian Fed.	78 (0.9)	613 (2.2)	9 (0.5)	610 (4.2)	6 (0.5)	608 (5.1)	8 (0.5)	609 (5.8)
Buenos Aires, Argentina	78 (1.1)	499 (3.4)	12 (0.8)	467 (6.7)	8 (0.5)	449 (6.5)	2 (0.4)	~ ~
Madrid, Spain	67 (1.0)	557 (2.0)	14 (0.5)	550 (3.1)	10 (0.6)	539 (4.2)	9 (0.6)	528 (4.1)
Quebec, Canada	58 (1.3)	557 (2.9)	14 (0.9)	545 (5.4)	11 (0.7)	551 (7.0)	17 (1.1)	534 (3.7)
Andalusia, Spain	56 (1.2)	537 (2.2)	19 (0.9)	528 (3.1)	16 (0.7)	514 (3.1)	9 (0.6)	504 (5.6)
Eng/Afr/Zulu - RSA (5)	47 (1.8)	436 (9.4)	18 (1.0)	423 (7.7)	22 (1.3)	393 (7.8)	13 (1.0)	378 (7.6)
Ontario, Canada	39 (1.6)	560 (4.3)	28 (1.0)	553 (4.3)	13 (0.8)	543 (5.6)	20 (1.3)	535 (3.7)
Dubai, UAE	23 (0.6)	539 (3.2)	38 (1.1)	519 (2.7)	22 (0.7)	523 (3.1)	17 (0.7)	490 (3.6)
Abu Dhabi, UAE	17 (0.8)	457 (7.5)	43 (1.3)	415 (5.1)	21 (0.9)	422 (5.9)	19 (1.1)	406 (5.5)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 4.7: Early Preparation for School

Students Categorized by Parents' Reports

Country	Attended Preprimary Education Program for 3 Years or More				Attended Preprimary Education Program for 2 Years				Attended Preprimary Education Program for 1 Year or Less Including Did Not Attend			
	Often Engaged in Early Literacy Activities		Sometimes or Never Engaged in Early Literacy Activities		Often Engaged in Early Literacy Activities		Sometimes or Never Engaged in Early Literacy Activities		Often Engaged in Early Literacy Activities		Sometimes or Never Engaged in Early Literacy Activities	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Russian Federation	51 (1.2)	591 (2.2)	24 (0.8)	576 (3.0)	5 (0.3)	588 (5.4)	3 (0.3)	571 (7.7)	10 (0.7)	568 (5.0)	7 (0.6)	543 (6.3)
Israel	44 (1.0)	555 (3.2)	40 (0.9)	542 (3.2)	4 (0.3)	494 (7.4)	6 (0.5)	466 (6.3)	3 (0.3)	495 (10.7)	4 (0.5)	454 (8.5)
Italy	43 (1.1)	562 (2.2)	43 (1.0)	548 (3.0)	3 (0.4)	533 (8.7)	4 (0.4)	523 (6.0)	2 (0.3)	~ ~	3 (0.4)	521 (8.7)
Latvia	42 (0.9)	569 (2.0)	42 (1.0)	556 (2.3)	5 (0.5)	549 (5.1)	5 (0.5)	531 (6.4)	3 (0.3)	549 (9.8)	3 (0.4)	536 (7.0)
Slovak Republic	40 (0.9)	556 (2.8)	36 (1.1)	543 (2.9)	5 (0.5)	531 (9.1)	6 (0.5)	504 (7.3)	6 (0.7)	508 (8.8)	7 (0.9)	448 (17.7)
Slovenia	40 (1.1)	561 (2.4)	42 (1.1)	538 (2.9)	4 (0.4)	541 (7.0)	5 (0.5)	510 (9.1)	4 (0.3)	540 (7.5)	6 (0.5)	505 (7.7)
Hungary	39 (0.9)	564 (3.6)	54 (1.1)	554 (2.8)	2 (0.4)	~ ~	2 (0.4)	~ ~	1 (0.2)	~ ~	2 (0.3)	~ ~
Czech Republic	37 (0.9)	555 (2.2)	43 (0.9)	543 (2.4)	6 (0.4)	554 (5.4)	7 (0.6)	533 (6.3)	3 (0.3)	518 (11.4)	4 (0.4)	502 (12.2)
Bulgaria	37 (1.3)	582 (3.1)	42 (1.3)	548 (5.2)	3 (0.3)	575 (7.2)	5 (0.5)	499 (11.3)	3 (0.4)	561 (10.7)	10 (1.4)	488 (11.1)
Netherlands	s 34 (1.3)	563 (2.9)	50 (1.4)	550 (2.8)	5 (0.7)	549 (9.0)	6 (0.7)	531 (7.4)	2 (0.4)	~ ~	3 (0.5)	524 (8.2)
Denmark	34 (1.1)	565 (2.7)	61 (1.1)	544 (2.2)	1 (0.2)	~ ~	2 (0.3)	~ ~	1 (0.1)	~ ~	1 (0.2)	~ ~
Georgia	34 (1.3)	499 (3.5)	21 (1.1)	492 (4.1)	11 (0.7)	501 (5.0)	9 (0.6)	481 (6.4)	11 (0.9)	484 (6.2)	14 (1.2)	468 (5.8)
Poland	34 (1.1)	579 (2.6)	31 (1.2)	566 (3.0)	9 (0.5)	563 (5.2)	10 (0.6)	550 (5.5)	8 (0.7)	553 (5.3)	9 (0.8)	541 (6.3)
Sweden	33 (0.9)	576 (2.8)	58 (0.9)	555 (2.5)	1 (0.2)	~ ~	2 (0.3)	~ ~	1 (0.2)	~ ~	4 (0.4)	513 (6.2)
Spain	32 (0.7)	548 (1.9)	28 (0.7)	525 (1.9)	8 (0.4)	538 (3.2)	9 (0.4)	518 (3.6)	10 (0.4)	529 (3.0)	13 (0.5)	506 (3.5)
France	31 (1.2)	526 (3.7)	49 (1.2)	515 (2.5)	2 (0.3)	~ ~	4 (0.3)	506 (7.3)	4 (0.4)	510 (5.9)	9 (0.6)	484 (4.6)
Norway (5)	31 (0.7)	578 (2.7)	51 (0.9)	557 (2.6)	2 (0.3)	~ ~	3 (0.3)	521 (7.8)	5 (0.4)	560 (6.0)	9 (0.5)	539 (4.6)
Austria	31 (0.9)	560 (3.1)	48 (1.0)	540 (2.2)	5 (0.4)	553 (5.4)	9 (0.7)	521 (3.8)	2 (0.2)	~ ~	5 (0.4)	511 (7.2)
Portugal	30 (0.9)	546 (3.1)	44 (0.9)	522 (2.7)	5 (0.4)	536 (5.6)	10 (0.6)	522 (4.6)	3 (0.3)	530 (7.3)	8 (0.5)	511 (4.7)
Lithuania	29 (0.9)	564 (2.7)	40 (1.2)	554 (2.9)	3 (0.3)	557 (10.9)	4 (0.4)	539 (10.7)	9 (0.7)	546 (7.8)	15 (0.9)	515 (4.7)
Belgium (French)	28 (0.8)	518 (3.0)	65 (0.8)	495 (3.0)	1 (0.2)	~ ~	4 (0.4)	477 (6.2)	1 (0.1)	~ ~	1 (0.2)	~ ~
Kazakhstan	28 (1.5)	552 (3.5)	11 (0.7)	544 (3.6)	9 (0.6)	533 (3.8)	5 (0.4)	534 (4.3)	28 (1.4)	529 (3.4)	20 (1.2)	524 (4.1)
Germany	r 26 (0.9)	568 (3.0)	38 (1.1)	546 (3.7)	3 (0.4)	556 (7.6)	5 (0.4)	533 (8.2)	10 (0.6)	545 (5.9)	18 (0.9)	527 (6.2)
Chile	25 (1.0)	516 (3.2)	28 (0.7)	486 (3.5)	13 (0.7)	512 (5.7)	16 (0.7)	483 (3.4)	7 (0.4)	507 (6.4)	11 (0.9)	478 (6.2)
Singapore	25 (0.7)	607 (2.8)	56 (0.7)	577 (3.2)	3 (0.2)	574 (7.3)	9 (0.4)	541 (5.3)	1 (0.1)	~ ~	6 (0.3)	523 (6.2)
Finland	22 (0.9)	584 (2.4)	46 (0.9)	563 (2.2)	4 (0.3)	570 (6.2)	8 (0.5)	563 (4.5)	6 (0.4)	590 (5.6)	13 (0.8)	562 (4.0)
Belgium (Flemish)	22 (0.6)	547 (2.9)	66 (0.8)	527 (1.7)	1 (0.2)	~ ~	4 (0.4)	504 (7.0)	2 (0.2)	~ ~	5 (0.3)	488 (5.4)
Canada	r 22 (0.7)	567 (2.5)	21 (0.5)	548 (2.6)	14 (0.5)	562 (3.3)	12 (0.4)	536 (3.1)	14 (0.5)	550 (2.9)	18 (0.6)	527 (2.7)
Ireland	19 (0.8)	592 (3.5)	13 (0.6)	558 (4.2)	22 (0.8)	587 (3.2)	18 (0.7)	556 (4.1)	14 (0.8)	577 (4.8)	15 (0.7)	547 (3.9)
South Africa	s 18 (1.4)	350 (11.0)	30 (1.1)	333 (6.4)	5 (0.4)	363 (14.5)	11 (0.9)	332 (8.5)	12 (0.6)	330 (6.6)	25 (1.1)	314 (4.3)
Malta	15 (0.7)	482 (4.0)	13 (0.6)	441 (5.0)	30 (0.8)	472 (3.2)	29 (0.8)	451 (2.9)	6 (0.5)	457 (5.8)	7 (0.5)	434 (5.4)
Trinidad and Tobago	r 14 (0.7)	492 (6.0)	13 (0.7)	464 (5.6)	30 (1.2)	511 (4.1)	25 (0.9)	474 (4.3)	9 (0.6)	507 (7.6)	9 (0.7)	447 (8.3)
Hong Kong SAR	12 (0.6)	581 (3.8)	73 (0.9)	568 (3.0)	0 (0.1)	~ ~	3 (0.3)	575 (6.5)	1 (0.2)	~ ~	11 (0.6)	566 (4.8)
Bahrain	12 (0.5)	476 (5.2)	20 (0.6)	443 (3.9)	11 (0.4)	476 (5.0)	22 (0.7)	438 (3.7)	9 (0.5)	476 (5.5)	27 (0.9)	429 (4.5)
Egypt	10 (1.3)	397 (6.9)	21 (1.5)	342 (6.3)	6 (0.7)	388 (8.2)	20 (1.4)	344 (7.2)	5 (0.5)	353 (9.9)	38 (2.2)	289 (9.0)
Chinese Taipei	9 (0.6)	590 (3.3)	44 (0.9)	559 (2.3)	6 (0.4)	583 (4.3)	29 (0.9)	557 (2.5)	2 (0.3)	~ ~	10 (0.6)	533 (4.5)
Qatar	r 8 (0.4)	495 (5.2)	16 (0.5)	445 (3.0)	11 (0.4)	492 (4.1)	23 (0.5)	452 (3.6)	10 (0.5)	468 (4.5)	32 (0.6)	427 (3.1)
Azerbaijan	8 (0.7)	506 (6.4)	12 (0.8)	480 (5.4)	3 (0.4)	507 (6.4)	6 (0.5)	485 (7.3)	16 (0.8)	480 (6.6)	54 (1.6)	462 (5.2)
Macao SAR	8 (0.4)	562 (4.6)	69 (0.7)	546 (1.4)	1 (0.1)	~ ~	6 (0.4)	546 (5.4)	1 (0.2)	~ ~	15 (0.6)	537 (2.5)
Kuwait	r 6 (0.6)	428 (9.5)	13 (0.8)	401 (5.1)	11 (0.7)	427 (6.0)	28 (1.1)	385 (6.3)	10 (0.6)	426 (11.1)	31 (1.2)	392 (6.3)
United Arab Emirates	6 (0.3)	512 (5.8)	11 (0.3)	468 (4.6)	13 (0.6)	483 (4.5)	29 (0.6)	434 (3.6)	12 (0.4)	482 (4.4)	29 (0.8)	437 (3.9)
Morocco	5 (0.4)	414 (7.1)	22 (1.0)	394 (3.3)	3 (0.2)	408 (9.4)	19 (1.0)	382 (4.8)	3 (0.5)	335 (11.3)	48 (1.7)	333 (5.4)
Oman	5 (0.2)	465 (8.0)	9 (0.4)	432 (7.0)	8 (0.4)	466 (5.1)	22 (0.7)	434 (4.4)	10 (0.5)	441 (5.1)	46 (1.0)	394 (3.7)
Iran, Islamic Rep. of	4 (0.4)	477 (8.0)	9 (0.6)	465 (7.3)	4 (0.3)	466 (9.3)	12 (0.7)	451 (5.9)	12 (0.7)	440 (6.4)	59 (1.4)	412 (4.7)
Saudi Arabia	2 (0.3)	~ ~	4 (0.4)	440 (11.0)	5 (0.5)	465 (7.9)	10 (0.8)	447 (6.2)	17 (0.8)	450 (5.3)	62 (1.2)	421 (4.6)
England	--	--	--	--	--	--	--	--	--	--	--	--
Northern Ireland	--	--	--	--	--	--	--	--	--	--	--	--
United States	--	--	--	--	--	--	--	--	--	--	--	--
New Zealand	x 35 (1.1)	565 (3.7)	25 (0.9)	528 (4.1)	18 (1.0)	560 (4.9)	13 (0.7)	521 (5.2)	4 (0.5)	547 (6.5)	5 (0.6)	497 (8.6)
Australia	x 24 (1.0)	571 (5.1)	16 (0.8)	556 (5.9)	19 (1.0)	575 (5.0)	13 (0.8)	558 (4.7)	13 (0.9)	573 (5.5)	14 (1.0)	542 (6.9)
International Avg.	24 (0.1)	535 (0.7)	34 (0.1)	511 (0.6)	7 (0.1)	518 (1.1)	11 (0.1)	496 (0.9)	7 (0.1)	500 (1.2)	16 (0.1)	481 (1.0)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
 A dash (-) indicates comparable data not available. A tilde (~) indicates insufficient data to report achievement.
 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 less than 50% of the students—interpret with caution.

Exhibit 4.7: Early Preparation for School (Continued)

Country	Attended Preprimary Education Program for 3 Years or More				Attended Preprimary Education Program for 2 Years				Attended Preprimary Education Program for 1 Year or Less Including Did Not Attend			
	Often Engaged in Early Literacy Activities		Sometimes or Never Engaged in Early Literacy Activities		Often Engaged in Early Literacy Activities		Sometimes or Never Engaged in Early Literacy Activities		Often Engaged in Early Literacy Activities		Sometimes or Never Engaged in Early Literacy Activities	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants												
Moscow City, Russian Fed.	56 (0.9)	616 (2.2)	22 (0.8)	603 (3.1)	6 (0.4)	619 (4.6)	3 (0.3)	591 (7.2)	9 (0.6)	621 (4.2)	4 (0.4)	584 (6.7)
Buenos Aires, Argentina	41 (1.3)	515 (3.4)	37 (1.2)	481 (4.3)	5 (0.5)	477 (9.9)	7 (0.6)	459 (8.1)	4 (0.4)	467 (8.8)	6 (0.5)	432 (7.4)
Madrid, Spain	40 (1.0)	564 (2.2)	27 (0.7)	547 (3.0)	8 (0.5)	556 (4.5)	6 (0.4)	542 (4.0)	9 (0.6)	542 (3.6)	10 (0.7)	526 (4.7)
Denmark (3)	34 (0.9)	519 (3.6)	62 (0.9)	496 (3.0)	1 (0.2)	~ ~	2 (0.2)	~ ~	1 (0.1)	~ ~	1 (0.2)	~ ~
Andalusia, Spain	32 (1.1)	547 (2.4)	24 (0.8)	523 (3.1)	10 (0.7)	535 (3.9)	10 (0.6)	520 (4.4)	11 (0.6)	520 (4.1)	14 (0.8)	502 (4.0)
Norway (4)	31 (0.8)	538 (2.4)	51 (0.9)	512 (2.6)	1 (0.2)	~ ~	3 (0.3)	493 (9.1)	4 (0.4)	524 (6.9)	10 (0.5)	501 (3.7)
Quebec, Canada	24 (1.1)	569 (3.7)	34 (1.0)	549 (3.5)	6 (0.6)	555 (7.8)	8 (0.9)	539 (5.1)	11 (0.6)	553 (5.5)	17 (0.9)	533 (4.1)
Ontario, Canada	22 (1.2)	566 (4.6)	17 (1.1)	550 (6.0)	17 (0.9)	566 (4.8)	11 (0.6)	534 (5.7)	16 (1.1)	549 (4.8)	17 (1.0)	528 (4.4)
Eng/Afr/Zulu - RSA (5)	18 (1.3)	462 (10.6)	29 (1.3)	426 (9.8)	6 (0.4)	455 (10.1)	13 (1.0)	412 (9.2)	10 (0.7)	402 (9.7)	24 (1.5)	385 (7.1)
Dubai, UAE	9 (0.4)	561 (4.0)	13 (0.6)	525 (4.3)	14 (0.9)	550 (4.0)	24 (0.6)	500 (3.0)	13 (0.7)	537 (3.5)	26 (0.8)	495 (2.9)
Abu Dhabi, UAE	6 (0.5)	486 (11.1)	11 (0.5)	442 (7.3)	12 (0.7)	446 (7.4)	31 (1.1)	403 (6.0)	11 (0.7)	441 (7.1)	30 (1.1)	404 (5.1)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 4.8: Could Do Literacy Tasks When Beginning Primary School

To provide information about the extent to which students enter primary school equipped with some basic skills as a foundation for formal reading instruction, the PIRLS assessments have included a set of questions (see the second page of Exhibit 4.8) asking parents how well their child could do various literacy activities when he or she first entered primary school. Parents' reports indicate that early preparation appears to have an effect through the fourth grade. Exhibit 4.8 shows, on average across countries, that 29 percent of the students entered school able to perform early literacy tasks **Very Well** according to their parents and another 35 percent **Moderately Well**. Parent assessment of their children's early literacy skills corresponded well with reading achievement at the fourth grade, with the children able to perform **Very Well** having higher achievement than those performing **Moderately Well** (537 vs. 510). The 36 percent of the students in the **Not Well** category had the lowest achievement (485).

In 16 countries, students entered primary school with higher average scores in PIRLS 2016 than in PIRLS 2011 on the scale named *Early Literacy Tasks*. This agrees with the results in Exhibit 4.5 where parents reported more time spent with their children on early literacy development.

Exhibit 4.8: Could Do Literacy Tasks When Beginning Primary School

Students Categorized by Parents' Reports

Students were scored according to their parents' responses to how well their children could do the six tasks on the *Early Literacy Tasks* scale. Students who could do literacy tasks **Very Well** had a score on the scale of at least 11.6, which corresponds to their parents reporting that the students could do three literacy tasks "very well" and the other three "moderately well," on average. Students doing the tasks **Not Well** had a score no higher than 9.5, which corresponds to parents reporting that students could do three tasks "not very well" and the other three "moderately well," on average. All other students could do the literacy tasks **Moderately Well** when they began primary school.

Country	Very Well		Moderately Well		Not Well		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Ireland	61 (1.1)	590 (2.2)	29 (0.9)	548 (3.2)	10 (0.6)	519 (5.7)	12.0 (0.04)	--
Bahrain	53 (0.8)	477 (2.1)	31 (0.6)	432 (3.5)	16 (0.6)	383 (5.1)	11.5 (0.03)	--
Trinidad and Tobago	52 (1.1)	513 (3.3)	38 (1.0)	465 (3.7)	10 (0.7)	432 (7.3)	11.6 (0.04)	0.3 (0.05) ●
Singapore	50 (1.2)	608 (2.8)	38 (0.8)	561 (3.0)	12 (0.7)	503 (5.1)	11.6 (0.05)	0.5 (0.06) ●
Spain	48 (1.0)	551 (1.5)	35 (0.9)	519 (2.5)	17 (0.7)	496 (3.6)	11.3 (0.04)	0.4 (0.06) ●
Qatar	45 (0.7)	478 (2.3)	36 (0.7)	444 (2.7)	19 (0.5)	402 (4.4)	11.2 (0.02)	0.2 (0.04) ●
United Arab Emirates	44 (0.7)	492 (3.5)	36 (0.5)	451 (3.4)	20 (0.6)	388 (3.5)	11.1 (0.03)	0.5 (0.04) ●
Kuwait	r 43 (1.3)	432 (3.7)	34 (0.9)	393 (4.7)	23 (1.1)	352 (7.2)	10.9 (0.05)	--
Israel	42 (1.0)	539 (3.2)	31 (0.8)	531 (3.1)	26 (0.9)	535 (3.9)	10.9 (0.05)	r 0.0 (0.07)
Oman	42 (0.7)	459 (3.7)	39 (0.5)	409 (3.4)	20 (0.6)	358 (4.3)	11.0 (0.03)	0.2 (0.05) ●
Poland	41 (1.1)	587 (2.5)	35 (1.0)	558 (2.7)	24 (0.8)	540 (3.0)	10.9 (0.04)	--
Latvia	41 (1.1)	581 (1.9)	41 (0.9)	553 (1.9)	18 (0.8)	522 (3.5)	11.1 (0.04)	--
Saudi Arabia	37 (1.2)	453 (4.2)	36 (0.9)	426 (4.9)	27 (1.3)	414 (7.8)	10.7 (0.06)	0.0 (0.11)
South Africa	s 35 (1.0)	349 (6.5)	39 (0.8)	335 (6.1)	25 (1.3)	297 (7.0)	10.8 (0.06)	s 0.5 (0.07) ●
Canada	r 34 (0.7)	576 (2.0)	38 (0.7)	546 (2.1)	28 (0.7)	522 (3.0)	10.7 (0.03)	--
Macao SAR	33 (0.6)	570 (1.9)	52 (0.7)	539 (1.6)	15 (0.6)	513 (2.8)	11.0 (0.02)	--
Egypt	33 (1.8)	392 (5.0)	35 (1.3)	332 (5.3)	32 (2.0)	267 (9.4)	10.4 (0.10)	--
Chinese Taipei	33 (0.7)	586 (2.3)	52 (0.8)	555 (2.1)	16 (0.7)	520 (4.0)	11.0 (0.03)	0.4 (0.04) ●
Finland	31 (0.8)	602 (2.4)	25 (0.9)	569 (3.0)	44 (0.9)	546 (2.2)	10.3 (0.03)	0.1 (0.06)
Kazakhstan	31 (1.2)	553 (3.2)	47 (1.1)	532 (2.7)	22 (1.0)	523 (3.3)	10.8 (0.05)	--
Sweden	29 (0.9)	591 (2.8)	37 (1.1)	561 (2.8)	34 (1.2)	532 (2.9)	10.4 (0.04)	0.1 (0.06)
Chile	28 (0.8)	529 (3.6)	35 (0.8)	497 (3.3)	37 (0.9)	472 (2.7)	10.3 (0.04)	--
Morocco	28 (1.1)	417 (3.9)	32 (1.0)	362 (4.4)	40 (1.6)	321 (4.9)	9.8 (0.11)	-0.4 (0.15)
Denmark	27 (0.9)	579 (3.1)	42 (1.1)	550 (2.6)	31 (1.1)	524 (3.0)	10.5 (0.04)	0.2 (0.05) ●
Hong Kong SAR	27 (1.2)	591 (3.1)	57 (1.0)	572 (2.4)	16 (0.9)	524 (4.8)	10.9 (0.05)	-0.1 (0.06)
Lithuania	26 (0.7)	591 (2.9)	44 (1.0)	551 (3.4)	30 (0.9)	512 (3.2)	10.5 (0.03)	0.4 (0.05) ●
Bulgaria	25 (1.0)	591 (3.8)	34 (1.3)	567 (4.1)	40 (1.8)	518 (6.1)	9.9 (0.10)	0.1 (0.15)
Malta	24 (0.8)	490 (2.6)	37 (0.9)	466 (2.8)	39 (1.0)	433 (2.3)	10.1 (0.04)	0.1 (0.05)
Iran, Islamic Rep. of	24 (1.2)	453 (5.2)	31 (1.1)	433 (4.6)	46 (1.9)	415 (4.9)	9.7 (0.11)	0.0 (0.12)
Azerbaijan	23 (0.9)	495 (4.0)	33 (0.7)	479 (5.3)	44 (1.2)	460 (5.0)	9.8 (0.07)	0.3 (0.11)
Georgia	23 (1.1)	506 (3.7)	31 (0.9)	497 (3.4)	46 (1.4)	479 (3.4)	9.7 (0.08)	0.1 (0.09)
Russian Federation	23 (0.8)	613 (2.6)	39 (0.9)	587 (2.3)	39 (1.1)	556 (3.1)	10.1 (0.05)	0.3 (0.08) ●
Czech Republic	22 (0.7)	567 (3.5)	34 (0.9)	542 (2.8)	44 (0.9)	537 (2.4)	9.9 (0.04)	0.2 (0.05) ●
France	20 (0.7)	532 (2.9)	42 (1.0)	517 (2.8)	38 (1.1)	501 (3.1)	10.1 (0.04)	-0.1 (0.05)
Slovenia	14 (0.7)	585 (3.1)	25 (0.8)	556 (3.0)	61 (1.0)	530 (2.9)	9.1 (0.05)	-0.2 (0.06) ▼
Netherlands	s 13 (0.8)	576 (4.4)	36 (1.2)	556 (3.1)	51 (1.4)	544 (2.4)	9.5 (0.05)	s 0.3 (0.07) ●
Italy	13 (0.7)	565 (3.6)	32 (0.9)	554 (3.3)	55 (0.8)	546 (2.5)	9.4 (0.04)	0.1 (0.05)
Portugal	13 (0.6)	548 (3.0)	36 (0.9)	531 (2.7)	51 (0.9)	522 (2.9)	9.6 (0.04)	0.2 (0.06) ●
Austria	13 (0.7)	549 (4.2)	26 (0.7)	535 (3.6)	62 (0.9)	545 (2.0)	9.2 (0.04)	0.1 (0.05)
Norway (5)	12 (0.6)	594 (3.8)	24 (0.8)	569 (3.1)	64 (0.8)	550 (2.3)	9.1 (0.03)	--
Hungary	11 (0.5)	578 (6.1)	19 (0.7)	561 (4.5)	70 (1.0)	551 (2.8)	8.6 (0.06)	-0.2 (0.07) ▼
Belgium (Flemish)	10 (0.6)	527 (4.7)	29 (0.9)	522 (2.6)	61 (1.2)	531 (1.7)	9.0 (0.05)	--
Belgium (French)	10 (0.6)	513 (4.2)	30 (0.8)	501 (3.5)	60 (1.0)	496 (2.8)	9.3 (0.04)	-0.1 (0.05)
Germany	r 8 (0.6)	571 (5.6)	25 (0.9)	549 (4.1)	67 (1.0)	545 (3.5)	9.0 (0.04)	r -0.2 (0.05) ▼
Slovak Republic	8 (0.6)	542 (9.0)	19 (0.6)	551 (3.4)	73 (0.7)	532 (3.8)	8.6 (0.04)	0.1 (0.06)
England	--	--	--	--	--	--	--	--
Northern Ireland	--	--	--	--	--	--	--	--
United States	--	--	--	--	--	--	--	--
New Zealand	x 24 (1.1)	562 (5.2)	45 (1.2)	542 (4.0)	31 (1.1)	531 (3.7)	10.4 (0.05)	x 0.6 (0.07) ●
Australia	x 19 (1.0)	594 (5.5)	36 (1.2)	565 (4.0)	45 (1.1)	551 (3.6)	9.9 (0.04)	x 0.2 (0.06) ●
International Avg.	29 (0.1)	537 (0.6)	35 (0.1)	510 (0.5)	36 (0.2)	485 (0.6)		

SOURCE: IEA's Progress in International Reading Literacy Study—PIRLS 2016

This PIRLS questionnaire scale was established in 2011 based on the combined response distribution of all 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.

A dash (-) indicates comparable data not available.

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 less than 50% of the students—interpret with caution.

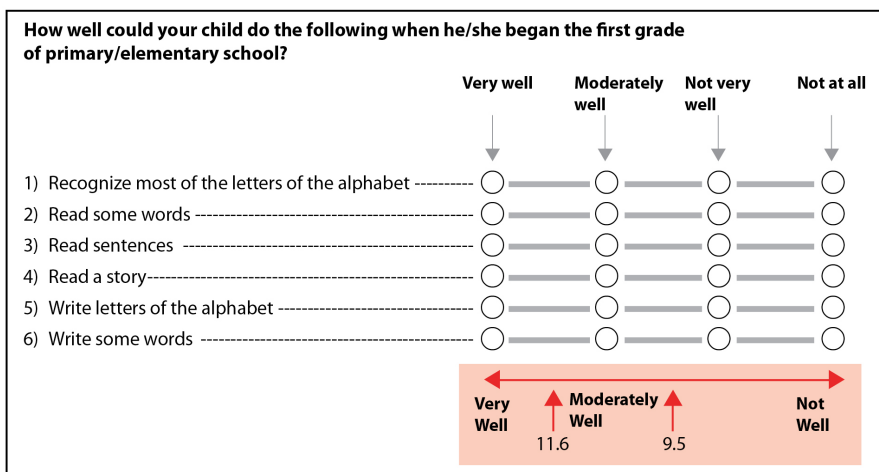
Significantly higher than 2011 ●
Significantly lower than 2011 ▼

**Exhibit 4.8: Could Do Literacy Tasks When Beginning Primary School
(Continued)**

Country	Very Well		Moderately Well		Not Well		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Benchmarking Participants								
Madrid, Spain	55 (1.1)	567 (2.0)	32 (1.0)	539 (2.4)	13 (0.7)	519 (3.7)	11.6 (0.04)	--
Andalusia, Spain	49 (1.0)	546 (1.9)	32 (1.0)	521 (2.7)	19 (0.8)	496 (3.4)	11.3 (0.05)	0.5 (0.06) ▲
Dubai, UAE	47 (0.9)	544 (2.3)	37 (0.7)	511 (2.3)	16 (0.6)	467 (3.7)	11.3 (0.03)	0.7 (0.04) ▲
Ontario, Canada r	41 (1.4)	577 (3.0)	37 (1.3)	543 (3.7)	22 (1.1)	514 (4.9)	11.1 (0.06)	--
Abu Dhabi, UAE r	41 (1.1)	467 (4.8)	36 (1.0)	416 (5.3)	23 (1.0)	355 (5.6)	10.9 (0.05)	r 0.4 (0.07) ▲
Eng/Afr/Zulu - RSA (5) s	35 (1.2)	445 (7.3)	41 (1.2)	416 (7.5)	23 (1.1)	385 (8.2)	10.8 (0.05)	--
Moscow City, Russian Fed.	32 (1.0)	639 (2.7)	41 (0.9)	613 (2.2)	27 (1.1)	579 (2.6)	10.7 (0.04)	--
Buenos Aires, Argentina s	30 (0.9)	515 (4.6)	38 (1.0)	485 (3.7)	32 (1.0)	469 (4.3)	10.5 (0.04)	--
Denmark (3)	27 (1.0)	541 (3.0)	41 (1.0)	504 (4.3)	32 (0.9)	469 (3.1)	10.5 (0.03)	--
Quebec, Canada	23 (1.0)	571 (4.3)	39 (1.2)	550 (2.9)	38 (1.3)	539 (3.9)	10.2 (0.05)	--
Norway (4)	12 (0.6)	559 (3.7)	24 (0.7)	532 (2.8)	64 (0.9)	506 (2.2)	9.1 (0.04)	0.0 (0.06)

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016



PIRLS
2016

**CHAPTER 5:
SCHOOL
COMPOSITION AND
RESOURCES**

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016

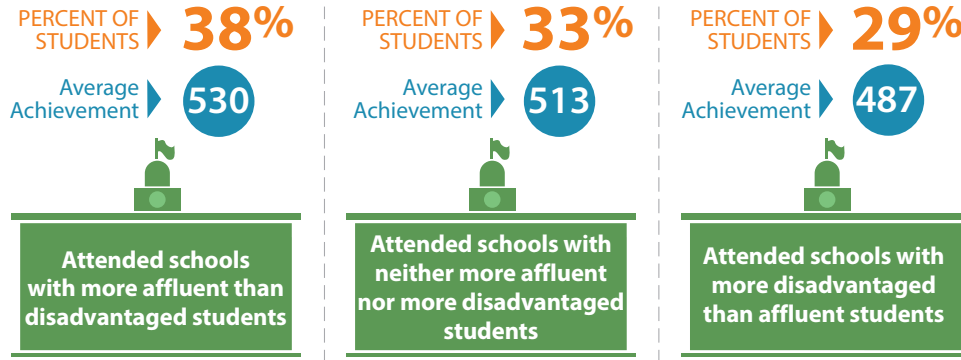


IEA

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

School Composition and Resources

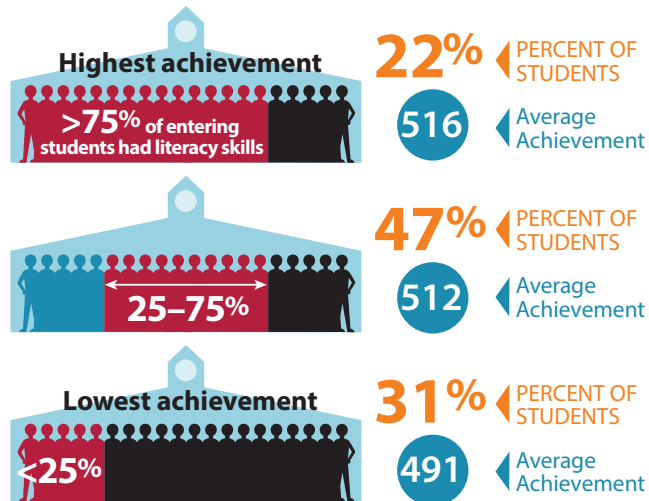
Socioeconomic Composition of Schools



In nearly all the PIRLS 2016 countries, students attending schools with more affluent than disadvantaged students had higher average reading achievement.

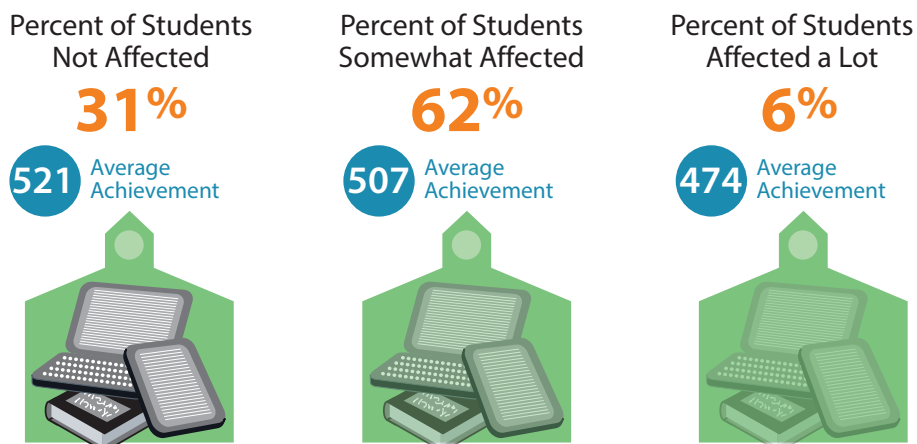
Achievement Higher in Schools Where Students Enter with Early Literacy Skills

Students in schools where a higher proportion of their peers had early reading and writing skills when entering first grade had higher average reading achievement at the fourth grade.



In 8 countries there was an increase in students entering the primary grades with literacy skills. Only 1 country had a decrease.

Instruction Affected by Reading Resource Shortages – Principals' Reports



CHAPTER 5

School Composition and Resources

Exhibit 5.1: School Composition by Socioeconomic Background of the Student Body

Exhibit 5.1 provides information about the socioeconomic composition of the schools attended by fourth grade students. As reported by principals, on average, 38 percent of the students were in schools with relatively more affluent than disadvantaged students, 33 percent in schools where there was a balance, and 29 percent in schools with relatively more disadvantaged than affluent students. Higher average reading achievement was associated with attending schools with a higher percentage of economically advantaged students (530, 513, and 487, respectively).

Exhibit 5.1: School Composition by Socioeconomic Background of the Student Body

Students Categorized by Principals' Reports

Country	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		Neither More Affluent Nor More Disadvantaged		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	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	35 (3.2)	570 (4.6)	38 (3.3)	545 (3.2)	26 (2.9)	509 (4.3)
Austria	29 (4.0)	558 (3.5)	45 (3.9)	545 (2.3)	25 (3.6)	512 (5.7)
Azerbaijan	r 11 (2.1)	502 (13.6)	23 (4.0)	469 (8.5)	66 (4.1)	471 (4.9)
Bahrain	31 (1.6)	473 (5.5)	36 (3.0)	446 (3.4)	33 (3.0)	419 (5.4)
Belgium (Flemish)	67 (4.0)	535 (2.0)	23 (3.6)	515 (4.2)	10 (2.7)	487 (6.1)
Belgium (French)	56 (3.6)	515 (3.2)	24 (3.8)	493 (4.5)	21 (3.0)	461 (5.4)
Bulgaria	15 (3.5)	585 (7.9)	51 (4.3)	565 (5.4)	34 (3.6)	520 (7.9)
Canada	42 (2.7)	556 (2.2)	38 (2.3)	546 (2.9)	21 (2.1)	513 (4.5)
Chile	18 (2.3)	546 (3.1)	9 (2.7)	500 (9.3)	74 (3.1)	481 (3.5)
Chinese Taipei	23 (3.4)	575 (3.8)	62 (4.3)	558 (2.3)	15 (2.9)	536 (3.9)
Czech Republic	42 (3.7)	554 (2.6)	51 (4.1)	540 (2.5)	7 (1.9)	506 (15.8)
Denmark	63 (4.1)	554 (2.9)	29 (3.8)	538 (4.0)	7 (2.1)	538 (5.7)
Egypt	25 (3.7)	375 (14.6)	16 (3.6)	344 (14.9)	59 (4.7)	306 (7.4)
England	38 (3.6)	575 (3.5)	30 (3.9)	563 (3.3)	32 (3.7)	539 (3.5)
Finland	42 (3.7)	570 (3.0)	49 (4.1)	567 (2.9)	9 (1.8)	544 (8.0)
France	41 (4.5)	524 (3.4)	30 (4.1)	517 (4.4)	29 (3.3)	489 (3.9)
Georgia	23 (3.5)	507 (5.6)	31 (3.7)	484 (5.5)	46 (3.9)	486 (4.7)
Germany	22 (3.1)	560 (4.3)	48 (4.1)	547 (3.9)	30 (3.6)	504 (9.1)
Hong Kong SAR	32 (3.8)	570 (4.6)	28 (4.2)	573 (5.1)	39 (3.4)	571 (5.1)
Hungary	34 (3.6)	579 (4.9)	29 (4.2)	562 (4.1)	37 (3.5)	522 (5.2)
Iran, Islamic Rep. of	28 (3.9)	462 (6.8)	18 (3.0)	457 (8.1)	55 (4.2)	400 (7.0)
Ireland	43 (4.5)	582 (3.5)	32 (4.4)	570 (3.5)	25 (3.6)	534 (4.0)
Israel	30 (3.0)	561 (5.1)	33 (3.8)	549 (6.8)	36 (3.1)	489 (5.4)
Italy	32 (4.2)	555 (4.2)	50 (4.6)	547 (3.2)	18 (3.1)	539 (6.1)
Kazakhstan	70 (3.8)	542 (3.3)	24 (3.5)	517 (5.6)	6 (2.0)	524 (7.2)
Kuwait	r 39 (4.1)	408 (8.4)	27 (4.0)	382 (10.4)	34 (4.5)	385 (11.7)
Latvia	21 (3.7)	562 (4.7)	69 (4.4)	560 (2.3)	10 (2.4)	533 (7.8)
Lithuania	65 (3.4)	560 (2.8)	23 (3.3)	539 (5.3)	13 (2.6)	503 (8.7)
Macao SAR	37 (0.1)	541 (2.1)	26 (0.1)	548 (1.9)	36 (0.1)	549 (2.0)
Malta	39 (0.1)	441 (2.6)	58 (0.1)	461 (2.1)	3 (0.1)	415 (8.2)
Morocco	r 8 (1.9)	434 (14.1)	8 (1.7)	404 (13.2)	84 (1.9)	343 (5.0)
Netherlands	r 55 (4.9)	555 (2.4)	33 (4.8)	543 (3.3)	12 (3.1)	515 (7.2)
New Zealand	r 40 (3.4)	551 (2.9)	31 (3.6)	527 (6.0)	29 (3.0)	484 (7.5)
Northern Ireland	s 36 (5.2)	583 (4.3)	34 (5.8)	562 (5.1)	30 (3.9)	547 (5.0)
Norway (5)	54 (4.7)	563 (3.2)	38 (4.3)	555 (2.9)	8 (2.2)	546 (6.8)
Oman	44 (3.1)	430 (5.6)	39 (3.1)	413 (5.2)	18 (2.7)	402 (5.4)
Poland	19 (3.9)	572 (6.3)	60 (4.7)	566 (2.6)	21 (3.2)	545 (5.6)
Portugal	14 (2.4)	543 (5.3)	45 (4.7)	529 (4.2)	42 (4.8)	521 (3.2)
Qatar	r 70 (0.4)	449 (2.4)	22 (0.4)	450 (3.8)	8 (0.2)	422 (11.9)
Russian Federation	71 (3.3)	585 (2.9)	24 (3.2)	578 (5.7)	5 (1.4)	558 (9.4)
Saudi Arabia	r 43 (3.7)	437 (8.8)	29 (3.8)	424 (9.0)	28 (4.1)	424 (10.6)
Singapore	42 (0.0)	597 (4.8)	44 (0.0)	568 (4.9)	13 (0.0)	536 (10.4)
Slovak Republic	37 (3.6)	551 (3.7)	51 (4.1)	542 (3.6)	11 (2.7)	449 (16.7)
Slovenia	35 (4.6)	546 (3.8)	38 (4.2)	543 (3.4)	27 (4.8)	537 (4.5)
South Africa	r 9 (2.0)	428 (23.1)	16 (3.0)	310 (17.3)	75 (3.7)	309 (4.8)
Spain	54 (3.0)	535 (1.9)	31 (2.7)	520 (4.3)	15 (2.1)	511 (5.1)
Sweden	78 (3.9)	562 (2.8)	18 (3.5)	539 (4.0)	4 (1.4)	508 (18.7)
Trinidad and Tobago	r 25 (3.7)	526 (6.8)	21 (3.8)	493 (8.6)	54 (4.5)	463 (5.7)
United Arab Emirates	r 50 (2.2)	473 (6.2)	25 (1.9)	453 (6.5)	25 (2.0)	409 (6.5)
United States	15 (3.0)	588 (4.3)	21 (3.7)	566 (5.4)	63 (4.0)	532 (3.7)
International Avg.	38 (0.5)	530 (0.9)	33 (0.5)	513 (0.9)	29 (0.4)	487 (1.1)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

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

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

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.

Exhibit 5.1: School Composition by Socioeconomic Background of the Student Body (Continued)

Country	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		Neither More Affluent Nor More Disadvantaged		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		
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Benchmarking Participants							
Buenos Aires, Argentina	57 (5.6)	504 (4.3)	15 (4.0)	459 (8.8)	28 (4.9)	441 (7.1)	
Ontario, Canada	40 (5.1)	554 (5.1)	41 (4.6)	548 (4.6)	19 (3.9)	518 (7.0)	
Quebec, Canada	57 (4.7)	555 (2.8)	22 (3.5)	554 (8.3)	22 (4.5)	523 (5.9)	
Denmark (3)	63 (3.7)	511 (3.3)	28 (3.5)	488 (5.5)	9 (2.3)	487 (12.8)	
Norway (4)	54 (4.6)	524 (2.6)	39 (4.2)	512 (3.4)	7 (2.0)	508 (5.0)	
Moscow City, Russian Fed.	80 (3.3)	615 (2.3)	18 (3.1)	600 (5.4)	1 (0.8)	~ ~	
Eng/Afr/Zulu - RSA (5)	17 (3.2)	499 (17.4)	7 (3.4)	431 (38.3)	76 (4.6)	389 (8.4)	
Andalusia, Spain	46 (4.0)	535 (2.6)	31 (3.4)	524 (3.0)	23 (3.5)	505 (6.8)	
Madrid, Spain	58 (4.5)	554 (2.5)	24 (4.1)	551 (5.1)	18 (3.3)	528 (4.2)	
Abu Dhabi, UAE	47 (3.5)	424 (9.7)	22 (3.3)	404 (13.3)	30 (3.1)	387 (8.2)	
Dubai, UAE	57 (0.3)	538 (2.8)	33 (0.2)	513 (3.2)	10 (0.2)	415 (4.6)	

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

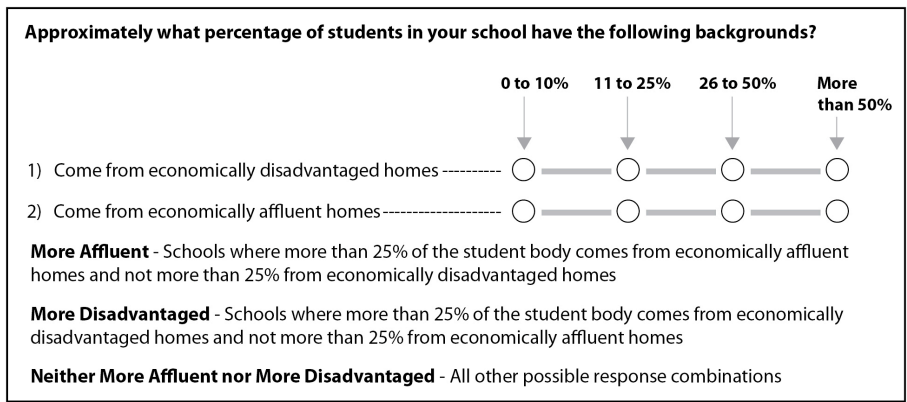


Exhibit 5.2: Schools with Students Having the Language of the Test as Their Native Language

Exhibit 5.2 presents principals' categorizations of their schools according to the percentage of students who spoke the language of the PIRLS 2016 assessment as their first language. Sixty-three percent were in schools where most students (more than 90%) spoke the language of the PIRLS assessment as their first language, and another 20 percent were in schools where the majority of students (51-90%) spoke the language of the assessment as their first language. Both groups of students had higher average reading achievement than the 18 percent of students attending schools where only half of the students (or less) spoke the language of the assessment as their native language (512 and 515 vs. 493).

Exhibit 5.2: Schools with Students Having the Language of the Test as Their Native Language

Students Categorized by Principals' Reports

Country	School has More than 90% of Students with Language of Test as Their Native Language		School has 51-90% of Students with Language of Test as Their Native Language		School has 50% or Less of Students with Language of Test as Their Native Language	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	50 (3.1)	552 (3.4)	28 (3.0)	535 (5.8)	23 (2.7)	538 (6.0)
Austria	29 (3.7)	552 (3.3)	46 (4.5)	546 (3.0)	25 (3.4)	519 (5.5)
Azerbaijan	84 (2.7)	465 (4.8)	12 (2.4)	505 (10.2)	4 (1.7)	497 (12.9)
Bahrain	62 (2.3)	435 (3.2)	15 (1.8)	470 (5.8)	23 (1.8)	462 (8.2)
Belgium (Flemish)	45 (3.4)	540 (2.1)	34 (4.2)	523 (3.6)	22 (3.5)	500 (4.9)
Belgium (French)	63 (3.0)	509 (2.9)	21 (2.9)	498 (5.2)	16 (2.3)	457 (7.0)
Bulgaria	55 (4.1)	580 (3.8)	25 (3.8)	545 (5.3)	20 (2.7)	482 (8.7)
Canada	47 (2.5)	545 (2.6)	34 (2.6)	545 (3.6)	19 (2.0)	536 (4.2)
Chile	98 (1.1)	494 (2.7)	2 (1.1)	~ ~	0 (0.0)	~ ~
Chinese Taipei	66 (4.2)	562 (2.4)	27 (3.9)	557 (3.7)	7 (2.2)	541 (7.4)
Czech Republic	92 (2.0)	543 (2.3)	7 (1.9)	547 (5.6)	0 (0.4)	~ ~
Denmark	60 (3.5)	553 (2.7)	31 (3.5)	541 (3.4)	9 (2.0)	532 (8.3)
Egypt	97 (1.4)	334 (5.6)	1 (1.0)	~ ~	1 (1.0)	~ ~
England	45 (3.6)	566 (3.3)	29 (3.6)	557 (4.2)	27 (3.3)	548 (3.8)
Finland	82 (2.7)	570 (1.8)	16 (2.8)	553 (6.1)	2 (1.3)	~ ~
France	65 (3.6)	519 (3.3)	26 (3.4)	499 (4.2)	9 (2.4)	492 (8.8)
Georgia	85 (2.1)	493 (3.0)	9 (1.5)	485 (8.8)	6 (1.8)	441 (18.6)
Germany	30 (2.8)	554 (3.9)	48 (3.4)	540 (5.6)	22 (2.9)	502 (7.2)
Hong Kong SAR	96 (1.9)	570 (2.9)	4 (1.9)	559 (10.0)	0 (0.0)	~ ~
Hungary	99 (0.4)	553 (2.8)	0 (0.4)	~ ~	0 (0.0)	~ ~
Iran, Islamic Rep. of	50 (3.6)	456 (5.0)	8 (1.5)	469 (7.6)	42 (3.3)	386 (8.3)
Ireland	57 (3.7)	573 (3.1)	32 (3.8)	563 (4.5)	11 (3.2)	546 (7.8)
Israel	69 (3.2)	523 (3.3)	23 (3.2)	556 (6.0)	8 (2.0)	527 (9.9)
Italy	60 (3.4)	547 (3.4)	39 (3.3)	552 (2.8)	1 (0.7)	~ ~
Kazakhstan	53 (2.7)	530 (3.3)	32 (3.3)	544 (5.1)	14 (2.8)	541 (6.7)
Kuwait	20 (3.7)	380 (7.6)	27 (3.2)	405 (10.2)	53 (3.5)	394 (5.8)
Latvia	47 (3.2)	557 (2.5)	26 (3.1)	549 (4.0)	27 (1.3)	568 (3.3)
Lithuania	87 (2.1)	548 (2.8)	11 (1.9)	567 (6.3)	2 (1.1)	~ ~
Macao SAR	87 (0.1)	550 (1.1)	2 (0.0)	~ ~	11 (0.1)	515 (3.9)
Malta	60 (0.1)	461 (2.2)	35 (0.1)	446 (2.4)	5 (0.1)	382 (7.3)
Morocco	9 (1.4)	398 (11.5)	14 (1.9)	397 (8.5)	77 (2.3)	346 (5.1)
Netherlands	72 (4.0)	550 (2.2)	22 (3.6)	542 (3.5)	6 (2.0)	518 (20.3)
New Zealand	56 (3.6)	531 (2.9)	28 (3.0)	529 (6.3)	16 (2.2)	495 (11.4)
Northern Ireland	r 81 (3.9)	565 (2.9)	14 (3.4)	561 (11.4)	5 (2.5)	560 (11.4)
Norway (5)	63 (3.7)	559 (2.9)	32 (3.8)	560 (3.8)	5 (1.7)	551 (4.7)
Oman	82 (1.7)	415 (3.8)	5 (1.4)	409 (12.4)	13 (0.9)	445 (6.1)
Poland	100 (0.0)	565 (2.1)	0 (0.0)	~ ~	0 (0.0)	~ ~
Portugal	89 (2.5)	528 (2.1)	8 (2.1)	520 (6.5)	3 (1.4)	555 (48.0)
Qatar	41 (0.3)	405 (2.5)	10 (0.1)	453 (4.1)	49 (0.3)	471 (3.1)
Russian Federation	77 (2.6)	583 (2.8)	12 (2.3)	588 (5.5)	11 (1.7)	556 (8.3)
Saudi Arabia	31 (3.4)	439 (7.5)	26 (2.9)	437 (9.0)	43 (3.7)	420 (7.2)
Singapore	0 (0.0)	~ ~	0 (0.0)	~ ~	100 (0.0)	576 (3.2)
Slovak Republic	86 (2.7)	542 (3.0)	9 (1.8)	519 (10.0)	5 (1.9)	439 (25.2)
Slovenia	74 (4.4)	544 (2.1)	25 (4.3)	538 (5.0)	2 (1.1)	~ ~
South Africa	r 59 (2.6)	306 (4.5)	19 (2.6)	335 (11.6)	22 (2.3)	349 (12.2)
Spain	56 (2.7)	536 (1.7)	28 (2.7)	521 (3.5)	16 (2.2)	513 (7.1)
Sweden	47 (4.0)	563 (3.3)	37 (4.1)	550 (3.1)	16 (3.7)	541 (8.3)
Trinidad and Tobago	94 (2.1)	486 (3.4)	0 (0.0)	~ ~	6 (2.1)	475 (16.0)
United Arab Emirates	36 (1.2)	397 (3.9)	7 (1.1)	471 (17.9)	58 (1.2)	480 (5.0)
United States	55 (3.7)	557 (3.5)	30 (4.2)	550 (4.9)	15 (3.1)	517 (9.2)
International Avg.	63 (0.4)	512 (0.5)	20 (0.4)	515 (1.1)	18 (0.3)	493 (1.9)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

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

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

Exhibit 5.2: Schools with Students Having the Language of the Test as Their Native Language (Continued)

Country	School has More than 90% of Students with Language of Test as Their Native Language		School has 51-90% of Students with Language of Test as Their Native Language		School has 50% or Less of Students with Language of Test as Their Native Language	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants						
Buenos Aires, Argentina	90 (2.4)	486 (3.6)	9 (2.3)	443 (15.4)	1 (0.9)	~ ~
Ontario, Canada	43 (4.8)	546 (5.2)	38 (4.7)	543 (5.4)	18 (3.3)	543 (4.9)
Quebec, Canada	49 (4.3)	551 (3.9)	25 (4.7)	556 (6.2)	26 (4.1)	533 (5.6)
Denmark (3)	60 (3.7)	500 (3.6)	32 (3.6)	504 (4.5)	9 (2.1)	489 (14.9)
Norway (4)	62 (3.9)	518 (2.6)	32 (3.9)	518 (3.1)	5 (1.9)	503 (6.0)
Moscow City, Russian Fed.	68 (4.1)	615 (2.5)	32 (4.1)	605 (4.3)	0 (0.0)	~ ~
Eng/Afr/Zulu - RSA (5)	43 (4.0)	384 (6.7)	22 (4.8)	440 (18.4)	35 (3.5)	424 (15.5)
Andalusia, Spain	85 (3.1)	527 (2.2)	14 (3.1)	518 (5.1)	1 (0.5)	~ ~
Madrid, Spain	78 (3.1)	553 (2.3)	17 (3.3)	539 (3.1)	5 (1.8)	529 (10.9)
Abu Dhabi, UAE	47 (2.0)	372 (5.7)	4 (2.2)	387 (36.5)	49 (1.3)	453 (8.0)
Dubai, UAE	13 (0.1)	437 (3.7)	11 (0.1)	534 (3.0)	76 (0.2)	526 (2.4)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 5.3: Schools Where Students Enter the Primary Grades with Literacy Skills

Exhibit 5.3 presents principals' categorizations of their schools according to the percentage of students entering the primary grades with early literacy skills (see the exhibit for details). There was considerable variation in the highest category—more than 75 percent entering with literacy skills—from 96 percent in Ireland where many students start preprimary school after their fourth birthday (see Exhibit 2) to 0 percent in Slovak Republic, Slovenia, Czech Republic, and Germany. On average, 22 percent were in schools where more than 75 percent of the students entered school with literacy skills, and another 47 percent were in schools where 25 to 75 percent entered with literacy skills. Both groups of students had higher average reading achievement than the 31 percent of students attending schools where less than 25 percent of the students entered with literacy skills (516 and 512 vs. 491).

Exhibit 5.3: Schools Where Students Enter the Primary Grades with Literacy Skills

Students Categorized by Principals' Reports

Students were scored according to their principals' responses about the percentage of children in the school who begin first grade with the six key skills on the *Schools Where Students Enter the Primary Grades with Literacy Skills* scale. Students who attend **Schools Where More than 75% Enter with Skills** had a score on the scale of at least 12.6, which corresponds to their principals reporting that over 75% of the students have three of the skills and 51-75% of the students have three of the skills, on average. Students who attend **Schools Where Less than 25% Enter with Skills** had a score no higher than 9.2, which corresponds to their principals reporting that less than 25% of the students have three of the skills and 25-50% of the students have three of the skills, on average. All other students attended **Schools Where 25% to 75% Enter with Skills**.

Country	Schools Where More than 75% Enter with Skills		Schools Where 25-75% Enter with Skills		Schools Where Less than 25% Enter with Skills		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Ireland	96 (1.5)	570 (2.7)	4 (1.5)	545 (18.4)	0 (0.1)	~ ~	14.2 (0.07)	- -
Northern Ireland	r 94 (1.9)	567 (2.7)	5 (1.7)	517 (14.4)	2 (0.8)	~ ~	14.2 (0.09)	- -
Singapore	83 (0.0)	580 (3.5)	15 (0.0)	553 (9.5)	2 (0.0)	~ ~	13.8 (0.00)	0.9 (0.00) ▲
Spain	62 (3.2)	533 (1.8)	36 (3.2)	519 (3.5)	2 (0.8)	~ ~	12.8 (0.10)	0.4 (0.14) ▲
United States	53 (4.8)	560 (3.8)	32 (4.4)	540 (6.0)	15 (3.2)	527 (7.9)	12.2 (0.22)	- -
Latvia	53 (4.7)	560 (2.8)	44 (4.6)	557 (2.9)	3 (1.3)	525 (12.5)	12.5 (0.14)	- -
Qatar	52 (0.3)	466 (2.4)	33 (0.3)	420 (2.7)	15 (0.2)	411 (6.0)	12.0 (0.01)	0.6 (0.13) ▲
England	46 (4.0)	567 (3.3)	41 (4.1)	550 (3.8)	12 (2.6)	554 (5.6)	12.0 (0.17)	r -0.2 (0.23)
Chinese Taipei	42 (3.5)	557 (3.4)	50 (3.4)	564 (2.3)	8 (2.1)	540 (5.5)	12.1 (0.16)	0.4 (0.21)
United Arab Emirates	41 (2.1)	497 (5.0)	43 (2.1)	426 (5.3)	16 (1.3)	394 (6.4)	11.7 (0.08)	0.5 (0.12) ▲
Hong Kong SAR	38 (4.0)	567 (4.3)	50 (4.9)	575 (3.2)	12 (3.7)	556 (13.1)	11.9 (0.20)	-0.1 (0.25)
Denmark	36 (4.1)	553 (3.6)	59 (4.1)	546 (2.9)	5 (1.6)	530 (9.0)	11.9 (0.10)	0.3 (0.13)
Bahrain	33 (2.5)	466 (4.3)	46 (3.2)	444 (4.4)	21 (2.5)	418 (5.7)	11.1 (0.10)	- -
Macao SAR	33 (0.1)	542 (1.9)	55 (0.1)	550 (1.4)	13 (0.1)	538 (3.3)	11.5 (0.00)	- -
Canada	30 (2.5)	554 (3.2)	57 (2.6)	546 (2.0)	13 (1.8)	508 (8.0)	11.5 (0.10)	- -
Kuwait	30 (4.6)	422 (10.4)	49 (5.0)	386 (7.8)	21 (3.6)	378 (8.8)	11.1 (0.16)	- -
Egypt	25 (3.4)	356 (15.3)	61 (4.2)	321 (7.5)	14 (3.1)	322 (15.5)	11.3 (0.15)	- -
Sweden	23 (3.8)	569 (5.1)	72 (4.1)	553 (2.6)	5 (1.8)	519 (8.5)	11.5 (0.11)	r 0.0 (0.18)
Kazakhstan	17 (2.6)	552 (8.0)	68 (3.5)	533 (3.2)	15 (2.9)	532 (7.2)	11.0 (0.12)	- -
Chile	17 (3.4)	522 (6.8)	45 (4.3)	506 (4.3)	38 (4.2)	467 (5.0)	10.1 (0.20)	- -
Poland	14 (3.3)	558 (6.1)	56 (4.9)	565 (2.9)	30 (4.2)	567 (5.1)	10.2 (0.18)	- -
Bulgaria	12 (2.6)	573 (13.9)	60 (3.9)	567 (4.6)	28 (3.5)	509 (8.9)	10.3 (0.14)	0.6 (0.20) ▲
Azerbaijan	12 (2.7)	481 (9.3)	42 (4.3)	472 (8.2)	45 (4.0)	468 (5.6)	9.7 (0.17)	0.8 (0.21) ▲
Morocco	12 (2.0)	405 (9.7)	36 (2.8)	379 (5.5)	53 (3.1)	332 (5.7)	9.5 (0.13)	-0.5 (0.18) ▼
Saudi Arabia	12 (2.3)	433 (12.4)	49 (3.8)	425 (7.1)	40 (3.6)	435 (7.2)	10.0 (0.14)	0.5 (0.21)
Georgia	11 (2.1)	495 (8.9)	30 (3.4)	494 (4.2)	59 (3.7)	485 (4.2)	9.4 (0.16)	0.0 (0.23)
Oman	11 (1.5)	435 (9.6)	61 (3.3)	420 (4.4)	28 (3.1)	408 (5.9)	10.2 (0.09)	0.6 (0.16) ▲
Israel	11 (2.5)	506 (13.7)	53 (4.1)	546 (5.3)	36 (3.9)	515 (7.1)	10.0 (0.16)	-0.4 (0.21)
Malta	11 (0.1)	459 (4.7)	60 (0.1)	454 (2.2)	29 (0.1)	444 (3.0)	10.2 (0.00)	0.8 (0.01) ▲
Finland	11 (2.7)	576 (5.3)	87 (3.0)	564 (2.1)	2 (1.2)	~ ~	11.3 (0.08)	0.3 (0.15)
Russian Federation	10 (2.1)	599 (6.9)	63 (2.9)	588 (2.5)	27 (2.6)	556 (5.1)	10.3 (0.10)	-0.1 (0.16)
Portugal	9 (3.2)	535 (4.4)	36 (3.8)	530 (4.4)	55 (3.8)	525 (3.0)	9.3 (0.17)	0.5 (0.21)
Italy	8 (2.2)	542 (7.6)	52 (4.4)	552 (3.0)	40 (4.6)	545 (4.0)	9.8 (0.16)	0.1 (0.19)
Iran, Islamic Rep. of	8 (2.1)	405 (27.3)	20 (3.6)	432 (13.3)	72 (4.1)	429 (4.6)	8.6 (0.17)	-0.2 (0.22)
Lithuania	8 (2.1)	555 (6.0)	66 (3.6)	552 (3.4)	26 (3.5)	536 (4.8)	10.3 (0.13)	0.2 (0.16)
Austria	8 (2.2)	552 (5.2)	18 (3.5)	553 (4.9)	74 (3.8)	537 (3.0)	8.8 (0.16)	0.3 (0.19)
Trinidad and Tobago	7 (2.3)	532 (13.1)	60 (4.5)	491 (5.1)	32 (4.2)	461 (6.5)	10.3 (0.15)	-0.2 (0.19)
South Africa	r 7 (2.4)	338 (34.2)	59 (3.9)	317 (6.6)	34 (3.8)	318 (8.4)	10.0 (0.17)	r 0.3 (0.19)
France	6 (2.4)	512 (8.0)	85 (2.8)	514 (2.7)	8 (1.9)	482 (7.2)	10.8 (0.09)	-0.2 (0.13)
Australia	6 (1.4)	569 (7.8)	42 (3.1)	550 (4.7)	52 (3.2)	536 (3.3)	9.2 (0.12)	-0.1 (0.18)
New Zealand	5 (1.7)	523 (24.2)	51 (3.5)	545 (3.0)	44 (3.4)	502 (5.0)	9.4 (0.13)	0.3 (0.19)
Belgium (Flemish)	5 (1.9)	528 (5.1)	46 (4.7)	529 (3.0)	49 (4.7)	522 (3.8)	9.3 (0.18)	- -
Belgium (French)	3 (1.6)	512 (14.9)	72 (3.7)	503 (3.0)	25 (3.5)	481 (6.2)	10.1 (0.13)	0.2 (0.19)
Norway (5)	2 (1.4)	~ ~	67 (4.2)	561 (2.8)	31 (4.1)	554 (3.3)	9.8 (0.14)	- -
Hungary	2 (1.2)	~ ~	13 (3.1)	575 (11.0)	85 (3.4)	550 (3.3)	8.0 (0.13)	0.1 (0.15)
Netherlands	2 (1.3)	~ ~	64 (4.3)	549 (2.2)	35 (4.5)	540 (3.9)	9.9 (0.12)	r 0.2 (0.16)
Slovak Republic	0 (0.2)	~ ~	30 (4.1)	548 (4.3)	70 (4.1)	529 (4.8)	8.5 (0.10)	0.1 (0.14)
Slovenia	0 (0.0)	~ ~	47 (4.7)	547 (3.3)	53 (4.7)	539 (3.0)	9.1 (0.11)	-0.1 (0.16)
Czech Republic	0 (0.0)	~ ~	29 (4.0)	550 (4.0)	71 (4.0)	541 (2.6)	8.6 (0.10)	0.2 (0.14)
Germany	0 (0.0)	~ ~	29 (3.2)	552 (3.9)	71 (3.2)	530 (4.9)	8.5 (0.09)	-0.2 (0.13)
International Avg.	22 (0.4)	516 (1.6)	47 (0.5)	512 (0.8)	31 (0.4)	491 (1.0)		

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2011 based on the combined response distribution of all 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.

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

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

Downloaded from <http://pirls2016.org/download-center/>

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼



Exhibit 5.3: Schools Where Students Enter the Primary Grades with Literacy Skills (Continued)

Country	Schools Where More than 75% Enter with Skills		Schools Where 25-75% Enter with Skills		Schools Where Less than 25% Enter with Skills		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Benchmarking Participants								
Madrid, Spain	77 (3.7)	553 (2.4)	23 (3.7)	535 (4.2)	0 (0.0)	~ ~	13.5 (0.10)	--
Dubai, UAE	62 (0.3)	530 (2.4)	28 (0.3)	503 (3.4)	10 (0.1)	444 (4.4)	12.6 (0.01)	0.8 (0.03) ▲
Andalusia, Spain	59 (3.5)	531 (2.5)	40 (3.6)	518 (3.1)	1 (0.9)	~ ~	12.7 (0.11)	0.7 (0.17) ▲
Ontario, Canada	47 (5.1)	552 (4.8)	45 (4.8)	541 (4.1)	8 (2.4)	518 (11.4)	12.2 (0.17)	--
Denmark (3)	36 (3.8)	506 (4.5)	59 (4.0)	499 (3.9)	5 (1.7)	493 (8.9)	11.9 (0.09)	--
Abu Dhabi, UAE	26 (3.1)	472 (11.2)	52 (3.7)	403 (7.0)	22 (2.6)	373 (11.4)	10.9 (0.13)	0.1 (0.22)
Moscow City, Russian Fed.	14 (2.9)	615 (5.9)	79 (3.3)	613 (2.2)	7 (2.2)	596 (7.9)	11.2 (0.12)	--
Buenos Aires, Argentina	8 (2.2)	497 (13.1)	66 (3.5)	493 (4.0)	26 (3.2)	444 (6.2)	10.4 (0.12)	--
Quebec, Canada	8 (2.9)	560 (7.1)	74 (4.6)	550 (2.7)	18 (4.1)	536 (9.5)	10.7 (0.17)	--
Eng/Afr/Zulu - RSA (5)	5 (2.2)	503 (24.7)	66 (5.6)	400 (8.6)	29 (5.4)	417 (14.5)	10.1 (0.20)	--
Norway (4)	2 (1.1)	~ ~	68 (4.1)	522 (2.2)	30 (4.1)	507 (3.6)	9.8 (0.13)	0.0 (0.18)

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

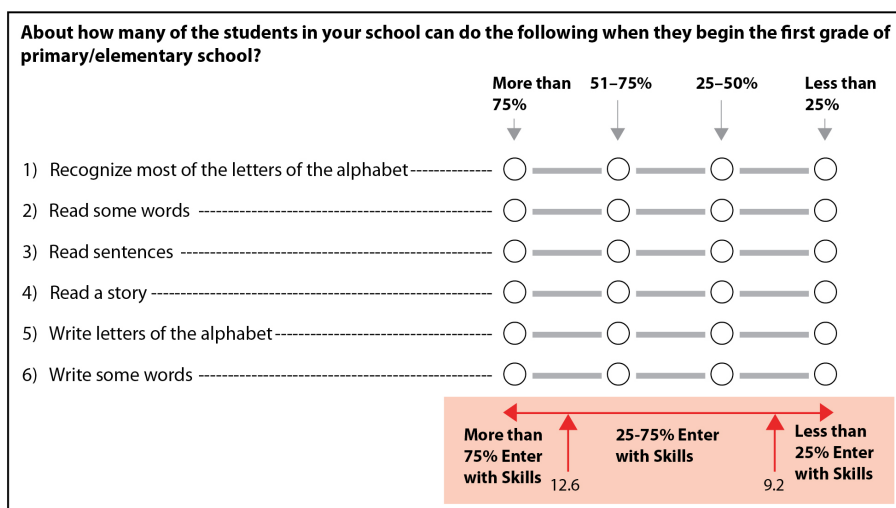


Exhibit 5.4: Instruction Affected by Reading Resource Shortages – Principals’ Reports

Exhibit 5.4 presents the results for the *Reading Resource Shortages* scale. Countries are ordered according to the percentage of students (from most to least) in schools **Not Affected** by resource shortages, from a high of 64 percent to a low of 1 percent. On average, 31 percent of the fourth grade students attended well-resourced schools and they had the highest average reading achievement (521). Sixty-two percent of the students were in schools **Somewhat Affected** by resource shortages and 6 percent were in schools **Affected A Lot**. Average reading achievement for these two groups was 507 and 474, respectively.

Exhibit 5.4: Instruction Affected by Reading Resource Shortages – Principals' Reports

Students Categorized by Principals' Reports

Students were scored according to their principals' responses concerning twelve school and classroom resources on the *Reading Resource Shortages* scale. Students in schools where instruction was **Not Affected** by resource shortages had a score on the scale of at least 10.8, which corresponds to their principals reporting that shortages affected instruction "not at all" for six of the twelve resources and "a little" for the other six, on average. Students in schools where instruction was **Affected A Lot** had a score no higher than 7.1, which corresponds to their principals reporting that shortages affected instruction "a lot" for six of the twelve resources and "some" for the other six, on average. All other students attended schools where instruction was **Somewhat Affected** by resource shortages.

Country	Not Affected		Somewhat Affected		Affected A Lot		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Australia	64 (3.4)	552 (3.1)	35 (3.3)	530 (4.7)	2 (0.9)	~ ~	11.5 (0.15)	0.3 (0.21)
Singapore	63 (0.0)	574 (4.0)	32 (0.0)	575 (6.1)	6 (0.0)	601 (11.8)	11.2 (0.00)	0.8 (0.00) ⬆
Slovenia	62 (4.6)	545 (2.7)	38 (4.6)	539 (3.3)	0 (0.0)	~ ~	11.3 (0.14)	-0.4 (0.18)
Netherlands	62 (4.4)	547 (2.4)	38 (4.4)	544 (4.6)	0 (0.0)	~ ~	11.3 (0.10)	r 0.3 (0.15)
Sweden	55 (4.3)	560 (3.5)	44 (4.3)	549 (3.1)	0 (0.5)	~ ~	11.3 (0.16)	0.6 (0.22)
Canada	55 (2.5)	545 (2.4)	44 (2.5)	542 (3.1)	2 (0.7)	~ ~	11.0 (0.08)	0.2 (0.12)
Bulgaria	54 (3.7)	559 (5.7)	45 (3.6)	541 (6.8)	1 (0.7)	~ ~	11.1 (0.12)	0.1 (0.18)
New Zealand	54 (3.7)	530 (4.2)	45 (3.7)	522 (5.3)	2 (1.0)	~ ~	10.9 (0.12)	-0.3 (0.18)
Poland	53 (4.3)	568 (2.9)	47 (4.3)	561 (3.4)	0 (0.0)	~ ~	11.0 (0.14)	-
United States	52 (4.0)	555 (4.0)	46 (4.1)	540 (5.3)	2 (1.0)	~ ~	11.0 (0.16)	-0.2 (0.20)
Czech Republic	51 (3.4)	543 (2.5)	48 (3.4)	544 (3.5)	1 (0.6)	~ ~	11.0 (0.10)	0.4 (0.16) ⬆
England	51 (4.1)	561 (2.9)	49 (4.1)	557 (3.2)	0 (0.0)	~ ~	10.9 (0.12)	0.0 (0.22)
Denmark	47 (4.2)	550 (3.3)	53 (4.1)	545 (2.9)	0 (0.5)	~ ~	10.9 (0.12)	0.0 (0.17)
Northern Ireland	r 44 (5.6)	564 (4.3)	54 (5.6)	564 (3.9)	2 (1.3)	~ ~	10.6 (0.16)	r 0.0 (0.24)
Norway (5)	42 (4.5)	566 (3.1)	57 (4.5)	554 (2.9)	0 (0.3)	~ ~	10.7 (0.10)	-
Germany	40 (3.7)	547 (3.4)	59 (3.8)	530 (5.6)	1 (0.6)	~ ~	10.5 (0.10)	0.0 (0.14)
Slovak Republic	40 (3.8)	535 (4.3)	59 (3.7)	534 (5.0)	1 (0.7)	~ ~	10.4 (0.10)	0.5 (0.14) ⬆
Bahrain	38 (3.0)	463 (4.8)	48 (3.1)	432 (3.8)	14 (2.1)	449 (7.0)	10.0 (0.15)	-
Spain	36 (2.9)	537 (2.5)	62 (3.0)	524 (2.1)	2 (0.8)	~ ~	10.5 (0.09)	-0.2 (0.17)
Finland	36 (4.0)	567 (3.8)	62 (4.1)	566 (2.5)	2 (1.2)	~ ~	10.5 (0.12)	0.2 (0.20)
Austria	36 (4.1)	548 (3.5)	64 (4.0)	536 (3.1)	0 (0.5)	~ ~	10.6 (0.11)	-0.2 (0.17)
Latvia	35 (4.3)	554 (3.5)	58 (4.2)	560 (2.5)	7 (2.0)	554 (10.8)	10.0 (0.16)	-
Ireland	34 (4.0)	570 (3.1)	66 (4.0)	565 (3.2)	0 (0.0)	~ ~	10.3 (0.14)	-0.2 (0.20)
Chile	34 (4.6)	508 (5.2)	62 (4.8)	485 (3.8)	4 (1.9)	505 (8.5)	10.1 (0.16)	-
United Arab Emirates	31 (1.8)	495 (5.7)	53 (2.4)	426 (4.1)	16 (1.7)	448 (9.4)	9.7 (0.10)	r 0.1 (0.14)
Qatar	31 (0.4)	480 (3.8)	34 (0.3)	435 (2.8)	35 (0.3)	416 (2.8)	8.7 (0.02)	-0.4 (0.26)
Russian Federation	30 (3.4)	585 (5.0)	65 (3.6)	579 (3.1)	4 (1.4)	576 (15.2)	10.1 (0.14)	0.2 (0.21)
Lithuania	30 (3.8)	554 (4.8)	68 (3.9)	546 (3.7)	2 (1.3)	~ ~	10.0 (0.11)	-0.2 (0.15)
Belgium (Flemish)	30 (3.9)	530 (4.3)	70 (3.9)	524 (2.7)	0 (0.2)	~ ~	10.3 (0.11)	-
Georgia	29 (3.3)	500 (5.0)	70 (3.2)	485 (3.8)	1 (0.6)	~ ~	10.2 (0.11)	-0.4 (0.19)
Kazakhstan	27 (4.2)	543 (5.0)	51 (4.2)	531 (4.3)	22 (3.5)	541 (5.2)	9.4 (0.22)	-
Israel	26 (3.7)	559 (4.6)	60 (4.3)	530 (5.1)	14 (2.7)	481 (10.6)	9.4 (0.16)	-0.2 (0.23)
Malta	24 (0.1)	454 (3.3)	72 (0.1)	451 (1.9)	5 (0.1)	464 (4.3)	9.7 (0.00)	-0.6 (0.01) ⬇
Oman	21 (2.3)	439 (5.3)	62 (2.9)	413 (4.3)	17 (2.3)	414 (7.1)	9.1 (0.12)	r 0.7 (0.15) ⬆
Belgium (French)	20 (3.3)	500 (4.9)	80 (3.3)	498 (3.3)	0 (0.0)	~ ~	10.0 (0.09)	0.2 (0.14)
Portugal	20 (3.6)	537 (7.4)	78 (4.0)	526 (2.3)	2 (1.9)	~ ~	9.7 (0.11)	0.0 (0.19)
Chinese Taipei	17 (3.3)	562 (4.2)	69 (4.1)	559 (2.3)	14 (2.9)	553 (5.3)	8.9 (0.14)	0.4 (0.21)
France	17 (3.3)	520 (5.3)	83 (3.3)	510 (2.8)	0 (0.0)	~ ~	9.7 (0.10)	-0.2 (0.15)
Hungary	15 (3.1)	551 (10.5)	82 (3.5)	553 (3.0)	4 (1.6)	560 (19.2)	9.6 (0.13)	-0.9 (0.21) ⬇
Italy	11 (2.2)	553 (8.3)	88 (2.1)	548 (2.4)	1 (0.9)	~ ~	9.5 (0.09)	-0.2 (0.13)
Egypt	10 (2.1)	366 (22.5)	81 (3.2)	329 (6.0)	9 (2.6)	308 (22.0)	9.0 (0.15)	-
Azerbaijan	8 (2.7)	439 (27.2)	84 (3.3)	471 (3.9)	7 (2.2)	514 (14.5)	8.8 (0.16)	0.5 (0.20)
Morocco	8 (2.3)	326 (12.8)	84 (3.1)	360 (4.1)	8 (2.3)	358 (23.8)	8.9 (0.13)	-0.7 (0.17) ⬇
Iran, Islamic Rep. of	7 (1.7)	482 (10.0)	78 (2.8)	425 (5.0)	15 (2.5)	414 (10.3)	8.7 (0.11)	0.3 (0.16)
Trinidad and Tobago	6 (2.2)	517 (21.1)	88 (3.1)	482 (4.1)	6 (2.2)	483 (13.1)	8.7 (0.12)	0.2 (0.16)
South Africa	r 6 (1.6)	410 (24.4)	89 (2.2)	314 (4.4)	4 (1.5)	302 (31.9)	9.1 (0.10)	r 0.0 (0.14)
Kuwait	4 (1.5)	444 (34.0)	59 (4.8)	388 (6.6)	37 (4.7)	400 (7.4)	7.6 (0.16)	-
Macao SAR	4 (0.0)	521 (3.9)	89 (0.1)	546 (1.1)	7 (0.1)	553 (4.3)	8.4 (0.00)	-
Saudi Arabia	2 (0.8)	~ ~	77 (2.6)	426 (4.5)	21 (2.5)	446 (10.5)	8.1 (0.10)	-0.8 (0.21) ⬇
Hong Kong SAR	1 (0.8)	~ ~	88 (2.5)	571 (2.9)	12 (2.4)	559 (6.8)	8.2 (0.08)	0.2 (0.11)
International Avg.	31 (0.5)	521 (1.4)	62 (0.5)	507 (0.6)	6 (0.2)	474 (2.8)		

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2011 based on the combined response distribution of all 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.

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

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

Significantly higher than 2011 ⬆
Significantly lower than 2011 ⬇

Exhibit 5.4: Instruction Affected by Reading Resource Shortages – Principals' Reports (Continued)

Country	Not Affected		Somewhat Affected		Affected A Lot		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Benchmarking Participants								
Quebec, Canada	61 (5.4)	552 (3.0)	37 (5.6)	542 (5.9)	2 (1.5)	~ ~	11.2 (0.18)	0.2 (0.23)
Madrid, Spain	58 (3.8)	554 (2.8)	42 (3.8)	542 (2.5)	0 (0.0)	~ ~	11.2 (0.13)	- -
Ontario, Canada	56 (4.3)	546 (3.7)	42 (4.3)	541 (5.2)	2 (1.3)	~ ~	11.0 (0.18)	0.3 (0.26)
Buenos Aires, Argentina	51 (4.2)	495 (4.6)	49 (4.2)	465 (4.6)	0 (0.0)	~ ~	11.0 (0.16)	- -
Denmark (3)	47 (3.9)	501 (4.2)	52 (3.9)	500 (3.7)	0 (0.1)	~ ~	10.9 (0.11)	- -
Moscow City, Russian Fed.	46 (4.0)	614 (3.5)	49 (4.1)	611 (3.1)	5 (1.8)	608 (9.2)	10.6 (0.17)	- -
Norway (4)	44 (4.5)	522 (3.2)	56 (4.5)	514 (2.6)	0 (0.0)	~ ~	10.8 (0.11)	0.1 (0.19)
Dubai, UAE	44 (0.3)	527 (2.8)	39 (0.3)	495 (2.5)	17 (0.3)	532 (6.1)	10.2 (0.02)	-0.2 (0.03) ▼
Andalusia, Spain	28 (3.5)	534 (2.9)	72 (3.5)	521 (2.6)	0 (0.0)	~ ~	10.4 (0.10)	-0.1 (0.16)
Abu Dhabi, UAE	25 (3.1)	471 (10.6)	59 (3.6)	397 (6.4)	16 (2.5)	392 (11.4)	9.5 (0.16)	0.3 (0.29)
Eng/Afr/Zulu - RSA (5)	8 (3.2)	506 (22.7)	84 (4.4)	403 (7.2)	8 (3.6)	384 (38.5)	9.1 (0.20)	- -

Significantly higher than 2011 ●
Significantly lower than 2011 ▼

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

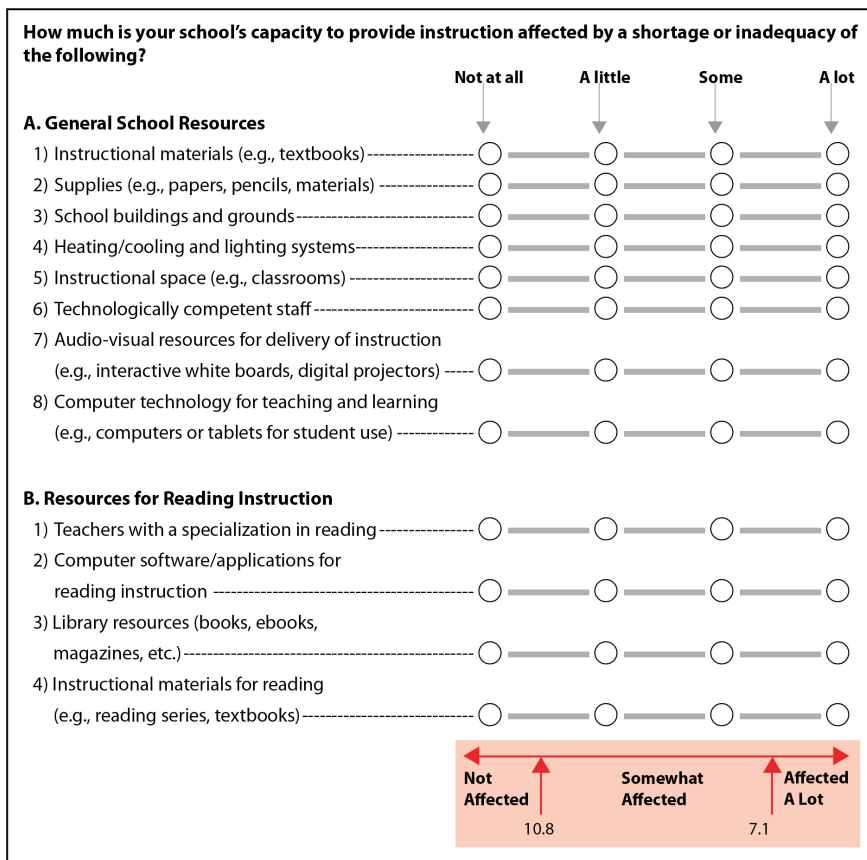


Exhibit 5.5: Size of School Library

Exhibit 5.5 presents principals' reports about the existence and size of school libraries. Given that some countries have well-resourced classroom libraries rather than a larger central library, the results in Exhibit 5.5 should be considered in light of the information about classroom libraries found in Exhibit 9.4. Nearly one-third of the students (32%) were in schools where the library had more than 5,000 book titles and only 13 percent were in schools with no book titles. Average reading achievement in schools with the largest libraries was 525, compared to 494 to 501 for schools with a smaller or no central library.

Exhibit 5.5: Size of School Library

Students Categorized by Principals' Reports

Does not include classroom libraries. For information about classroom libraries, see Exhibit 9.4

Country	More than 5,000 Book Titles		501–5,000 Book Titles		500 Book Titles or Fewer		No School Library	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	57 (3.7)	544 (4.2)	40 (3.7)	546 (4.7)	2 (1.0)	~ ~	1 (0.5)	~ ~
Austria	3 (1.3)	551 (9.1)	57 (4.0)	542 (3.2)	19 (3.0)	540 (5.0)	21 (3.2)	538 (6.1)
Azerbaijan	40 (4.1)	477 (6.4)	46 (4.4)	475 (5.6)	14 (3.1)	449 (17.0)	0 (0.0)	~ ~
Bahrain	47 (2.8)	465 (4.2)	44 (2.9)	433 (3.3)	8 (1.7)	426 (8.6)	1 (0.7)	~ ~
Belgium (Flemish)	2 (1.1)	~ ~	19 (3.2)	522 (5.2)	28 (4.2)	524 (4.1)	50 (4.2)	528 (3.6)
Belgium (French)	3 (1.2)	523 (16.8)	23 (3.9)	506 (5.4)	38 (4.6)	496 (3.9)	36 (4.0)	494 (4.7)
Bulgaria	33 (3.3)	572 (4.2)	31 (3.8)	548 (8.4)	16 (3.0)	540 (14.5)	20 (3.3)	531 (9.5)
Canada	51 (2.6)	547 (2.5)	46 (2.5)	540 (2.8)	2 (0.9)	~ ~	1 (0.6)	~ ~
Chile	18 (2.6)	514 (6.0)	58 (4.2)	492 (4.3)	22 (4.2)	481 (6.2)	3 (1.5)	508 (13.4)
Chinese Taipei	93 (2.1)	560 (2.0)	7 (2.1)	549 (10.0)	0 (0.3)	~ ~	0 (0.0)	~ ~
Czech Republic	7 (2.2)	551 (5.0)	56 (4.3)	541 (3.0)	13 (2.8)	541 (5.5)	24 (3.6)	547 (4.1)
Denmark	59 (3.5)	550 (2.8)	33 (4.0)	546 (4.6)	2 (1.0)	~ ~	6 (2.0)	545 (8.6)
Egypt	15 (2.9)	358 (14.4)	56 (4.7)	338 (7.8)	22 (3.5)	307 (16.1)	7 (2.3)	316 (16.7)
England	18 (3.2)	565 (5.7)	62 (3.7)	558 (2.6)	13 (2.4)	556 (5.8)	8 (2.2)	562 (7.1)
Finland	3 (1.5)	573 (16.0)	40 (4.3)	567 (3.0)	26 (3.8)	562 (4.5)	30 (3.4)	568 (3.3)
France	4 (1.8)	485 (8.4)	39 (4.2)	512 (4.1)	31 (4.3)	507 (5.0)	25 (3.6)	523 (4.4)
Georgia	42 (3.2)	490 (3.5)	47 (3.7)	488 (4.7)	10 (2.2)	491 (9.3)	1 (0.7)	~ ~
Germany	0 (0.0)	~ ~	45 (3.6)	542 (3.3)	27 (3.5)	526 (10.3)	28 (3.3)	537 (7.1)
Hong Kong SAR	91 (2.3)	569 (3.1)	9 (2.2)	570 (8.6)	1 (0.7)	~ ~	0 (0.0)	~ ~
Hungary	50 (4.0)	563 (4.1)	34 (4.0)	550 (7.1)	1 (0.9)	~ ~	16 (3.1)	537 (8.2)
Iran, Islamic Rep. of	1 (0.7)	~ ~	31 (3.2)	471 (4.9)	43 (4.0)	417 (7.9)	24 (3.5)	387 (10.0)
Ireland	9 (2.6)	564 (6.8)	48 (4.5)	565 (3.2)	6 (2.2)	570 (5.8)	36 (4.5)	569 (5.8)
Israel	4 (1.7)	550 (24.6)	48 (4.3)	533 (5.0)	30 (4.0)	528 (7.7)	17 (3.2)	520 (10.6)
Italy	4 (1.8)	559 (9.7)	46 (4.1)	551 (3.4)	33 (4.3)	548 (4.1)	17 (3.4)	540 (6.9)
Kazakhstan	71 (3.9)	537 (3.1)	24 (3.9)	534 (5.6)	4 (1.6)	533 (11.1)	1 (0.6)	~ ~
Kuwait	14 (3.4)	426 (16.6)	52 (6.1)	396 (8.4)	34 (5.5)	383 (9.8)	0 (0.0)	~ ~
Latvia	55 (4.0)	562 (2.2)	36 (4.3)	558 (3.8)	8 (2.2)	531 (8.4)	1 (0.8)	~ ~
Lithuania	46 (3.6)	548 (3.3)	45 (3.8)	549 (4.6)	8 (2.1)	548 (16.4)	1 (1.0)	~ ~
Macao SAR	87 (0.1)	544 (1.1)	12 (0.1)	542 (2.7)	0 (0.0)	~ ~	1 (0.0)	~ ~
Malta	16 (0.1)	446 (3.5)	62 (0.1)	454 (2.0)	7 (0.1)	443 (7.0)	15 (0.1)	456 (3.3)
Morocco	0 (0.0)	~ ~	9 (2.0)	404 (12.5)	28 (3.0)	389 (9.6)	63 (3.0)	337 (5.1)
Netherlands	2 (1.5)	~ ~	48 (5.0)	543 (2.8)	24 (4.5)	542 (4.3)	26 (4.6)	553 (3.5)
New Zealand	44 (3.5)	528 (4.7)	51 (3.5)	527 (4.2)	3 (1.4)	498 (30.8)	1 (0.9)	~ ~
Northern Ireland	r 3 (1.7)	561 (6.4)	59 (5.0)	562 (4.0)	12 (3.1)	571 (9.3)	26 (4.6)	571 (6.1)
Norway (5)	25 (4.1)	560 (4.0)	63 (4.7)	560 (2.9)	7 (2.0)	553 (9.4)	4 (1.8)	549 (17.0)
Oman	21 (2.1)	426 (6.9)	63 (3.0)	419 (4.0)	10 (2.1)	407 (13.8)	5 (1.5)	417 (11.0)
Poland	73 (3.7)	565 (2.2)	22 (3.5)	563 (6.6)	1 (0.7)	~ ~	4 (1.7)	589 (10.3)
Portugal	47 (4.1)	528 (2.9)	40 (3.8)	525 (3.8)	11 (1.4)	536 (6.8)	2 (1.6)	~ ~
Qatar	58 (0.4)	443 (2.6)	33 (0.4)	446 (3.3)	7 (0.1)	426 (4.3)	2 (0.1)	~ ~
Russian Federation	65 (3.5)	586 (3.2)	32 (3.7)	575 (4.6)	3 (1.0)	537 (13.0)	0 (0.2)	~ ~
Saudi Arabia	1 (0.6)	~ ~	17 (2.5)	404 (11.2)	51 (3.7)	438 (5.4)	31 (3.3)	431 (9.2)
Singapore	71 (0.0)	582 (3.6)	29 (0.0)	562 (6.6)	0 (0.0)	~ ~	0 (0.0)	~ ~
Slovak Republic	11 (2.7)	533 (15.6)	60 (3.8)	536 (3.7)	16 (2.4)	539 (8.4)	14 (2.9)	525 (14.0)
Slovenia	68 (3.7)	541 (1.6)	22 (3.7)	550 (4.5)	9 (2.2)	534 (14.3)	0 (0.1)	~ ~
South Africa	r 6 (2.1)	393 (32.6)	12 (2.3)	375 (17.0)	20 (3.3)	320 (11.8)	62 (3.6)	301 (5.1)
Spain	17 (2.1)	540 (3.0)	67 (2.9)	528 (1.6)	13 (1.9)	518 (8.6)	4 (1.4)	505 (8.1)
Sweden	29 (4.1)	558 (4.7)	57 (4.6)	556 (3.0)	8 (2.7)	543 (10.1)	6 (1.8)	545 (10.3)
Trinidad and Tobago	r 2 (1.2)	~ ~	32 (4.0)	480 (7.5)	45 (4.9)	492 (6.1)	21 (3.7)	472 (10.2)
United Arab Emirates	48 (2.0)	485 (5.5)	39 (2.3)	421 (4.7)	12 (1.7)	411 (10.6)	1 (0.4)	~ ~
United States	52 (4.0)	556 (5.0)	43 (3.9)	543 (4.6)	3 (1.5)	561 (15.1)	3 (1.3)	515 (14.8)
International Avg.	32 (0.4)	525 (1.4)	40 (0.5)	512 (0.8)	15 (0.4)	494 (1.7)	13 (0.3)	501 (1.6)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

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

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

Exhibit 5.5: Size of School Library (Continued)

Country	More than 5,000 Book Titles		501–5,000 Book Titles		500 Book Titles or Fewer		No School Library	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants								
Buenos Aires, Argentina	27 (3.6)	481 (5.9)	53 (4.4)	481 (5.7)	11 (2.6)	491 (8.1)	8 (2.1)	502 (8.5)
Ontario, Canada	49 (4.9)	545 (4.0)	48 (4.5)	542 (5.2)	3 (1.8)	530 (11.5)	0 (0.1)	~ ~
Quebec, Canada	35 (5.0)	552 (3.2)	57 (4.7)	545 (4.0)	3 (1.8)	562 (24.6)	4 (2.1)	547 (14.3)
Denmark (3)	57 (3.6)	506 (4.3)	35 (4.0)	495 (4.9)	2 (0.9)	~ ~	6 (2.0)	476 (12.2)
Norway (4)	25 (4.1)	520 (4.4)	64 (4.7)	518 (2.6)	7 (1.9)	510 (6.8)	4 (1.7)	516 (5.5)
Moscow City, Russian Fed.	88 (2.9)	610 (2.3)	12 (2.8)	625 (7.1)	1 (0.8)	~ ~	0 (0.0)	~ ~
Eng/Afr/Zulu - RSA (5)	15 (4.7)	444 (28.3)	15 (3.4)	443 (17.4)	25 (5.1)	407 (13.1)	45 (5.5)	391 (8.8)
Andalusia, Spain	19 (3.0)	533 (5.1)	65 (3.8)	523 (2.7)	15 (2.9)	524 (6.0)	1 (1.0)	~ ~
Madrid, Spain	22 (3.3)	547 (3.4)	67 (3.6)	549 (2.7)	11 (2.6)	550 (5.3)	1 (0.8)	~ ~
Abu Dhabi, UAE	47 (3.9)	443 (8.9)	42 (4.3)	394 (7.9)	11 (2.7)	384 (12.5)	0 (0.4)	~ ~
Dubai, UAE	71 (0.3)	535 (2.5)	25 (0.3)	486 (3.2)	3 (0.0)	419 (8.6)	1 (0.0)	~ ~

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Does your school have a school library?

1) Yes
2) No

If Yes,

Approximately how many books with different titles does your school library have (exclude magazines and periodicals)?

1) 250 or fewer
2) 251–500
3) 501–2,000
4) 2,001–5,000
5) 5,001–10,000
6) More than 10,000

Exhibit 5.6: Schools with Computers Available for Instruction

Exhibit 5.6 shows principals' reports about the availability of computers for reading instruction. On average, the majority of the fourth grade students (51%) were in schools that had 1 computer for 1 to 2 students, 23 percent in schools with 1 computer for 3 to 5 students, 19 percent in schools with 1 computer for 6 or more students, and 7 percent in schools with no computers available for instruction. The relationship between computer availability and average reading achievement is difficult to interpret because it is highly interrelated with socioeconomic levels and instructional practices. In the primary grades, computer instruction often is used for remedial purposes. The results show that those students in schools with no computers had lower achievement than the students in schools with computer availability.

Exhibit 5.6: Schools with Computers Available for Instruction

Students Categorized by Principals' Reports

Country	1–2 Students per Computer		3–5 Students per Computer		6 or More Students per Computer		No Computers Available	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	84 (2.9)	545 (3.1)	13 (2.6)	544 (7.6)	3 (1.3)	539 (4.5)	0 (0.0)	~ ~
Austria	18 (3.2)	541 (4.4)	22 (3.8)	550 (4.5)	58 (3.8)	536 (3.4)	1 (0.7)	~ ~
Azerbaijan	22 (3.4)	461 (8.1)	35 (4.6)	469 (7.6)	31 (3.8)	496 (4.4)	12 (2.9)	422 (19.5)
Bahrain	42 (3.1)	451 (3.9)	34 (2.6)	431 (4.2)	24 (2.0)	460 (7.2)	0 (0.2)	~ ~
Belgium (Flemish)	r 51 (3.6)	529 (2.5)	36 (3.9)	527 (4.1)	12 (2.9)	506 (6.7)	0 (0.0)	~ ~
Belgium (French)	34 (3.9)	496 (4.5)	36 (4.8)	500 (4.4)	16 (3.3)	506 (9.4)	15 (3.2)	489 (7.6)
Bulgaria	39 (3.4)	529 (6.4)	37 (3.7)	568 (6.4)	21 (3.2)	551 (11.8)	4 (1.6)	574 (10.2)
Canada	85 (1.7)	543 (2.1)	13 (1.5)	548 (4.3)	2 (0.7)	~ ~	0 (0.0)	~ ~
Chile	74 (4.1)	489 (3.3)	20 (4.1)	508 (7.3)	5 (1.7)	494 (13.3)	1 (0.9)	~ ~
Chinese Taipei	38 (3.2)	554 (3.7)	39 (3.7)	560 (3.0)	21 (3.0)	565 (3.1)	1 (1.0)	~ ~
Czech Republic	84 (3.1)	541 (2.4)	12 (2.8)	550 (4.7)	3 (1.3)	566 (9.1)	1 (0.8)	~ ~
Denmark	90 (2.5)	548 (2.3)	8 (2.1)	554 (10.7)	2 (1.3)	~ ~	1 (0.5)	~ ~
Egypt	r 3 (1.5)	294 (72.8)	6 (2.1)	421 (17.3)	85 (3.3)	322 (6.4)	7 (2.5)	355 (28.7)
England	86 (2.3)	559 (2.2)	10 (1.7)	561 (6.9)	4 (1.5)	564 (11.0)	0 (0.5)	~ ~
Finland	75 (3.5)	566 (2.1)	17 (2.9)	565 (4.8)	8 (2.4)	567 (7.5)	0 (0.0)	~ ~
France	40 (4.2)	514 (4.4)	41 (4.3)	512 (3.7)	13 (2.7)	502 (5.6)	6 (1.9)	508 (7.7)
Georgia	83 (3.1)	488 (3.2)	11 (2.7)	483 (8.3)	5 (1.8)	521 (9.6)	1 (0.7)	~ ~
Germany	35 (3.7)	535 (5.5)	38 (4.0)	541 (3.7)	26 (3.3)	537 (10.1)	1 (0.7)	~ ~
Hong Kong SAR	77 (4.2)	569 (3.5)	20 (4.1)	571 (5.3)	2 (1.2)	~ ~	1 (0.8)	~ ~
Hungary	46 (3.7)	535 (4.9)	26 (3.6)	572 (5.7)	17 (3.1)	569 (6.8)	11 (3.0)	561 (9.9)
Iran, Islamic Rep. of	1 (0.7)	~ ~	3 (1.1)	385 (86.8)	44 (3.9)	445 (5.9)	52 (3.8)	416 (6.3)
Ireland	57 (4.6)	569 (3.1)	19 (3.6)	561 (6.7)	24 (4.2)	565 (5.9)	0 (0.0)	~ ~
Israel	40 (3.8)	535 (6.2)	41 (4.1)	536 (6.5)	14 (2.9)	515 (13.0)	6 (2.1)	506 (21.3)
Italy	20 (3.2)	554 (5.4)	37 (4.1)	548 (4.2)	39 (3.8)	545 (3.5)	4 (1.7)	554 (8.7)
Kazakhstan	39 (3.7)	537 (4.1)	19 (3.3)	530 (6.3)	33 (3.7)	540 (5.6)	9 (2.5)	518 (10.1)
Kuwait	r 34 (5.1)	386 (11.7)	35 (4.0)	382 (7.1)	26 (4.8)	397 (9.8)	6 (3.0)	434 (39.2)
Latvia	49 (3.6)	546 (2.6)	29 (4.6)	569 (3.4)	20 (3.4)	566 (5.0)	3 (1.5)	573 (18.1)
Lithuania	47 (3.7)	540 (4.6)	25 (3.5)	548 (4.9)	26 (3.8)	560 (4.8)	2 (1.2)	~ ~
Macao SAR	82 (0.1)	547 (1.2)	14 (0.1)	526 (3.5)	0 (0.0)	~ ~	4 (0.0)	582 (2.9)
Malta	18 (0.1)	452 (3.7)	67 (0.1)	451 (2.1)	14 (0.1)	455 (3.1)	1 (0.0)	~ ~
Morocco	5 (1.3)	458 (16.8)	6 (1.3)	422 (14.5)	22 (3.1)	374 (10.0)	67 (2.9)	339 (5.1)
Netherlands	r 65 (4.7)	547 (2.6)	17 (3.6)	544 (8.2)	17 (3.5)	543 (5.7)	1 (0.8)	~ ~
New Zealand	78 (3.7)	524 (3.4)	20 (3.4)	531 (5.8)	2 (1.2)	~ ~	0 (0.0)	~ ~
Northern Ireland	r 82 (4.5)	562 (3.1)	10 (3.4)	574 (12.8)	8 (3.6)	582 (7.9)	0 (0.0)	~ ~
Norway (5)	79 (3.6)	558 (2.6)	16 (3.5)	565 (5.7)	4 (1.6)	555 (8.1)	1 (0.7)	~ ~
Oman	25 (2.2)	422 (8.9)	20 (2.5)	420 (5.6)	50 (2.9)	425 (4.5)	5 (1.5)	399 (6.5)
Poland	68 (3.9)	563 (3.0)	26 (3.7)	571 (3.5)	6 (2.0)	581 (11.0)	0 (0.0)	~ ~
Portugal	11 (1.9)	532 (6.4)	31 (4.2)	532 (3.2)	55 (4.1)	523 (3.8)	3 (1.3)	552 (7.7)
Qatar	52 (0.4)	431 (2.4)	24 (0.3)	445 (4.9)	23 (0.4)	479 (4.3)	0 (0.0)	~ ~
Russian Federation	48 (3.3)	582 (4.3)	31 (2.7)	586 (4.0)	19 (2.8)	571 (5.7)	2 (0.9)	~ ~
Saudi Arabia	12 (2.3)	435 (11.1)	10 (2.6)	430 (13.8)	45 (3.3)	423 (6.8)	33 (3.4)	448 (7.9)
Singapore	87 (0.0)	578 (3.4)	11 (0.0)	558 (11.7)	2 (0.0)	~ ~	0 (0.0)	~ ~
Slovak Republic	88 (3.0)	535 (3.3)	10 (2.7)	539 (17.9)	2 (1.3)	~ ~	0 (0.1)	~ ~
Slovenia	63 (4.2)	541 (2.6)	29 (3.8)	546 (3.6)	7 (2.6)	537 (6.6)	1 (0.8)	~ ~
South Africa	s 11 (3.1)	365 (28.7)	19 (2.9)	375 (14.3)	13 (2.6)	306 (17.1)	57 (4.3)	305 (6.0)
Spain	59 (3.0)	525 (2.5)	26 (2.9)	532 (3.0)	11 (1.8)	525 (5.4)	4 (1.4)	528 (8.8)
Sweden	84 (3.6)	555 (3.0)	13 (3.4)	554 (5.6)	3 (1.5)	544 (10.5)	0 (0.0)	~ ~
Trinidad and Tobago	r 10 (2.4)	491 (10.3)	25 (4.0)	491 (9.0)	20 (3.6)	507 (8.9)	46 (4.1)	470 (6.1)
United Arab Emirates	38 (2.1)	452 (5.3)	35 (2.5)	436 (6.1)	27 (2.3)	471 (7.2)	1 (0.0)	~ ~
United States	89 (2.7)	551 (3.0)	9 (2.5)	538 (15.4)	2 (1.1)	~ ~	0 (0.0)	~ ~
International Avg.	51 (0.5)	514 (1.8)	23 (0.5)	515 (2.1)	19 (0.4)	508 (1.2)	7 (0.2)	477 (3.3)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

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

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.

Exhibit 5.6: Schools with Computers Available for Instruction (Continued)

Country	1–2 Students per Computer		3–5 Students per Computer		6 or More Students per Computer		No Computers Available	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants								
Buenos Aires, Argentina	59 (4.2)	474 (4.8)	27 (3.8)	490 (7.3)	14 (3.0)	496 (13.5)	0 (0.0)	~ ~
Ontario, Canada	89 (3.3)	546 (3.5)	9 (3.1)	543 (10.5)	2 (1.2)	~ ~	0 (0.0)	~ ~
Quebec, Canada	67 (5.0)	549 (4.4)	27 (4.3)	548 (5.0)	6 (2.4)	538 (10.5)	0 (0.0)	~ ~
Denmark (3)	86 (3.0)	501 (3.0)	11 (2.5)	504 (9.8)	3 (1.8)	501 (20.1)	1 (0.5)	~ ~
Norway (4)	74 (3.9)	517 (2.2)	20 (3.4)	520 (5.3)	6 (2.1)	515 (7.3)	1 (0.7)	~ ~
Moscow City, Russian Fed.	78 (3.7)	611 (2.4)	19 (3.5)	613 (4.5)	3 (1.5)	607 (16.6)	0 (0.0)	~ ~
Eng/Afr/Zulu - RSA (5)	11 (3.3)	451 (29.3)	32 (5.3)	437 (14.4)	14 (3.2)	363 (19.0)	43 (5.5)	400 (11.9)
Andalusia, Spain	55 (4.2)	522 (3.2)	20 (3.8)	531 (5.1)	14 (3.3)	526 (5.2)	10 (2.5)	524 (5.3)
Madrid, Spain	37 (3.6)	550 (4.1)	48 (3.5)	550 (2.9)	15 (2.5)	544 (4.1)	1 (0.7)	~ ~
Abu Dhabi, UAE	47 (3.7)	417 (8.8)	36 (3.8)	409 (9.6)	16 (2.6)	419 (14.8)	2 (0.1)	~ ~
Dubai, UAE	44 (0.3)	515 (2.4)	26 (0.3)	503 (3.6)	30 (0.2)	533 (4.3)	0 (0.0)	~ ~

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

$$\text{School Student-to-Computer Ratio} = \frac{\text{School Enrollment of Fourth Grade Students}}{\text{Number of Computers or Tablets Available for Use by Fourth Grade Students}}$$

PIRLS
2016

CHAPTER 6: SCHOOL CLIMATE

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016



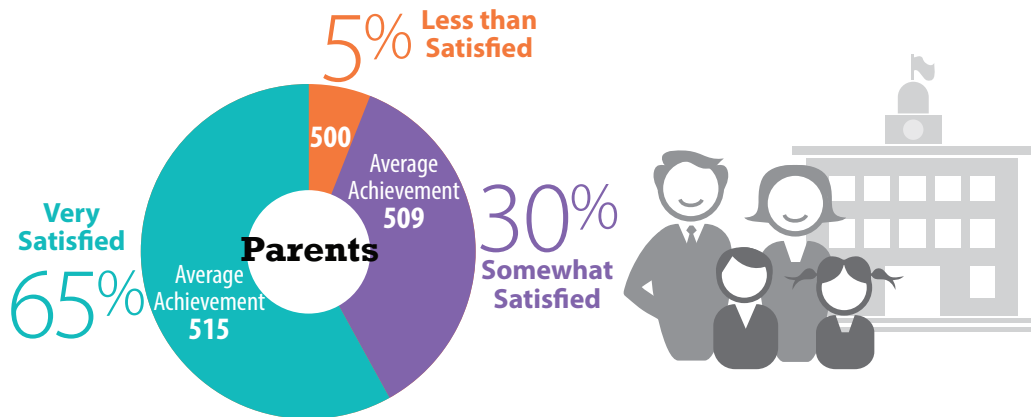
IEA

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

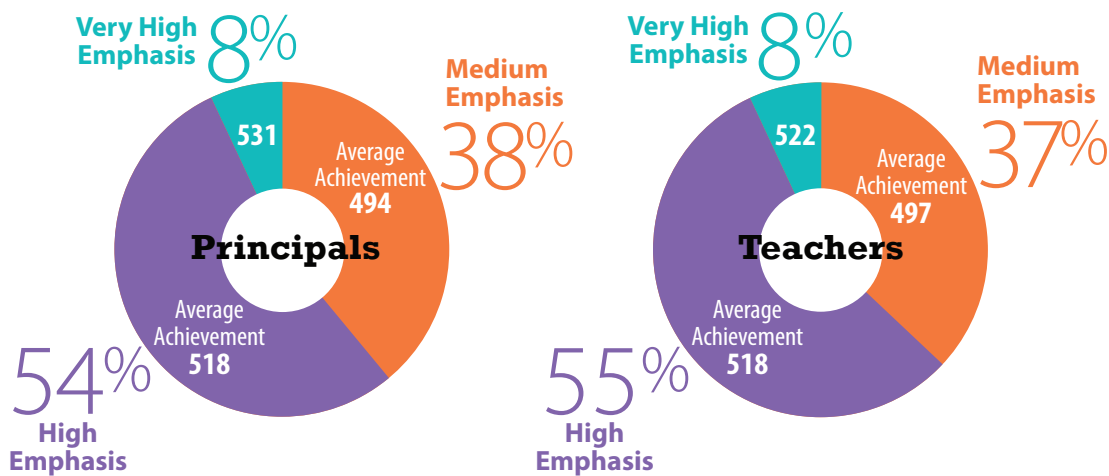
Schools Have Positive Environments

Generally, fourth grade students were in positive school environments, according to their parents, principals, teachers, and the students themselves.

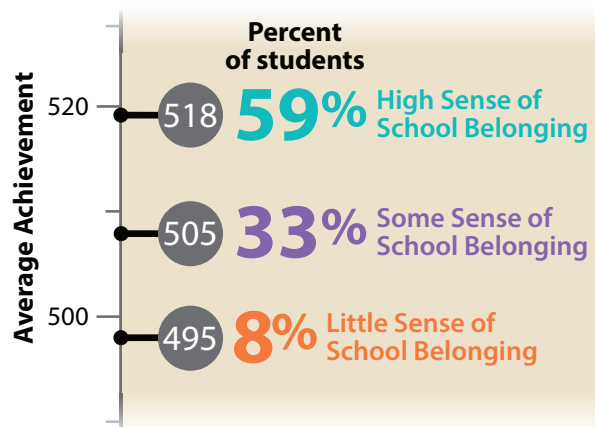
The majority of PARENTS are very satisfied with the performance of their child's school



PRINCIPALS and TEACHERS agree that the schools emphasize academic success



Almost all FOURTH GRADE STUDENTS reported a positive sense of school belonging, and a higher sense of school belonging was related to higher average reading achievement.



CHAPTER 6

School Climate

Exhibit 6.1: Parents' Perceptions of Their Child's School

Exhibit 6.1 shows that parents reported positive perceptions about their children's school. Nearly two-thirds of the fourth grade students (65%) had parents who were **Very Satisfied** and another 30 percent had parents who were **Somewhat Satisfied**. Those students had higher average reading achievement (515 and 509) than the 5 percent of students whose parents were **Less than Satisfied** (500).

Exhibit 6.1: Parents' Perceptions of Their Child's School*Students Categorized by Parents' Reports*

Students were scored on the *Parents' Perceptions of their Child's School* scale according to their parents' responses to six statements about the school. Students whose parents are **Very Satisfied** had a score on the scale of at least 9.5, which corresponds to their parents "agreeing a lot" with three of the six statements and "agreeing a little" with the other three, on average. Students whose parents are **Less than Satisfied** had a score no higher than 6.3, which corresponds to their parents "disagreeing a little" with three of the six statements and "agreeing a little" with the other three, on average. All other students had parents who were **Somewhat Satisfied**.

Country	Very Satisfied		Somewhat Satisfied		Less than Satisfied		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Malta	92 (0.6)	460 (1.7)	7 (0.5)	444 (6.1)	1 (0.1)	~ ~	11.4 (0.02)
Kazakhstan	91 (0.6)	536 (2.5)	8 (0.6)	543 (4.9)	1 (0.1)	~ ~	11.4 (0.04)
Georgia	88 (1.0)	491 (2.9)	11 (0.9)	484 (5.2)	1 (0.2)	~ ~	11.2 (0.05)
South Africa	s 82 (1.0)	337 (5.4)	15 (0.9)	304 (7.5)	2 (0.3)	~ ~	11.0 (0.05)
Ireland	82 (1.0)	572 (2.5)	16 (0.9)	568 (4.4)	2 (0.3)	~ ~	10.9 (0.05)
Trinidad and Tobago	r 80 (1.3)	491 (3.6)	16 (1.1)	469 (6.0)	3 (0.4)	447 (12.3)	10.8 (0.06)
Azerbaijan	79 (1.3)	477 (3.7)	19 (1.1)	462 (7.7)	3 (0.4)	439 (14.5)	10.6 (0.06)
Saudi Arabia	78 (1.1)	439 (4.2)	19 (0.9)	411 (6.3)	4 (0.4)	402 (9.2)	10.6 (0.05)
Oman	76 (0.9)	426 (3.3)	21 (0.7)	407 (4.6)	3 (0.3)	360 (9.2)	10.5 (0.04)
Portugal	76 (1.0)	530 (2.7)	21 (0.9)	526 (2.8)	3 (0.3)	523 (8.3)	10.5 (0.05)
Bulgaria	76 (1.3)	551 (4.4)	21 (1.1)	562 (5.7)	3 (0.4)	556 (16.1)	10.5 (0.06)
Egypt	74 (1.8)	336 (6.2)	21 (1.5)	314 (7.7)	5 (0.6)	325 (12.7)	10.4 (0.09)
Spain	73 (1.1)	531 (1.6)	23 (0.9)	527 (3.7)	4 (0.3)	530 (5.4)	10.4 (0.05)
Macao SAR	71 (0.7)	550 (1.3)	26 (0.7)	536 (2.0)	3 (0.3)	519 (6.1)	10.3 (0.03)
Iran, Islamic Rep. of	71 (1.0)	426 (3.9)	25 (0.8)	435 (6.0)	4 (0.4)	427 (9.7)	10.1 (0.05)
Qatar	71 (0.8)	459 (2.0)	24 (0.8)	438 (4.2)	5 (0.3)	404 (6.8)	10.3 (0.03)
Chile	70 (1.5)	497 (2.8)	24 (1.1)	496 (3.7)	6 (0.6)	488 (10.1)	10.2 (0.08)
Lithuania	67 (1.4)	550 (3.2)	29 (1.2)	550 (3.4)	4 (0.4)	538 (7.0)	10.0 (0.05)
Slovak Republic	67 (1.3)	533 (3.9)	29 (1.0)	544 (4.9)	4 (0.5)	533 (9.4)	10.1 (0.06)
Israel	66 (1.2)	529 (2.8)	27 (0.9)	547 (4.0)	8 (0.7)	550 (6.0)	10.0 (0.06)
Italy	66 (1.2)	552 (2.5)	30 (1.0)	551 (3.0)	4 (0.4)	536 (5.7)	10.0 (0.05)
Morocco	65 (1.6)	376 (4.0)	28 (1.4)	337 (4.8)	6 (0.7)	310 (9.4)	9.8 (0.07)
Hong Kong SAR	65 (1.2)	573 (2.7)	31 (1.0)	563 (3.5)	4 (0.4)	545 (8.1)	10.1 (0.05)
Bahrain	65 (1.2)	461 (2.6)	30 (0.9)	430 (3.3)	5 (0.4)	397 (7.3)	10.0 (0.05)
Singapore	64 (0.7)	582 (3.2)	33 (0.7)	572 (3.4)	4 (0.3)	565 (6.4)	10.0 (0.03)
Canada	r 63 (0.8)	550 (1.9)	32 (0.7)	551 (2.4)	5 (0.4)	536 (7.2)	10.0 (0.04)
Russian Federation	63 (1.1)	580 (2.6)	34 (0.9)	583 (2.5)	4 (0.4)	574 (6.2)	10.0 (0.05)
United Arab Emirates	62 (0.7)	469 (3.7)	32 (0.6)	436 (3.6)	6 (0.3)	412 (6.0)	10.0 (0.03)
Norway (5)	61 (1.4)	563 (2.5)	34 (1.2)	557 (2.6)	4 (0.4)	538 (7.0)	9.9 (0.07)
Kuwait	r 61 (1.1)	408 (4.3)	30 (1.0)	394 (5.3)	9 (0.6)	367 (8.5)	9.7 (0.06)
Austria	60 (1.3)	541 (2.9)	33 (1.1)	547 (3.0)	7 (0.6)	538 (3.8)	9.8 (0.06)
Netherlands	s 58 (2.2)	556 (2.9)	36 (1.9)	548 (2.9)	6 (0.6)	543 (5.8)	9.5 (0.08)
Hungary	57 (1.2)	555 (3.3)	36 (1.0)	556 (3.3)	7 (0.6)	560 (5.8)	9.7 (0.06)
Finland	55 (1.2)	569 (2.2)	42 (1.1)	570 (2.4)	4 (0.4)	560 (6.0)	9.5 (0.04)
Poland	54 (1.3)	562 (2.3)	42 (1.2)	570 (3.2)	4 (0.4)	564 (7.1)	9.7 (0.05)
Belgium (Flemish)	52 (1.0)	525 (2.3)	43 (0.9)	532 (2.1)	5 (0.4)	521 (4.8)	9.5 (0.04)
Denmark	51 (1.6)	553 (3.0)	36 (1.2)	550 (2.7)	13 (1.0)	537 (4.6)	9.2 (0.08)
Chinese Taipei	51 (1.1)	557 (2.9)	42 (1.0)	561 (2.2)	7 (0.4)	567 (3.7)	9.4 (0.04)
Latvia	51 (1.5)	557 (2.4)	42 (1.2)	562 (2.3)	7 (0.6)	552 (4.6)	9.4 (0.07)
Germany	r 48 (1.3)	551 (3.3)	41 (1.1)	549 (3.8)	11 (0.9)	526 (6.5)	9.2 (0.06)
Belgium (French)	47 (1.2)	498 (3.1)	44 (1.0)	504 (2.9)	9 (0.7)	488 (5.0)	9.2 (0.06)
Sweden	45 (1.5)	562 (3.1)	45 (1.1)	560 (2.6)	10 (0.8)	544 (5.3)	9.1 (0.08)
France	43 (1.1)	513 (2.5)	50 (1.0)	516 (2.8)	8 (0.5)	509 (6.8)	9.1 (0.05)
Czech Republic	40 (1.3)	538 (3.0)	49 (1.1)	549 (2.2)	10 (0.6)	552 (4.1)	8.9 (0.05)
Slovenia	32 (1.1)	536 (2.9)	60 (1.0)	549 (2.4)	7 (0.6)	546 (7.5)	8.7 (0.05)
England	--	--	--	--	--	--	--
United States	--	--	--	--	--	--	--
Northern Ireland	x 86 (1.2)	589 (3.5)	13 (1.1)	583 (6.7)	2 (0.4)	~ ~	11.2 (0.06)
New Zealand	x 71 (1.2)	545 (3.1)	24 (0.9)	536 (4.5)	5 (0.6)	539 (8.1)	10.3 (0.06)
Australia	x 64 (1.3)	565 (3.3)	30 (1.2)	563 (3.6)	6 (0.6)	553 (10.9)	10.0 (0.06)
International Avg.	65 (0.2)	515 (0.5)	30 (0.1)	509 (0.6)	5 (0.1)	500 (1.2)	

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

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

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 less than 50% of the students—interpret with caution.

Exhibit 6.1: Parents' Perceptions of Their Child's School (Continued)

Country	Very Satisfied		Somewhat Satisfied		Less than Satisfied		Average Scale Score	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Benchmarking Participants								
Eng/Afr/Zulu - RSA (5)	s	84 (1.4)	424 (6.8)	13 (1.1)	392 (11.2)	3 (0.4)	385 (23.0)	11.0 (0.07)
Buenos Aires, Argentina	s	84 (1.0)	489 (3.2)	15 (1.0)	493 (5.5)	2 (0.3)	~ ~	10.9 (0.06)
Andalusia, Spain		76 (1.2)	527 (2.3)	21 (0.9)	531 (2.7)	4 (0.4)	530 (7.1)	10.5 (0.06)
Madrid, Spain		72 (1.2)	552 (2.5)	24 (1.0)	550 (2.9)	4 (0.4)	544 (6.2)	10.3 (0.06)
Dubai, UAE		66 (0.9)	530 (2.2)	30 (0.8)	502 (2.9)	5 (0.3)	472 (7.0)	10.1 (0.03)
Norway (4)		63 (1.4)	518 (2.4)	33 (1.2)	519 (2.7)	4 (0.4)	512 (8.5)	10.0 (0.07)
Ontario, Canada	r	62 (1.4)	552 (3.6)	31 (1.1)	550 (4.4)	7 (0.7)	546 (7.5)	9.9 (0.07)
Abu Dhabi, UAE	r	58 (1.1)	437 (5.4)	35 (0.9)	405 (5.3)	7 (0.6)	387 (9.6)	9.8 (0.05)
Quebec, Canada		55 (1.4)	548 (3.6)	42 (1.4)	555 (2.9)	3 (0.5)	535 (7.4)	9.7 (0.05)
Denmark (3)		54 (1.5)	506 (3.3)	36 (1.1)	501 (3.8)	11 (0.9)	486 (5.8)	9.5 (0.08)
Moscow City, Russian Fed.		54 (1.2)	611 (2.4)	42 (1.1)	613 (2.4)	4 (0.4)	611 (5.7)	9.6 (0.05)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

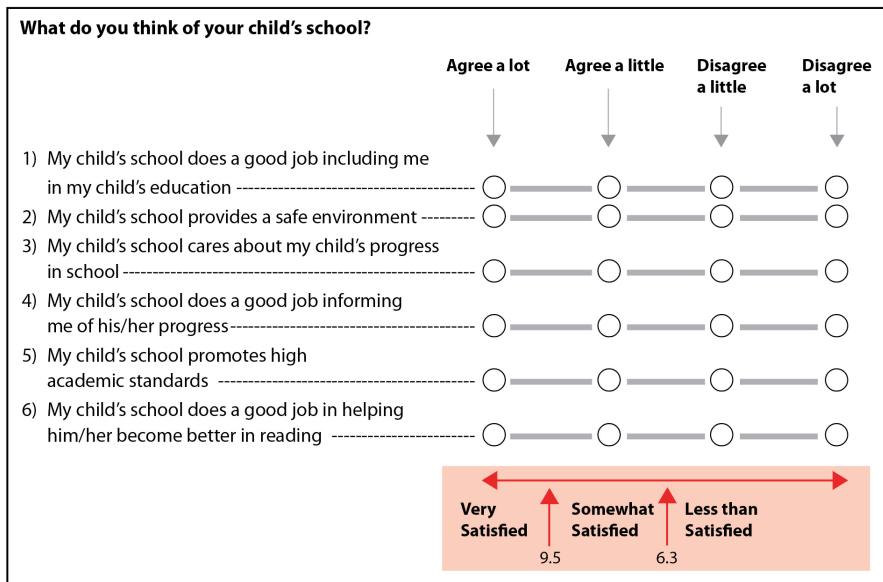


Exhibit 6.2 and 6.3: School Emphasis on Academic Success

The *School Emphasis on Academic Success* scale was administered to both principals and teachers. Exhibit 6.2 presents the results based on the principals and Exhibit 6.3 the results based on the teachers. On average, 8 percent of the fourth grade students attended schools where the principal reported a **Very High Emphasis** on academic success, 54 percent schools with **High Emphasis**, and 38 percent schools with **Medium Emphasis**, with higher emphasis on academic success related to higher average reading achievement (531, 518, and 494, respectively).

The results based on teacher reports were nearly identical. On average, according to the teachers, 8 percent of the students attended schools with a **Very High Emphasis** on academic success, 55 percent schools with **High Emphasis**, and 37 percent schools with **Medium Emphasis**. As would be anticipated, higher average reading achievement also was associated with teachers' reports of higher emphasis on academic success (522, 518, and 497, respectively).

Exhibit 6.2: School Emphasis on Academic Success – Principals’ Reports

Students Categorized by Principals’ Reports

Students were scored according to their principals’ responses characterizing twelve aspects on the *School Emphasis on Academic Success* scale. Students in schools where their principals reported a **Very High Emphasis** on academic success had a score on the scale of at least 12.9, which corresponds 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 no higher than 9.2, which corresponds 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.

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	
United Arab Emirates	28 (1.9)	504 (7.3)	50 (2.5)	437 (4.2)	22 (1.8)	412 (6.8)	11.3 (0.07)
Qatar	25 (0.3)	468 (2.4)	62 (0.3)	439 (2.6)	13 (0.2)	405 (3.9)	11.6 (0.01)
England	24 (3.3)	572 (4.4)	62 (4.1)	559 (3.0)	15 (2.5)	535 (4.9)	11.3 (0.15)
Northern Ireland	23 (3.7)	571 (5.3)	67 (4.8)	565 (3.5)	9 (3.1)	547 (12.4)	11.7 (0.17)
Ireland	23 (3.0)	580 (3.6)	66 (4.0)	569 (2.9)	12 (2.9)	527 (5.9)	11.4 (0.17)
Bahrain	19 (1.7)	488 (5.1)	55 (2.8)	447 (3.1)	26 (2.5)	414 (5.5)	10.8 (0.11)
New Zealand	17 (3.1)	547 (5.1)	66 (3.9)	528 (3.2)	17 (2.8)	491 (9.5)	11.2 (0.14)
Saudi Arabia	16 (2.7)	468 (8.9)	54 (3.9)	438 (5.9)	30 (3.2)	397 (8.6)	10.5 (0.17)
Sweden	15 (3.5)	571 (5.1)	47 (4.1)	561 (3.8)	38 (4.0)	541 (3.2)	10.3 (0.20)
Australia	14 (2.3)	567 (6.0)	49 (3.8)	556 (3.8)	36 (2.9)	519 (4.4)	10.4 (0.15)
Oman	14 (1.9)	444 (9.6)	69 (2.6)	421 (3.7)	17 (2.1)	388 (8.5)	10.9 (0.10)
Iran, Islamic Rep. of	13 (2.7)	458 (11.4)	58 (3.8)	435 (4.6)	29 (3.3)	400 (10.8)	10.4 (0.18)
Singapore	12 (0.0)	615 (8.8)	59 (0.0)	576 (3.7)	30 (0.0)	560 (6.7)	10.4 (0.00)
Kuwait	11 (2.3)	433 (12.7)	54 (3.7)	409 (6.2)	35 (3.3)	359 (6.5)	10.2 (0.16)
United States	11 (1.9)	574 (8.4)	52 (4.2)	555 (4.4)	36 (4.1)	533 (5.1)	10.1 (0.17)
Kazakhstan	11 (2.4)	537 (8.8)	76 (3.2)	538 (3.0)	14 (2.7)	524 (8.2)	11.0 (0.14)
Israel	10 (2.5)	536 (12.6)	70 (3.9)	538 (4.0)	20 (3.5)	499 (9.5)	10.6 (0.14)
Malta	9 (0.1)	462 (5.1)	61 (0.1)	453 (2.1)	30 (0.1)	447 (2.6)	10.4 (0.01)
Lithuania	8 (2.2)	584 (3.8)	70 (3.7)	552 (3.1)	21 (3.1)	522 (6.7)	10.5 (0.12)
Chinese Taipei	8 (2.1)	575 (5.7)	69 (4.0)	561 (2.1)	24 (3.4)	546 (4.5)	10.6 (0.14)
Canada	8 (1.0)	564 (4.8)	63 (2.9)	551 (2.5)	30 (2.7)	523 (3.1)	10.3 (0.09)
Austria	7 (1.9)	569 (6.1)	66 (3.9)	547 (2.5)	28 (3.8)	519 (5.1)	10.3 (0.12)
Denmark	6 (1.8)	568 (6.2)	50 (3.6)	551 (3.2)	43 (3.7)	539 (3.2)	9.8 (0.13)
Spain	6 (1.1)	557 (4.8)	61 (2.6)	531 (1.6)	33 (2.2)	516 (3.8)	10.1 (0.08)
Poland	6 (2.0)	583 (15.0)	58 (4.2)	570 (2.6)	36 (3.7)	554 (3.9)	9.9 (0.12)
South Africa	5 (1.8)	396 (26.6)	37 (3.7)	311 (8.4)	58 (3.7)	319 (6.0)	9.2 (0.17)
Egypt	5 (1.7)	378 (9.7)	50 (4.2)	344 (10.0)	45 (4.2)	310 (8.1)	9.5 (0.18)
Finland	4 (1.7)	592 (8.2)	69 (4.2)	566 (2.4)	26 (3.9)	562 (4.4)	10.2 (0.13)
France	4 (1.7)	523 (12.3)	61 (4.0)	513 (3.0)	35 (3.5)	508 (4.9)	10.0 (0.13)
Bulgaria	4 (1.7)	596 (11.7)	49 (4.3)	572 (4.3)	47 (4.1)	526 (6.4)	9.5 (0.14)
Azerbaijan	4 (1.7)	461 (36.1)	48 (4.0)	481 (7.0)	48 (4.1)	464 (5.5)	9.5 (0.15)
Hungary	3 (1.6)	621 (6.7)	44 (3.9)	564 (5.1)	53 (3.6)	540 (3.9)	9.2 (0.11)
Latvia	3 (1.4)	548 (11.9)	64 (4.1)	565 (2.3)	33 (4.0)	546 (3.3)	10.0 (0.11)
Portugal	3 (1.3)	562 (6.9)	48 (3.8)	534 (3.8)	49 (3.6)	520 (3.3)	9.3 (0.10)
Chile	3 (1.2)	529 (17.0)	26 (3.9)	515 (6.1)	71 (3.9)	485 (3.3)	8.0 (0.19)
Slovenia	2 (1.6)	~ ~	44 (4.5)	547 (3.7)	53 (4.5)	538 (2.4)	9.4 (0.13)
Italy	2 (0.8)	~ ~	39 (3.9)	552 (3.5)	58 (3.8)	547 (3.0)	9.1 (0.11)
Russian Federation	2 (1.0)	~ ~	48 (3.8)	594 (3.8)	49 (3.6)	568 (3.9)	9.5 (0.10)
Hong Kong SAR	2 (1.2)	~ ~	56 (4.0)	571 (3.7)	42 (3.9)	566 (4.7)	9.6 (0.11)
Morocco	2 (1.0)	~ ~	17 (1.9)	429 (7.0)	81 (2.0)	341 (4.3)	8.0 (0.11)
Trinidad and Tobago	2 (1.4)	~ ~	32 (3.9)	513 (5.4)	66 (3.9)	469 (4.2)	8.7 (0.15)
Norway (5)	2 (1.1)	~ ~	56 (4.5)	566 (2.8)	42 (4.4)	548 (3.2)	9.6 (0.14)
Georgia	2 (1.0)	~ ~	46 (3.6)	492 (4.6)	52 (3.6)	485 (3.5)	9.4 (0.11)
Netherlands	2 (1.2)	~ ~	46 (4.6)	552 (2.9)	52 (4.6)	540 (2.7)	9.3 (0.12)
Belgium (Flemish)	2 (0.9)	~ ~	62 (3.8)	532 (2.5)	36 (3.7)	515 (3.7)	9.7 (0.11)
Germany	2 (1.1)	~ ~	62 (3.5)	552 (3.0)	37 (3.3)	509 (7.9)	9.7 (0.09)
Belgium (French)	1 (0.8)	~ ~	51 (4.3)	512 (3.1)	48 (4.1)	483 (3.9)	9.3 (0.11)
Czech Republic	1 (0.9)	~ ~	35 (3.8)	550 (3.2)	64 (3.9)	540 (2.7)	8.9 (0.12)
Slovak Republic	1 (0.7)	~ ~	33 (3.7)	556 (4.4)	66 (3.8)	524 (4.7)	8.9 (0.09)
Macao SAR	0 (0.0)	~ ~	63 (0.1)	553 (1.3)	37 (0.1)	533 (1.6)	9.6 (0.00)
International Avg.	8 (0.3)	531 (1.9)	54 (0.5)	518 (0.6)	38 (0.5)	494 (0.8)	

SOURCE: IEA’s Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

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

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

Exhibit 6.2: School Emphasis on Academic Success – Principals' Reports (Continued)

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	
Benchmarking Participants							
Dubai, UAE	47 (0.3)	541 (3.0)	39 (0.3)	501 (2.5)	15 (0.2)	471 (3.8)	12.2 (0.01)
Abu Dhabi, UAE	12 (2.2)	491 (13.1)	58 (4.1)	411 (6.2)	30 (3.8)	392 (10.4)	10.5 (0.14)
Madrid, Spain	11 (2.1)	574 (8.2)	57 (4.3)	552 (2.0)	31 (3.8)	533 (3.0)	10.3 (0.15)
Ontario, Canada	8 (1.3)	562 (7.9)	63 (4.8)	551 (4.1)	29 (4.6)	524 (5.3)	10.3 (0.15)
Denmark (3)	6 (1.6)	509 (10.6)	50 (3.8)	507 (3.8)	44 (4.1)	491 (4.4)	9.8 (0.14)
Andalusia, Spain	6 (1.9)	549 (6.5)	61 (3.9)	530 (2.4)	33 (3.9)	512 (4.7)	10.0 (0.14)
Buenos Aires, Argentina	5 (1.9)	467 (19.8)	47 (3.5)	503 (4.4)	48 (3.5)	461 (5.4)	9.5 (0.15)
Eng/Afr/Zulu - RSA (5)	4 (2.3)	440 (60.9)	35 (5.7)	429 (12.7)	60 (5.7)	396 (9.0)	9.3 (0.27)
Quebec, Canada	3 (1.5)	555 (15.6)	68 (4.7)	554 (3.3)	29 (4.9)	532 (6.1)	10.2 (0.21)
Norway (4)	2 (1.3)	~ ~	58 (4.3)	522 (2.7)	40 (4.2)	510 (2.6)	9.6 (0.13)
Moscow City, Russian Fed.	2 (1.1)	~ ~	69 (4.0)	616 (2.6)	29 (3.8)	601 (3.6)	9.9 (0.10)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

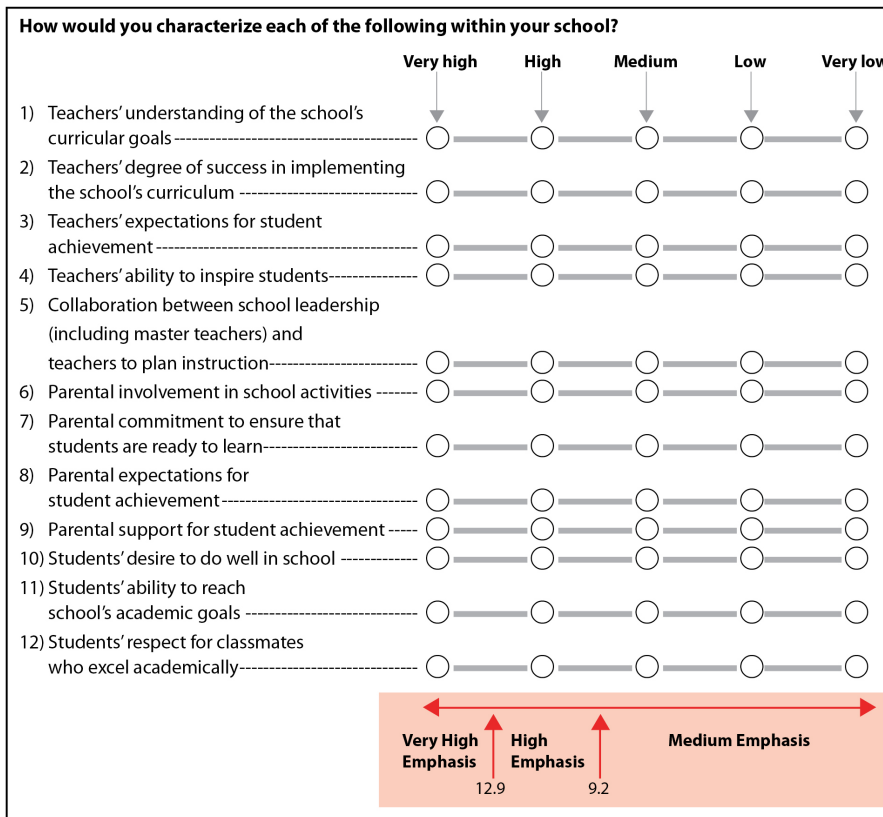


Exhibit 6.3: School Emphasis on Academic Success – Teachers' Reports

Students Categorized by Teachers' Reports

Students were scored according to their teachers' responses characterizing twelve aspects on the *School Emphasis on Academic Success* scale. Students in schools where their teachers reported a **Very High Emphasis** on academic success had a score on the scale of at least 12.8, which corresponds to their teachers 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 no higher than 9.2, which corresponds to their teachers 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.

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	
Oman	26 (2.6)	441 (6.3)	60 (3.2)	411 (4.1)	14 (2.1)	407 (8.5)	11.4 (0.14)
United Arab Emirates	24 (2.1)	485 (7.8)	59 (2.6)	452 (4.6)	17 (1.7)	409 (6.2)	11.3 (0.10)
Qatar	23 (2.2)	459 (7.9)	63 (2.4)	438 (3.6)	14 (1.6)	435 (9.7)	11.5 (0.12)
Bahrain	22 (2.0)	482 (5.8)	53 (2.8)	445 (3.4)	25 (2.5)	417 (7.1)	10.9 (0.16)
Kazakhstan	21 (2.8)	535 (7.1)	74 (3.1)	536 (3.2)	5 (1.4)	547 (14.3)	11.6 (0.12)
England	19 (2.6)	568 (4.4)	62 (3.7)	559 (2.6)	18 (3.1)	548 (4.7)	11.0 (0.14)
Northern Ireland	19 (3.1)	579 (5.6)	68 (3.9)	561 (3.0)	14 (3.0)	556 (8.2)	11.4 (0.15)
Ireland	16 (2.7)	579 (6.7)	67 (3.5)	571 (2.9)	17 (2.6)	539 (6.1)	11.0 (0.16)
South Africa	15 (2.6)	324 (10.3)	42 (3.7)	326 (8.9)	43 (3.8)	313 (8.5)	10.1 (0.20)
Saudi Arabia	15 (2.5)	451 (10.8)	53 (3.9)	442 (5.8)	32 (3.7)	403 (8.9)	10.3 (0.17)
Australia	15 (2.1)	584 (6.7)	59 (3.1)	546 (3.0)	27 (2.7)	523 (4.4)	10.6 (0.14)
Israel	14 (3.2)	540 (12.9)	66 (3.6)	533 (3.9)	20 (3.0)	515 (10.3)	10.7 (0.17)
New Zealand	13 (2.3)	545 (6.9)	65 (2.8)	532 (3.0)	23 (2.5)	501 (5.7)	10.7 (0.13)
Kuwait	12 (3.4)	407 (21.0)	61 (4.4)	400 (6.0)	27 (3.7)	377 (10.2)	10.5 (0.22)
Spain	10 (1.8)	544 (4.1)	62 (3.6)	531 (2.3)	28 (3.3)	516 (3.5)	10.5 (0.10)
Iran, Islamic Rep. of	9 (2.7)	440 (14.6)	56 (4.1)	436 (6.4)	34 (3.8)	412 (8.8)	10.1 (0.18)
Egypt	9 (2.6)	397 (18.0)	44 (4.4)	341 (8.2)	47 (4.5)	308 (8.4)	9.7 (0.19)
United States	9 (2.2)	562 (7.1)	58 (3.5)	563 (3.3)	33 (3.3)	524 (5.4)	10.0 (0.16)
Azerbaijan	9 (1.8)	476 (12.0)	67 (3.3)	478 (5.2)	24 (3.2)	456 (8.3)	10.4 (0.12)
Austria	9 (2.1)	563 (4.9)	63 (3.5)	546 (2.4)	28 (3.1)	523 (4.8)	10.3 (0.13)
Malta	8 (0.1)	451 (4.9)	63 (0.1)	461 (1.9)	29 (0.1)	433 (2.9)	10.4 (0.00)
Canada	8 (1.3)	556 (6.6)	56 (2.4)	549 (2.2)	36 (2.4)	532 (3.5)	10.2 (0.10)
Sweden	7 (2.3)	567 (8.8)	55 (4.2)	560 (3.1)	38 (3.9)	547 (3.4)	10.0 (0.14)
Georgia	7 (2.0)	511 (12.0)	70 (3.3)	490 (3.1)	23 (3.1)	480 (7.4)	10.4 (0.14)
Poland	6 (2.1)	568 (11.4)	53 (3.9)	568 (3.1)	41 (4.1)	559 (3.9)	9.8 (0.16)
Portugal	5 (1.5)	547 (5.4)	53 (3.7)	534 (3.4)	41 (3.4)	518 (3.0)	9.7 (0.11)
Trinidad and Tobago	5 (2.0)	499 (27.2)	36 (3.6)	502 (6.9)	59 (3.6)	465 (5.1)	8.9 (0.18)
Singapore	5 (1.3)	610 (16.3)	49 (2.7)	588 (4.4)	46 (2.7)	560 (4.4)	9.6 (0.09)
Lithuania	5 (1.4)	574 (8.3)	78 (3.2)	552 (2.7)	17 (2.8)	524 (8.3)	10.5 (0.09)
Latvia	4 (1.8)	564 (7.4)	66 (3.7)	562 (2.4)	30 (3.7)	549 (3.6)	10.0 (0.12)
Bulgaria	4 (1.3)	577 (11.3)	61 (3.6)	569 (4.3)	35 (3.5)	519 (8.9)	9.9 (0.12)
France	4 (1.6)	537 (10.3)	51 (3.4)	518 (2.9)	44 (3.2)	502 (4.0)	9.6 (0.11)
Denmark	4 (1.9)	564 (11.4)	54 (3.6)	553 (3.1)	42 (3.5)	540 (3.0)	9.7 (0.12)
Italy	3 (1.4)	556 (12.6)	55 (3.7)	551 (3.3)	42 (3.4)	546 (3.1)	9.6 (0.12)
Hong Kong SAR	3 (0.9)	578 (11.4)	50 (3.6)	572 (4.1)	47 (3.5)	564 (4.3)	9.3 (0.10)
Hungary	3 (1.1)	587 (20.4)	49 (4.1)	570 (3.5)	49 (4.2)	536 (5.2)	9.3 (0.13)
Chinese Taipei	3 (0.8)	556 (7.3)	57 (3.9)	562 (2.6)	40 (4.0)	556 (3.1)	9.7 (0.11)
Slovak Republic	3 (0.9)	567 (12.2)	48 (2.6)	550 (3.2)	49 (2.6)	518 (5.6)	9.4 (0.10)
Morocco	3 (1.0)	422 (19.0)	23 (2.2)	412 (6.9)	74 (2.2)	338 (4.6)	8.2 (0.11)
Finland	2 (0.8)	~ ~	66 (2.8)	570 (2.0)	32 (2.9)	558 (3.7)	9.9 (0.10)
Chile	2 (1.0)	~ ~	11 (2.3)	491 (6.6)	87 (2.5)	496 (3.2)	7.6 (0.14)
Germany	2 (1.0)	~ ~	54 (3.5)	555 (2.7)	44 (3.3)	512 (6.6)	9.4 (0.09)
Netherlands	2 (1.2)	~ ~	50 (3.5)	550 (2.4)	48 (3.6)	539 (2.6)	9.5 (0.10)
Czech Republic	2 (0.8)	~ ~	38 (3.2)	551 (2.9)	60 (3.2)	538 (2.8)	9.1 (0.11)
Macao SAR	1 (0.0)	~ ~	49 (0.1)	554 (1.5)	50 (0.1)	537 (1.4)	9.5 (0.00)
Belgium (Flemish)	1 (0.6)	~ ~	53 (3.9)	532 (2.3)	46 (3.9)	517 (3.1)	9.4 (0.10)
Russian Federation	1 (0.7)	~ ~	53 (3.2)	592 (2.7)	46 (3.3)	567 (3.7)	9.5 (0.10)
Belgium (French)	1 (0.6)	~ ~	49 (3.8)	511 (2.9)	51 (3.7)	485 (3.8)	9.2 (0.12)
Norway (5)	1 (0.6)	~ ~	58 (3.6)	563 (2.7)	41 (3.7)	551 (3.4)	9.6 (0.11)
Slovenia	1 (0.4)	~ ~	43 (3.4)	546 (3.2)	56 (3.5)	540 (2.2)	9.1 (0.10)
International Avg.	8 (0.3)	522 (1.9)	55 (0.5)	518 (0.6)	37 (0.4)	497 (0.9)	

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

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

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

Exhibit 6.3: School Emphasis on Academic Success – Teachers' Reports (Continued)

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	
Benchmarking Participants							
Dubai, UAE	32 (2.9)	538 (6.0)	55 (3.0)	517 (3.9)	13 (1.5)	464 (7.5)	12.0 (0.14)
Abu Dhabi, UAE	18 (3.2)	447 (10.0)	57 (4.2)	418 (7.8)	25 (3.3)	388 (10.4)	10.7 (0.19)
Madrid, Spain	13 (2.8)	564 (7.5)	68 (4.0)	551 (1.9)	19 (3.2)	531 (4.0)	10.9 (0.15)
Andalusia, Spain	12 (2.4)	538 (4.0)	59 (4.4)	531 (2.1)	30 (3.9)	507 (5.0)	10.3 (0.14)
Eng/Afr/Zulu - RSA (5)	10 (3.7)	435 (24.7)	46 (5.7)	407 (11.1)	44 (6.0)	418 (11.6)	9.9 (0.32)
Ontario, Canada	9 (2.5)	551 (12.2)	50 (4.1)	554 (3.8)	40 (4.1)	531 (5.4)	10.1 (0.17)
Buenos Aires, Argentina	7 (2.2)	500 (9.1)	53 (4.0)	492 (4.3)	40 (3.6)	459 (5.3)	9.8 (0.15)
Norway (4)	5 (1.7)	538 (10.5)	54 (4.0)	521 (2.8)	40 (3.8)	510 (2.8)	9.7 (0.12)
Quebec, Canada	4 (2.0)	561 (12.0)	63 (5.2)	551 (4.1)	33 (5.0)	536 (5.0)	10.2 (0.17)
Denmark (3)	4 (0.9)	529 (14.0)	54 (3.8)	507 (3.5)	42 (3.9)	490 (4.4)	9.6 (0.13)
Moscow City, Russian Fed.	1 (0.8)	~ ~	64 (4.0)	619 (2.6)	35 (3.9)	601 (3.2)	9.7 (0.09)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

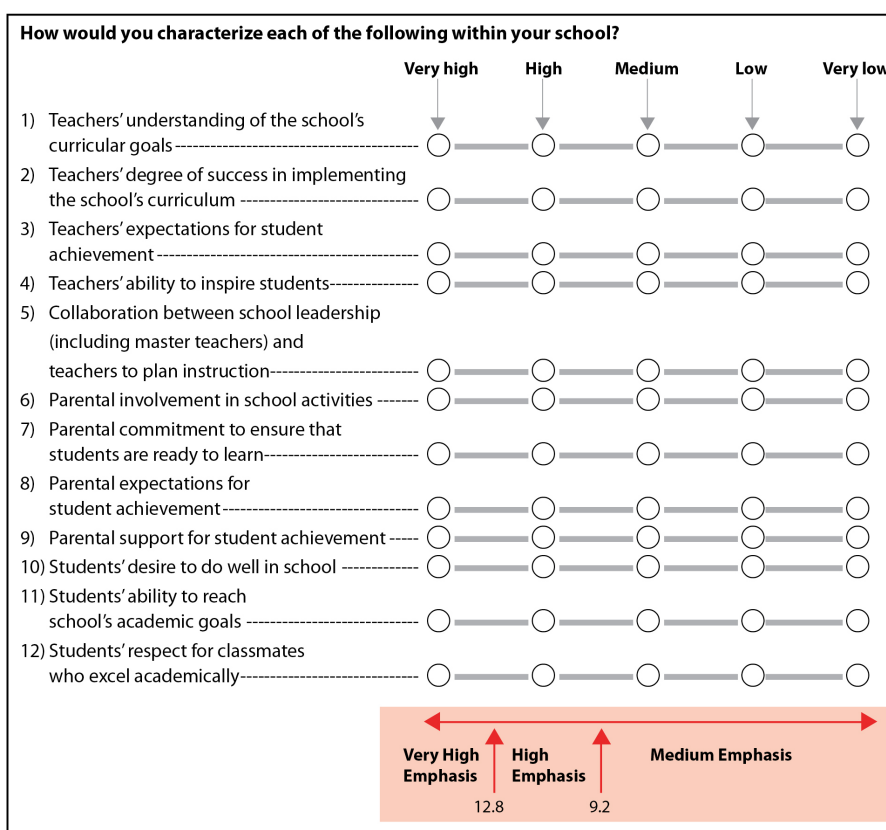


Exhibit 6.4: Emphasis in Early Grades on Reading Skills and Strategies

Exhibit 6.4 provides information about the reading curricula in fourth grade schools. Principals were given a list of the reading skills and strategies assessed by PIRLS 2016 and asked to indicate at what grade these skills were first emphasized for at least 50 percent of the students. The grade shown in Exhibit 6.4 for the reading skill or strategy is the median grade reported by the principals in each country. For example, at least half the students in every country are in schools emphasizing the first three skills by first grade—knowing letters of the alphabet, letter-sound relationships, and reading words. In many countries, at least half the students are in schools emphasizing locating information and finding main ideas by the second grade. By the third grade, at least half the students in a number of countries are in schools emphasizing comparisons of texts with personal experience or other texts, and by the fourth grade are emphasizing looking at text structure and author’s perspective.

Exhibit 6.4: Emphasis in Early Grades on Reading Skills and Strategies

Students Categorized by Principals' Reports

Country	Grade by Which Skill or Strategy Is Emphasized for at Least 50% of the Students (Country Median)													
	Knowing Letters of the Alphabet	Knowing Letter-Sound Relationships	Reading Words	Reading Isolated Sentences	Reading Connected Text	Locating Information Within the Text	Identifying the Main Idea of a Text	Explaining or Supporting Understanding of a Text	Comparing a Text with Personal Experience	Comparing Different Texts	Making Predictions About What Will Happen Next in a Text	Making Generalizations and Drawing Inferences Based on a Text	Describing the Style or Structure of a Text	Determining the Author's Perspective or Intention
Australia	1	1	1	1	1	1	1	1	1	1	1	2	2	2
Austria	1	1	1	1	1	2	2	2	2	3	3	4	4	4
Azerbaijan	1	1	1	1	2	2	2	2	3	3	3	4	4	4
Bahrain	1	1	1	1	2	2	3	2	3	3	3	4	4	4
Belgium (Flemish)	1	1	1	1	1	2	2	2	2	3	2	3	4	4
Belgium (French)	1	1	1	1	2	2	2	2	3	3	2	3	4	4
Bulgaria	1	1	1	1	1	2	2	2	3	3	3	3	3	4
Canada	1	1	1	1	1	1	2	2	2	2	1	2	3	3
Chile	1	1	1	1	1	2	2	2	2	2	2	2	3	3
Chinese Taipei	1	1	1	1	2	2	3	3	3	4	3	4	4	4
Czech Republic	1	1	1	1	1	2	2	2	2	3	2	3	4	4
Denmark	1	1	1	1	1	2	2	3	2	3	2	3	3	4
Egypt	1	1	1	2	3	3	4	4	4	4	N	N	N	N
England	1	1	1	1	1	1	1	1	1	2	1	2	2	3
Finland	1	1	1	1	2	2	2	3	3	3	3	3	4	4
France	1	1	1	1	2	2	2	3	3	3	3	4	4	4
Georgia	1	1	1	1	1	2	2	2	3	3	3	3	4	4
Germany	1	1	1	1	1	2	2	2	3	3	3	3	4	4
Hong Kong SAR	1	1	1	1	1	2	2	3	3	4	3	4	4	4
Hungary	1	1	1	1	2	2	2	2	2	3	2	3	3	4
Iran, Islamic Rep. of	1	1	1	1	2	2	3	3	4	4	4	4	4	4
Ireland	1	1	1	1	1	1	2	2	2	3	1	3	3	4
Israel	1	1	1	1	1	1	2	2	2	2	2	2	2	3
Italy	1	1	1	1	1	2	2	2	2	3	3	3	4	4
Kazakhstan	1	1	1	1	1	2	2	2	2	2	2	2	3	3
Kuwait	1	1	1	1	2	2	4	3	4	4	4	4	N	4
Latvia	1	1	1	1	1	1	1	1	1	2	1	2	3	2
Lithuania	1	1	1	1	1	2	2	2	2	2	2	2	3	3
Macao SAR	1	1	1	1	2	2	3	3	4	4	3	4	4	4
Malta	1	1	1	1	1	1	2	1	2	2	2	3	3	4
Morocco	1	1	1	1	2	3	4	4	N	N	N	N	N	N
Netherlands	1	1	1	1	1	2	2	2	2	3	2	3	4	4
New Zealand	1	1	1	1	1	1	1	1	1	2	1	2	2	3
Northern Ireland	r	1	1	1	1	1	1	2	2	2	1	2	3	3
Norway (5)	1	1	1	1	2	2	2	2	2	3	2	3	4	4
Oman	1	1	1	1	1	2	2	2	3	3	3	4	4	4
Poland	1	1	1	1	1	1	2	2	2	3	2	3	4	3
Portugal	1	1	1	1	1	2	2	2	2	2	2	3	3	3
Qatar	1	1	1	1	2	2	2	2	3	3	3	3	3	4
Russian Federation	1	1	1	1	1	1	2	2	2	2	2	2	3	3
Saudi Arabia	1	1	1	1	2	3	3	3	4	4	4	4	4	4
Singapore	1	1	1	1	1	1	2	2	2	3	1	3	3	4
Slovak Republic	1	1	1	1	1	2	2	2	2	3	2	3	4	4
Slovenia	1	1	1	1	2	2	3	3	3	3	3	3	4	4
South Africa	r	1	1	1	2	2	3	3	3	4	3	4	4	4
Spain	1	1	1	1	1	1	2	2	2	3	2	3	4	4
Sweden	1	1	1	1	1	1	2	1	1	2	1	2	3	3
Trinidad and Tobago	1	1	1	1	1	2	2	2	2	3	2	3	3	4
United Arab Emirates	1	1	1	1	2	2	2	2	3	3	3	3	4	4
United States	1	1	1	1	1	1	1	2	1	2	1	2	2	2
International Mode	1	1	1	1	1	2	2	2	2	3	2	3	4	4

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

N = Not by Grade 4

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.

Exhibit 6.4: Emphasis in Early Grades on Reading Skills and Strategies (Continued)

Country	Grade by Which Skill or Strategy Is Emphasized for at Least 50% of the Students (Country Median)													
	Knowing Letters of the Alphabet	Knowing Letter-Sound Relationships	Reading Words	Reading Isolated Sentences	Reading Connected Text	Locating Information Within the Text	Identifying the Main Idea of a Text	Explaining or Supporting Understanding of a Text	Comparing a Text with Personal Experience	Comparing Different Texts	Making Predictions About What Will Happen Next in a Text	Making Generalizations and Drawing Inferences Based on a Text	Describing the Style or Structure of a Text	Determining the Author's Perspective or Intention
Benchmarking Participants														
Buenos Aires, Argentina	1	1	1	1	1	2	3	2	2	3	2	3	4	4
Ontario, Canada	1	1	1	1	1	1	1	2	1	2	1	2	2	2
Quebec, Canada	1	1	1	1	2	2	3	2	3	3	2	3	4	4
Denmark (3)	1	1	1	1	1	2	2	3	2	3	2	3	3	4
Norway (4)	1	1	1	1	2	2	2	3	2	3	2	3	4	4
Moscow City, Russian Fed.	1	1	1	1	1	1	2	2	2	2	2	2	3	3
Eng/Afr/Zulu - RSA (5)	1	1	1	1	2	2	2	3	3	3	3	3	4	4
Andalusia, Spain	1	1	1	1	1	1	2	2	2	3	2	3	3	4
Madrid, Spain	1	1	1	1	1	1	2	2	2	3	2	3	3	4
Abu Dhabi, UAE	1	1	1	1	2	2	2	2	3	3	3	3	4	4
Dubai, UAE	1	1	1	1	1	2	2	2	2	3	2	3	4	4

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 6.5: Teacher Job Satisfaction

Teachers who are satisfied with their profession and the working conditions at their school are more motivated to teach and prepare their instruction. Satisfied teachers also may be more likely to remain in the classroom. Exhibit 6.5 presents the results of the *Teacher Job Satisfaction* scale (see the exhibit for details about the scale). Across the PIRLS 2016 countries, almost all students were taught reading by teachers who were **Very Satisfied** (57%) or **Somewhat Satisfied** (37%) with their profession, with only 6 percent taught by **Less than Satisfied** teachers. Average reading achievement was similar between students whose teachers were **Very Satisfied** or **Somewhat Satisfied** (513 vs. 508). For the 6 percent with the least satisfied teachers, achievement appears somewhat higher although the percentages are very small in most countries.

Exhibit 6.5: Teacher Job Satisfaction

Students Categorized by Teachers' Reports

Students were scored according to how often their teachers responded positively to the five statements on the *Teacher Job Satisfaction* scale. Students with **Very Satisfied** teachers had a score on the scale of at least 10.2, which corresponds to their teachers responding "very often" to three of the five statements and responding "often" to the other two, on average. Students with **Less than Satisfied** teachers had a score no higher than 6.2, which corresponds to their teachers responding "sometimes" to three of the five statements and "often" to the other two, on average. All other students had **Somewhat Satisfied** teachers.

Country	Very Satisfied		Somewhat Satisfied		Less than Satisfied		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Iran, Islamic Rep. of	88 (2.3)	428 (4.1)	10 (2.2)	427 (14.7)	2 (0.9)	~ ~	11.2 (0.08)
Saudi Arabia	87 (2.3)	436 (4.8)	11 (2.4)	391 (10.2)	2 (1.1)	~ ~	11.3 (0.08)
Oman	86 (2.0)	419 (3.5)	14 (2.0)	415 (10.4)	0 (0.4)	~ ~	11.3 (0.07)
Chile	84 (3.3)	497 (3.4)	16 (3.3)	497 (10.2)	0 (0.0)	~ ~	11.3 (0.11)
Kuwait	82 (4.6)	390 (5.4)	16 (4.5)	408 (13.7)	2 (1.1)	~ ~	11.1 (0.13)
Qatar	82 (1.9)	440 (2.3)	17 (2.0)	453 (10.9)	1 (0.6)	~ ~	11.1 (0.07)
Egypt	81 (3.0)	329 (6.7)	18 (3.1)	335 (15.2)	0 (0.4)	~ ~	11.1 (0.09)
United Arab Emirates	79 (2.0)	450 (3.8)	19 (2.0)	464 (7.3)	2 (0.6)	~ ~	11.0 (0.07)
Azerbaijan	79 (3.0)	475 (4.8)	21 (3.0)	464 (9.2)	0 (0.4)	~ ~	10.9 (0.09)
Bahrain	75 (3.2)	448 (2.9)	24 (3.1)	442 (6.7)	1 (0.8)	~ ~	10.9 (0.12)
Spain	73 (3.0)	529 (2.4)	25 (3.1)	524 (3.4)	2 (0.9)	~ ~	10.7 (0.08)
Morocco	73 (3.1)	367 (4.9)	24 (3.3)	333 (7.9)	3 (0.9)	339 (15.7)	10.7 (0.10)
Israel	72 (3.7)	527 (3.9)	25 (3.6)	543 (8.7)	3 (1.3)	496 (46.4)	10.7 (0.14)
Georgia	72 (3.1)	492 (3.4)	28 (3.1)	484 (5.4)	0 (0.3)	~ ~	10.8 (0.09)
Kazakhstan	68 (3.1)	538 (3.1)	31 (3.2)	532 (4.8)	1 (1.0)	~ ~	10.7 (0.10)
South Africa	65 (3.3)	325 (6.1)	28 (3.7)	297 (7.9)	7 (2.1)	376 (20.4)	10.2 (0.13)
Malta	64 (0.1)	458 (2.2)	31 (0.1)	441 (2.9)	5 (0.1)	453 (6.5)	10.3 (0.00)
Northern Ireland	62 (4.7)	564 (3.4)	31 (4.2)	567 (4.0)	7 (2.5)	548 (9.0)	10.2 (0.20)
Ireland	60 (3.6)	570 (3.8)	36 (3.5)	561 (3.9)	4 (1.3)	561 (8.9)	10.1 (0.16)
Austria	59 (3.9)	542 (2.8)	40 (3.8)	540 (3.7)	1 (0.6)	~ ~	10.3 (0.13)
Australia	58 (3.6)	546 (3.6)	39 (3.6)	545 (4.3)	2 (0.8)	~ ~	10.3 (0.13)
Italy	58 (3.4)	549 (3.1)	38 (3.4)	547 (3.8)	3 (1.6)	559 (11.2)	10.2 (0.13)
United States	57 (4.1)	554 (3.8)	37 (3.9)	547 (5.8)	6 (1.8)	522 (9.2)	10.1 (0.15)
New Zealand	57 (2.6)	531 (3.0)	40 (2.6)	521 (4.4)	4 (1.0)	527 (15.8)	10.1 (0.11)
Canada	56 (2.4)	542 (2.4)	40 (2.3)	545 (2.6)	4 (1.0)	542 (8.4)	10.2 (0.09)
Belgium (Flemish)	53 (3.5)	526 (2.9)	44 (3.3)	524 (2.8)	3 (1.2)	532 (13.9)	10.0 (0.13)
Trinidad and Tobago	52 (3.9)	485 (5.7)	37 (4.0)	472 (6.1)	11 (2.7)	481 (15.2)	9.7 (0.17)
England	51 (3.7)	558 (3.4)	42 (3.8)	559 (2.8)	7 (2.0)	563 (7.1)	9.8 (0.14)
Belgium (French)	51 (3.3)	503 (3.5)	40 (3.4)	494 (4.3)	9 (2.3)	484 (10.2)	9.6 (0.16)
Portugal	49 (3.7)	531 (2.8)	41 (3.8)	526 (4.9)	10 (2.1)	523 (4.2)	9.4 (0.14)
Hungary	48 (3.9)	556 (4.7)	49 (3.6)	553 (4.5)	3 (1.6)	537 (13.0)	9.6 (0.16)
Chinese Taipei	47 (3.8)	558 (3.0)	40 (3.7)	558 (3.0)	12 (2.3)	563 (4.9)	9.4 (0.17)
Russian Federation	47 (3.4)	582 (3.5)	52 (3.4)	579 (3.7)	2 (0.9)	~ ~	9.7 (0.12)
Macao SAR	45 (0.1)	553 (1.5)	46 (0.1)	537 (1.6)	9 (0.1)	551 (3.3)	9.4 (0.00)
Slovak Republic	45 (3.7)	534 (4.6)	45 (3.7)	536 (4.6)	11 (2.5)	531 (11.3)	9.4 (0.15)
Netherlands	44 (4.0)	542 (3.3)	53 (4.0)	549 (2.2)	3 (1.1)	528 (11.9)	9.7 (0.13)
Latvia	44 (3.6)	564 (2.2)	54 (3.7)	554 (2.7)	2 (1.1)	~ ~	9.7 (0.13)
Poland	43 (4.1)	563 (3.8)	44 (3.7)	566 (2.9)	12 (2.9)	564 (6.0)	9.4 (0.20)
Denmark	43 (3.6)	548 (3.5)	45 (3.9)	546 (3.3)	11 (2.5)	551 (5.1)	9.3 (0.15)
Norway (5)	42 (4.1)	560 (3.3)	53 (3.9)	560 (2.6)	4 (1.2)	544 (19.4)	9.6 (0.15)
Lithuania	42 (3.7)	555 (3.7)	51 (4.1)	546 (4.1)	7 (2.1)	527 (17.4)	9.7 (0.13)
Sweden	41 (4.3)	554 (4.0)	52 (4.6)	557 (3.3)	6 (2.1)	549 (9.4)	9.5 (0.16)
Finland	41 (3.5)	565 (2.6)	49 (3.2)	567 (2.6)	11 (1.8)	568 (4.4)	9.4 (0.15)
Bulgaria	40 (3.8)	557 (6.2)	52 (3.6)	548 (6.5)	8 (2.2)	543 (12.4)	9.3 (0.16)
Singapore	40 (2.4)	576 (6.2)	46 (2.7)	573 (4.5)	14 (1.9)	587 (6.6)	9.3 (0.12)
Slovenia	38 (3.4)	544 (2.4)	53 (3.4)	539 (2.9)	9 (2.0)	550 (8.6)	9.4 (0.15)
Germany	38 (3.6)	544 (4.8)	53 (4.0)	533 (5.4)	10 (2.3)	524 (10.0)	9.2 (0.14)
Hong Kong SAR	34 (4.2)	568 (5.9)	47 (4.2)	572 (3.5)	19 (2.9)	561 (6.4)	8.8 (0.20)
Czech Republic	33 (3.8)	545 (3.1)	53 (3.8)	543 (2.8)	13 (2.3)	540 (8.4)	8.9 (0.17)
France	26 (2.8)	513 (4.4)	62 (3.3)	511 (2.8)	12 (2.2)	506 (6.6)	8.7 (0.12)
International Avg.	57 (0.5)	513 (0.6)	37 (0.5)	508 (0.9)	6 (0.2)	525 (2.3)	

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

A tilde (~) indicates insufficient data to report achievement. International average achievement for the "Less than Satisfied" category does not include achievement for many lower performing countries.

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

Exhibit 6.5: Teacher Job Satisfaction (Continued)

Country	Very Satisfied		Somewhat Satisfied		Less than Satisfied		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Benchmarking Participants							
Buenos Aires, Argentina	82 (3.0)	480 (3.4)	17 (2.9)	478 (9.8)	1 (0.7)	~ ~	11.1 (0.09)
Madrid, Spain	81 (3.1)	551 (2.3)	17 (3.0)	542 (4.4)	2 (1.1)	~ ~	11.0 (0.12)
Andalusia, Spain	75 (3.9)	525 (2.7)	23 (3.8)	525 (3.6)	2 (1.2)	~ ~	10.9 (0.13)
Dubai, UAE	75 (2.2)	516 (2.7)	22 (2.2)	519 (6.4)	2 (0.4)	~ ~	10.9 (0.07)
Abu Dhabi, UAE	75 (3.8)	411 (6.0)	22 (3.7)	430 (13.8)	3 (1.5)	438 (27.4)	10.8 (0.15)
Norway (4)	56 (3.8)	518 (2.8)	41 (3.8)	517 (3.1)	3 (1.1)	492 (12.8)	10.1 (0.14)
Eng/Afr/Zulu - RSA (5)	56 (5.7)	401 (8.7)	41 (5.8)	433 (10.7)	4 (2.0)	436 (46.5)	10.1 (0.21)
Moscow City, Russian Fed.	55 (3.8)	611 (2.9)	43 (3.9)	613 (3.3)	2 (1.2)	~ ~	10.1 (0.13)
Ontario, Canada	54 (4.3)	546 (3.8)	42 (4.5)	542 (4.9)	5 (2.0)	545 (12.1)	10.1 (0.15)
Quebec, Canada	52 (4.9)	544 (4.3)	45 (5.1)	551 (3.4)	3 (1.2)	540 (7.4)	10.1 (0.16)
Denmark (3)	43 (3.9)	500 (4.3)	51 (4.0)	504 (3.9)	6 (1.9)	490 (9.6)	9.5 (0.16)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

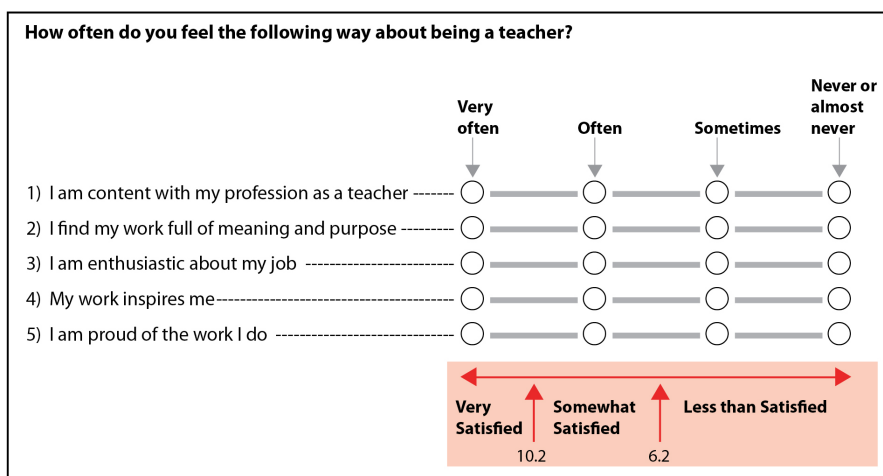


Exhibit 6.6: Students' Sense of School Belonging

To develop the *Sense of School Belonging* scale, students were asked how much they agreed with five statements about their attitude toward school. Exhibit 6.6 presents students' very positive responses. On average, more than half (59%) had a **High** sense of belonging, 33 percent had **Some** sense of belonging, and only 8 percent of the fourth grade students had **Little** sense of belonging. A higher sense of school belonging was related to higher average reading achievement (518, 505, and 495, respectively).

Exhibit 6.6: Students' Sense of School Belonging

Students' Reports

Students were scored according to their agreement with five statements about their *Sense of School Belonging*. Students with a **High Sense of School Belonging** had a score on the scale of at least 9.7, which corresponds to their "agreeing a lot" to three of the five statements and "agreeing a little" to each of the other two statements, on average. Students with **Little Sense of School Belonging** had a score no higher than 7.3, which corresponds to their "disagreeing a little" to three of the five statements and "agreeing a little" to each of the other two statements, on average. All other students had **Some Sense of School Belonging**.

Country	High Sense of School Belonging		Some Sense of School Belonging		Little Sense of School Belonging		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Egypt	87 (1.2)	331 (5.8)	12 (1.1)	335 (9.7)	2 (0.2)	~ ~	11.6 (0.08)
Kazakhstan	84 (0.8)	537 (2.5)	15 (0.7)	533 (3.5)	1 (0.2)	~ ~	11.4 (0.04)
Morocco	82 (1.1)	362 (4.4)	16 (1.0)	345 (5.7)	2 (0.2)	~ ~	11.4 (0.06)
Azerbaijan	82 (0.9)	480 (3.7)	16 (0.7)	458 (5.7)	2 (0.3)	~ ~	11.2 (0.05)
Portugal	82 (0.9)	532 (2.4)	15 (0.8)	511 (4.2)	3 (0.3)	510 (9.2)	11.2 (0.05)
Georgia	75 (1.0)	493 (3.0)	21 (0.8)	483 (3.7)	3 (0.4)	469 (9.3)	10.8 (0.06)
Bulgaria	74 (1.3)	551 (4.5)	22 (1.1)	557 (5.3)	4 (0.5)	547 (13.2)	10.8 (0.06)
Saudi Arabia	70 (1.6)	444 (4.3)	25 (1.3)	415 (5.4)	6 (0.6)	386 (10.1)	10.7 (0.08)
Oman	69 (1.1)	433 (3.4)	25 (0.9)	396 (3.6)	6 (0.4)	383 (6.9)	10.6 (0.06)
Spain	69 (0.8)	532 (1.4)	26 (0.7)	521 (3.6)	5 (0.3)	511 (4.5)	10.4 (0.03)
Norway (5)	69 (1.3)	565 (2.4)	27 (1.1)	550 (3.0)	4 (0.5)	530 (7.1)	10.4 (0.06)
Kuwait	66 (1.3)	404 (3.8)	28 (1.2)	385 (6.3)	7 (0.5)	366 (9.6)	10.4 (0.06)
Malta	64 (0.8)	465 (2.0)	29 (0.8)	436 (3.5)	7 (0.4)	411 (6.8)	10.3 (0.03)
Northern Ireland	63 (1.5)	575 (2.4)	30 (1.2)	554 (3.3)	7 (0.6)	520 (7.6)	10.2 (0.06)
Finland	63 (1.3)	574 (2.0)	32 (1.1)	558 (2.5)	5 (0.5)	526 (7.3)	10.2 (0.05)
New Zealand	62 (0.9)	532 (2.6)	31 (0.7)	514 (3.3)	6 (0.5)	497 (5.8)	10.2 (0.04)
Netherlands	62 (1.3)	552 (1.9)	32 (1.1)	539 (2.1)	7 (0.7)	512 (6.8)	10.1 (0.06)
Lithuania	61 (1.3)	554 (2.7)	34 (1.2)	542 (3.5)	5 (0.4)	532 (7.4)	10.1 (0.05)
Ireland	61 (1.4)	577 (2.5)	31 (1.0)	557 (3.4)	8 (0.8)	533 (5.7)	10.1 (0.06)
Chile	61 (1.2)	507 (2.7)	28 (0.9)	485 (4.1)	11 (0.6)	465 (5.4)	10.1 (0.06)
Iran, Islamic Rep. of	61 (1.6)	421 (4.8)	34 (1.4)	445 (4.4)	5 (0.4)	415 (10.7)	10.4 (0.08)
South Africa	59 (1.1)	331 (3.6)	31 (0.9)	314 (6.2)	9 (0.6)	300 (8.6)	10.2 (0.06)
Denmark	59 (1.4)	558 (2.4)	34 (1.1)	537 (3.0)	7 (0.6)	519 (5.2)	10.0 (0.06)
Sweden	58 (1.5)	563 (2.8)	35 (1.2)	549 (3.0)	7 (0.7)	533 (5.7)	10.0 (0.06)
Bahrain	58 (1.4)	461 (3.0)	33 (1.0)	435 (2.8)	10 (0.6)	415 (6.3)	10.0 (0.07)
Australia	57 (1.0)	554 (3.1)	33 (0.9)	537 (3.2)	10 (0.5)	517 (4.6)	9.9 (0.04)
Hungary	57 (1.5)	560 (3.4)	35 (1.2)	548 (3.5)	8 (0.8)	537 (5.7)	9.9 (0.06)
Canada	57 (0.9)	551 (2.1)	35 (0.8)	540 (2.5)	8 (0.4)	515 (3.8)	9.9 (0.04)
England	56 (1.4)	569 (2.1)	35 (1.0)	552 (2.3)	9 (0.7)	526 (4.5)	9.9 (0.06)
United Arab Emirates	56 (0.8)	473 (3.4)	34 (0.7)	433 (3.9)	10 (0.4)	406 (6.0)	10.0 (0.04)
Belgium (Flemish)	56 (1.2)	533 (2.2)	36 (1.0)	520 (2.6)	7 (0.5)	496 (4.6)	9.9 (0.05)
Italy	56 (1.2)	554 (2.3)	36 (1.0)	543 (2.7)	8 (0.5)	532 (4.3)	9.8 (0.05)
Russian Federation	54 (1.3)	582 (2.7)	40 (1.2)	582 (2.5)	6 (0.4)	572 (4.3)	9.8 (0.05)
Trinidad and Tobago	54 (1.8)	490 (3.9)	35 (1.4)	471 (4.3)	10 (0.8)	456 (6.6)	9.8 (0.08)
United States	54 (1.3)	562 (3.1)	34 (1.0)	544 (3.6)	13 (0.8)	526 (5.3)	9.8 (0.06)
Austria	52 (1.1)	547 (2.5)	38 (0.9)	537 (2.8)	10 (0.6)	524 (4.4)	9.7 (0.05)
Israel	51 (1.4)	529 (2.8)	35 (1.2)	534 (3.9)	15 (1.0)	536 (5.8)	9.6 (0.07)
Qatar	50 (0.8)	465 (2.0)	35 (0.7)	437 (3.0)	15 (0.6)	404 (3.5)	9.6 (0.04)
Slovak Republic	50 (1.1)	534 (4.6)	41 (1.0)	539 (3.1)	9 (0.6)	525 (4.8)	9.6 (0.05)
Latvia	49 (1.4)	560 (2.2)	43 (1.1)	559 (2.2)	8 (0.7)	538 (5.3)	9.6 (0.06)
Singapore	49 (0.9)	583 (3.5)	42 (0.8)	574 (3.3)	9 (0.4)	550 (4.9)	9.6 (0.04)
Germany	47 (1.7)	556 (2.7)	41 (1.2)	536 (3.9)	12 (0.7)	516 (6.3)	9.4 (0.07)
Slovenia	44 (1.4)	544 (2.7)	46 (1.2)	542 (2.4)	10 (0.9)	537 (4.1)	9.3 (0.05)
Belgium (French)	43 (1.3)	503 (3.0)	42 (1.1)	497 (3.0)	15 (1.0)	482 (4.1)	9.3 (0.06)
France	43 (1.6)	512 (2.7)	48 (1.2)	514 (2.6)	9 (0.8)	492 (5.1)	9.4 (0.05)
Czech Republic	42 (1.1)	547 (3.2)	48 (1.0)	545 (2.3)	9 (0.5)	525 (4.1)	9.3 (0.04)
Poland	42 (1.4)	562 (2.6)	46 (1.1)	569 (2.8)	12 (0.8)	560 (4.4)	9.3 (0.06)
Chinese Taipei	41 (1.3)	569 (2.3)	46 (1.1)	557 (2.5)	13 (0.6)	537 (3.7)	9.2 (0.05)
Macao SAR	37 (0.7)	557 (1.8)	50 (0.7)	541 (1.7)	13 (0.6)	532 (3.2)	9.1 (0.03)
Hong Kong SAR	35 (1.2)	580 (3.4)	48 (1.0)	567 (2.9)	17 (1.0)	553 (5.5)	8.9 (0.06)
International Avg.	59 (0.2)	518 (0.4)	33 (0.1)	505 (0.5)	8 (0.1)	495 (0.9)	

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

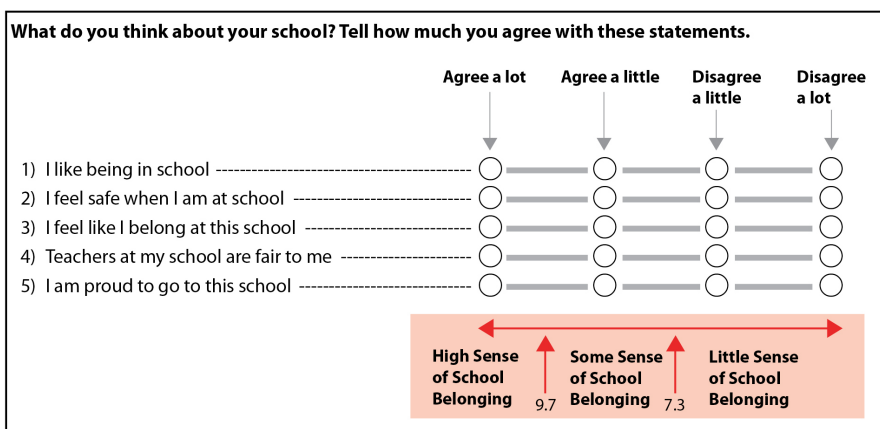
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

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

Exhibit 6.6: Students' Sense of School Belonging (Continued)

Country	High Sense of School Belonging		Some Sense of School Belonging		Little Sense of School Belonging		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Benchmarking Participants							
Andalusia, Spain	71 (1.2)	528 (2.1)	23 (0.9)	519 (3.0)	6 (0.5)	509 (6.3)	10.5 (0.06)
Norway (4)	70 (1.2)	522 (2.4)	25 (0.9)	508 (3.7)	5 (0.5)	493 (5.9)	10.5 (0.05)
Madrid, Spain	69 (1.5)	551 (2.0)	26 (1.3)	547 (3.2)	5 (0.5)	531 (5.2)	10.4 (0.07)
Dubai, UAE	61 (0.8)	532 (1.9)	32 (0.7)	502 (2.8)	8 (0.3)	455 (6.0)	10.1 (0.04)
Eng/Afr/Zulu - RSA (5)	60 (1.7)	405 (5.1)	31 (1.2)	418 (9.1)	9 (1.0)	400 (12.5)	10.2 (0.08)
Denmark (3)	58 (1.3)	510 (2.9)	35 (1.1)	491 (3.9)	7 (0.5)	475 (7.1)	10.0 (0.06)
Ontario, Canada	53 (1.5)	554 (3.7)	38 (1.3)	539 (4.2)	9 (0.6)	514 (6.5)	9.8 (0.06)
Buenos Aires, Argentina	52 (1.1)	484 (3.4)	37 (0.8)	484 (3.7)	11 (0.7)	478 (5.8)	9.7 (0.05)
Quebec, Canada	51 (1.8)	553 (3.3)	40 (1.6)	545 (2.9)	8 (0.7)	527 (5.2)	9.7 (0.06)
Moscow City, Russian Fed.	50 (1.2)	616 (2.4)	42 (1.0)	611 (2.4)	8 (0.6)	597 (5.1)	9.6 (0.05)
Abu Dhabi, UAE	49 (1.6)	437 (5.3)	38 (1.2)	401 (5.9)	12 (0.9)	391 (9.0)	9.7 (0.07)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016



PIRLS
2016

CHAPTER 7: SCHOOL DISCIPLINE AND SAFETY

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016



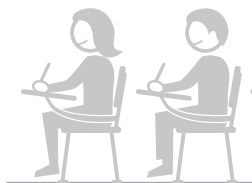
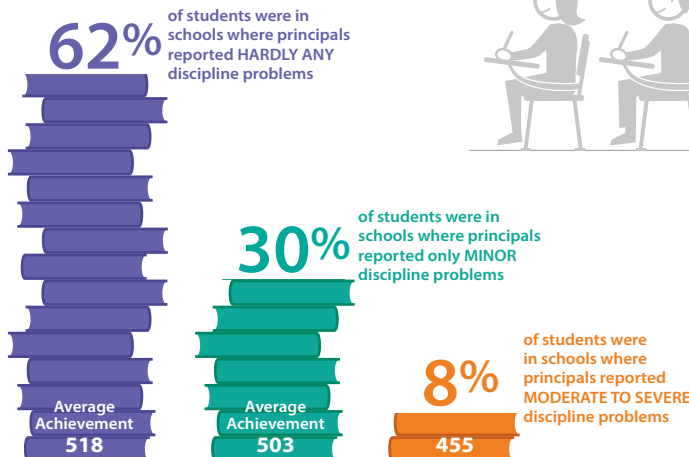
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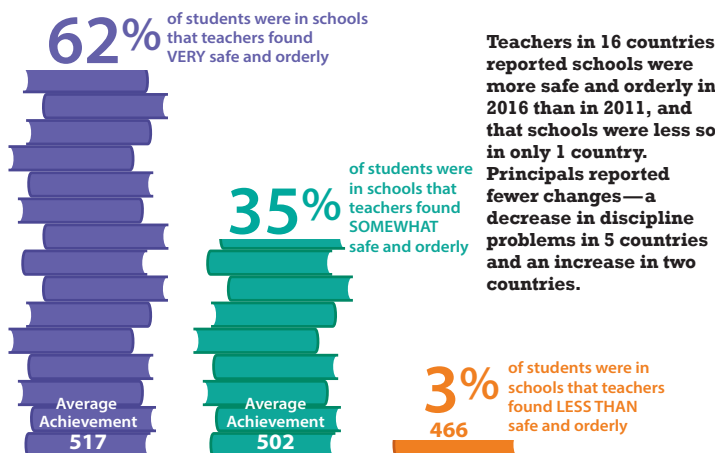
Students Are in Safe Schools

Internationally, the majority of fourth grade students were in safe school environments according to their principals and teachers. However, students who attended schools with disorderly environments had much lower achievement than their counterparts in safe and orderly schools.

Principals' Reports



Teachers' Reports



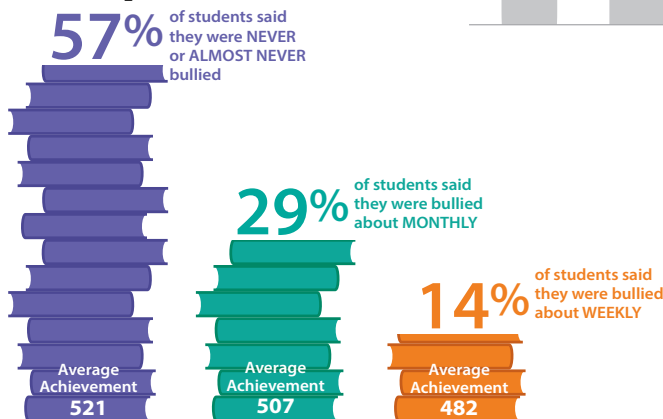
Teachers in 16 countries reported schools were more safe and orderly in 2016 than in 2011, and that schools were less so in only 1 country. Principals reported fewer changes—a decrease in discipline problems in 5 countries and an increase in two countries.

Student Bullying

Bullying has a negative association with student achievement. Media reports suggest that school-related cyberbullying is on the rise.



Students' Reports



CHAPTER 7

School Discipline and Safety

Exhibit 7.1: School Discipline – Principals’ Reports

Previous PIRLS assessments have asked principals for their perceptions about the degree to which a series of discipline, disorderly, and bullying behaviors are problems in their schools. Exhibit 7.1 presents the PIRLS 2016 results for the *School Discipline* scale. Countries are ordered by the percentage of students whose principals reported few student discipline problems. Sixty-two percent of the fourth grade students, on average, attended schools where the principals reported **Hardly Any Problems**, another 30 percent attended schools with **Minor Problems**, and 8 percent attended schools with **Moderate to Severe Problems**. Average reading achievement was higher for students in schools with **Hardly Any Problems** than for those in schools with **Minor Problems** (518 vs. 503). However, it was substantially lower—by 48 points—for students in schools with **Moderate to Severe Problems** (455).

The trend results indicate that school discipline problems have not worsened since PIRLS 2011. Five countries showed fewer problems and two countries had an increase.

Exhibit 7.1: School Discipline – Principals' Reports

Students Categorized by Principals' Reports

Students were scored according to their principals' responses concerning ten potential school problems on the *School Discipline* scale. Students in schools with **Hardly Any Problems** had a score on the scale of at least 9.9, which corresponds to their principals reporting "not a problem" for five of the ten issues and "minor problem" for the other five, on average. Students in schools with **Moderate to Severe Problems** had a score no higher than 7.7, which corresponds to their principals reporting "moderate problem" for five of the ten issues and "minor problem" for the other five, on average. All other students attended schools with **Minor Problems**.

Country	Hardly Any Problems		Minor Problems		Moderate to Severe Problems		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Hong Kong SAR	93 (2.2)	571 (3.0)	7 (2.2)	547 (10.1)	0 (0.0)	~ ~	11.9 (0.10)	0.5 (0.16) ▲
Macao SAR	89 (0.1)	548 (1.1)	11 (0.1)	531 (3.4)	0 (0.0)	~ ~	11.4 (0.00)	- -
Northern Ireland	r 85 (3.5)	566 (2.8)	15 (3.5)	557 (10.8)	0 (0.0)	~ ~	11.2 (0.12)	r 0.1 (0.17)
Kazakhstan	85 (3.1)	538 (2.8)	10 (2.7)	520 (9.2)	5 (1.6)	537 (7.7)	11.4 (0.14)	- -
Lithuania	84 (2.5)	549 (2.9)	15 (2.4)	548 (5.6)	0 (0.5)	~ ~	10.9 (0.10)	0.3 (0.15)
Ireland	83 (3.4)	571 (2.5)	15 (3.5)	550 (8.8)	2 (0.9)	~ ~	11.0 (0.13)	-0.1 (0.18)
England	82 (3.4)	563 (2.1)	18 (3.4)	539 (4.1)	0 (0.0)	~ ~	11.1 (0.11)	0.3 (0.18)
Finland	78 (3.3)	567 (1.9)	22 (3.3)	564 (4.9)	0 (0.0)	~ ~	10.6 (0.09)	0.3 (0.15)
Chinese Taipei	77 (3.6)	560 (2.2)	23 (3.6)	557 (4.8)	0 (0.0)	~ ~	11.1 (0.13)	-0.3 (0.18)
Georgia	77 (3.0)	490 (3.1)	11 (2.3)	492 (8.6)	12 (2.3)	479 (9.7)	10.6 (0.15)	-0.3 (0.20)
Spain	76 (2.6)	531 (1.5)	18 (2.5)	520 (3.4)	6 (1.1)	505 (16.2)	10.7 (0.12)	0.0 (0.20)
Czech Republic	75 (3.5)	545 (2.3)	23 (3.5)	539 (4.8)	1 (0.7)	~ ~	10.4 (0.10)	0.1 (0.14)
Azerbaijan	75 (3.4)	467 (5.4)	16 (2.8)	496 (7.2)	9 (2.2)	461 (7.8)	10.5 (0.15)	0.9 (0.30) ▲
United Arab Emirates	72 (2.1)	463 (4.5)	23 (2.0)	423 (6.3)	5 (1.0)	392 (10.1)	10.7 (0.08)	0.7 (0.13) ▲
Latvia	72 (4.0)	562 (2.1)	26 (4.3)	547 (4.2)	2 (1.3)	~ ~	10.5 (0.11)	- -
Bahrain	70 (2.7)	454 (3.1)	20 (2.6)	429 (6.4)	10 (0.9)	424 (8.7)	10.2 (0.09)	- -
Norway (5)	70 (4.4)	562 (2.7)	28 (4.3)	554 (4.2)	2 (1.1)	~ ~	10.4 (0.14)	- -
Russian Federation	70 (3.0)	580 (3.0)	30 (3.0)	583 (4.0)	0 (0.0)	~ ~	10.5 (0.08)	0.2 (0.12)
New Zealand	69 (3.4)	539 (3.0)	29 (3.4)	497 (6.2)	2 (1.0)	~ ~	10.6 (0.10)	0.0 (0.15)
Bulgaria	69 (4.1)	562 (4.5)	26 (3.8)	532 (9.6)	5 (2.1)	521 (23.3)	10.4 (0.15)	-0.2 (0.21)
Canada	68 (2.7)	550 (2.1)	31 (2.7)	532 (4.4)	2 (0.7)	~ ~	10.4 (0.07)	0.1 (0.10)
Australia	67 (3.8)	556 (3.2)	29 (3.6)	525 (4.1)	4 (1.6)	475 (12.3)	10.3 (0.11)	-0.2 (0.16)
Singapore	67 (0.0)	580 (4.3)	33 (0.0)	569 (6.2)	0 (0.0)	~ ~	10.8 (0.00)	0.0 (0.00)
Slovak Republic	66 (3.7)	542 (3.0)	31 (3.8)	531 (7.5)	3 (1.5)	420 (24.7)	10.4 (0.13)	0.3 (0.18)
Qatar	65 (0.4)	443 (2.5)	28 (0.3)	450 (2.7)	7 (0.1)	403 (5.4)	10.5 (0.01)	0.4 (0.14) ▲
United States	65 (4.6)	561 (3.4)	31 (4.3)	529 (6.0)	4 (1.5)	520 (9.3)	10.4 (0.12)	0.0 (0.15)
Belgium (Flemish)	64 (3.7)	531 (2.4)	34 (3.7)	515 (4.9)	1 (0.9)	~ ~	10.5 (0.14)	- -
Iran, Islamic Rep. of	63 (4.2)	443 (4.7)	30 (4.1)	406 (12.2)	7 (2.0)	390 (16.2)	10.3 (0.12)	-0.5 (0.16) ▼
Belgium (French)	63 (3.6)	503 (3.5)	33 (3.4)	495 (4.7)	5 (1.6)	461 (12.4)	10.2 (0.11)	0.1 (0.19)
Malta	62 (0.1)	459 (2.1)	34 (0.1)	441 (2.5)	5 (0.1)	446 (6.3)	10.2 (0.00)	0.0 (0.01)
Italy	59 (3.6)	550 (3.0)	28 (3.4)	547 (4.5)	12 (2.5)	543 (4.8)	9.9 (0.13)	0.3 (0.19)
Hungary	58 (4.2)	565 (3.6)	36 (4.1)	542 (5.5)	6 (1.7)	512 (9.4)	10.1 (0.12)	0.3 (0.18)
Slovenia	58 (4.0)	543 (3.1)	38 (3.7)	542 (2.9)	4 (1.9)	544 (8.6)	10.1 (0.14)	0.0 (0.18)
Portugal	57 (4.0)	534 (3.2)	38 (3.7)	523 (2.6)	6 (1.8)	501 (10.2)	10.1 (0.10)	-0.3 (0.20)
Israel	54 (3.9)	548 (5.2)	34 (3.5)	520 (6.4)	12 (2.1)	475 (9.0)	9.6 (0.16)	0.5 (0.26)
Sweden	53 (4.6)	562 (3.3)	44 (4.6)	548 (4.0)	3 (1.1)	522 (15.7)	10.1 (0.13)	0.3 (0.18)
France	52 (3.5)	519 (3.3)	41 (3.5)	508 (3.6)	7 (1.9)	484 (11.7)	9.9 (0.11)	-0.4 (0.17) ▼
Denmark	52 (3.9)	552 (3.0)	47 (3.9)	543 (3.2)	1 (0.7)	~ ~	10.1 (0.10)	-0.1 (0.14)
Chile	52 (4.5)	506 (4.3)	37 (5.0)	490 (5.6)	11 (3.2)	447 (10.4)	9.7 (0.13)	- -
Saudi Arabia	51 (3.7)	455 (5.8)	25 (3.1)	416 (8.0)	24 (3.6)	393 (8.2)	9.5 (0.18)	0.2 (0.26)
Austria	51 (4.5)	548 (2.9)	45 (4.3)	536 (3.8)	4 (1.7)	509 (12.4)	9.9 (0.12)	0.3 (0.18)
Netherlands	43 (5.1)	551 (2.9)	54 (5.2)	543 (2.5)	3 (1.0)	498 (32.9)	9.6 (0.11)	r 0.5 (0.15) ▲
Germany	43 (3.8)	553 (2.8)	50 (3.7)	529 (5.1)	7 (2.0)	489 (26.2)	9.4 (0.10)	-0.2 (0.13)
Poland	42 (4.2)	569 (3.7)	57 (4.2)	562 (3.0)	1 (0.1)	~ ~	9.7 (0.10)	- -
Oman	40 (2.6)	430 (5.1)	32 (2.8)	415 (5.5)	28 (2.9)	407 (6.3)	8.9 (0.15)	0.4 (0.21)
Kuwait	37 (5.0)	413 (9.5)	41 (5.3)	388 (9.8)	23 (3.5)	378 (12.0)	9.1 (0.14)	- -
Trinidad and Tobago	33 (3.9)	497 (7.2)	52 (4.4)	481 (6.0)	15 (3.4)	462 (10.6)	9.2 (0.12)	-0.2 (0.17)
Egypt	19 (2.9)	356 (14.9)	39 (4.2)	336 (10.3)	42 (3.6)	314 (8.7)	7.9 (0.13)	- -
South Africa	r 18 (2.6)	348 (13.7)	55 (3.7)	319 (6.4)	27 (3.6)	295 (7.9)	8.6 (0.10)	r -0.3 (0.13)
Morocco	17 (2.6)	368 (10.1)	21 (3.1)	354 (11.5)	62 (3.0)	357 (4.5)	7.4 (0.14)	0.2 (0.21)
International Avg.	62 (0.5)	518 (0.7)	30 (0.5)	503 (0.9)	8 (0.3)	455 (2.4)		

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2011 based on the combined response distribution of all 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.

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

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

Significantly higher than 2011 ▲

Significantly lower than 2011 ▼

Exhibit 7.1: School Discipline – Principals' Reports (Continued)

Country	Hardly Any Problems		Minor Problems		Moderate to Severe Problems		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Benchmarking Participants								
Dubai, UAE	83 (0.2)	521 (2.1)	13 (0.2)	496 (4.5)	3 (0.1)	439 (7.9)	11.2 (0.01)	0.5 (0.01) ▲
Madrid, Spain	79 (3.3)	552 (2.3)	18 (3.1)	534 (3.9)	2 (1.3)	~ ~	10.9 (0.13)	--
Andalusia, Spain	76 (3.5)	528 (2.1)	18 (3.0)	516 (4.6)	6 (2.0)	506 (18.6)	10.6 (0.15)	0.2 (0.24)
Moscow City, Russian Fed.	72 (3.8)	614 (2.5)	28 (3.8)	608 (4.8)	0 (0.0)	~ ~	10.3 (0.09)	--
Ontario, Canada	71 (4.5)	552 (3.6)	26 (4.3)	530 (5.4)	3 (1.4)	490 (19.7)	10.5 (0.14)	0.2 (0.21)
Quebec, Canada	69 (4.7)	552 (3.3)	31 (4.7)	537 (6.9)	0 (0.0)	~ ~	10.5 (0.15)	0.5 (0.19)
Norway (4)	66 (4.4)	520 (2.5)	30 (4.3)	514 (3.6)	3 (1.1)	505 (7.7)	10.4 (0.13)	0.3 (0.18)
Abu Dhabi, UAE	66 (3.4)	426 (6.9)	27 (2.9)	395 (7.9)	7 (2.1)	385 (14.3)	10.3 (0.13)	0.3 (0.22)
Denmark (3)	54 (4.2)	505 (3.5)	44 (4.1)	497 (4.1)	2 (0.9)	~ ~	10.1 (0.12)	--
Buenos Aires, Argentina	42 (3.6)	495 (6.2)	50 (3.9)	475 (4.7)	8 (2.0)	450 (12.8)	9.5 (0.10)	--
Eng/Afr/Zulu - RSA (5)	25 (4.4)	421 (14.4)	57 (5.1)	412 (11.0)	17 (4.2)	393 (16.1)	8.9 (0.16)	--

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

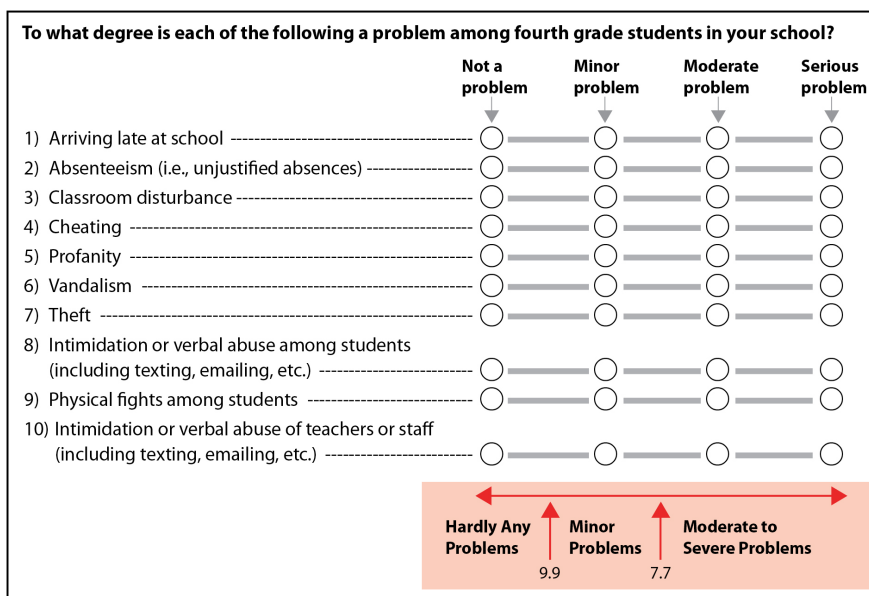


Exhibit 7.2: Safe and Orderly School – Teachers’ Reports

To develop the *Safe and Orderly School* scale, PIRLS 2016 asked teachers about their degree of agreement with eight statements such as “I feel safe at this school” and “This school has clear rules about student conduct.” Exhibit 7.2 presents the percentages of students in schools categorized according to teachers’ judgments about safety. There was considerable variation, but on average, most fourth grade students (62%) were in schools judged by their teachers to be **Very Safe and Orderly** and nearly all the rest (35%) were in schools judged **Somewhat Safe and Orderly**. Only 3 percent, on average, were attending schools felt to be **Less than Safe and Orderly**. There was a direct positive association between safe and orderly schools and average reading achievement (517, 502, and 466, respectively).

Teachers’ reports indicate that schools may be safer in 2016 than they were in 2011. Average scores on the *Safe and Orderly School* scale increased in 16 countries and only decreased in 1 country.

Exhibit 7.2: Safe and Orderly School – Teachers' Reports*Students Categorized by Teachers' Reports*

Students were scored according to their teachers' degree of agreement with eight statements on the *Safe and Orderly School* scale. Students in **Very Safe and Orderly** schools had a score on the scale of at least 9.9, which corresponds to their teachers "agreeing a lot" with four of the eight qualities of a safe and orderly school and "agreeing a little" with the other four, on average. Students in **Less than Safe and Orderly** schools had a score no higher than 6.6, which corresponds to their teachers "disagreeing a little" with four of the eight qualities and "agreeing a little" with the other four, on average. All other students attended **Somewhat Safe and Orderly** schools.

Country	Very Safe and Orderly		Somewhat Safe and Orderly		Less than Safe and Orderly		Average Scale Score	Difference in Average Scale Score from 2011	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement			
Kazakhstan	92 (2.2)	536 (2.5)	8 (2.2)	537 (9.5)	0 (0.0)	~ ~	12.4 (0.10)	--	
Georgia	88 (2.3)	491 (3.2)	12 (2.3)	479 (8.0)	0 (0.0)	~ ~	11.7 (0.11)	0.6 (0.17)	▲
Azerbaijan	84 (2.7)	473 (4.7)	16 (2.7)	471 (7.9)	1 (0.4)	~ ~	11.5 (0.13)	0.2 (0.18)	
Northern Ireland	83 (3.0)	567 (2.6)	16 (3.1)	547 (7.3)	1 (0.9)	~ ~	12.1 (0.14)	0.7 (0.19)	▲
England	82 (2.7)	562 (2.4)	17 (2.7)	543 (4.4)	0 (0.5)	~ ~	11.5 (0.12)	0.7 (0.18)	▲
Israel	80 (2.9)	531 (3.0)	17 (2.9)	532 (9.4)	2 (1.2)	~ ~	11.2 (0.16)	0.2 (0.22)	
Norway (5)	80 (2.8)	562 (2.4)	19 (2.6)	549 (5.5)	1 (0.8)	~ ~	11.3 (0.14)	--	
Qatar	80 (1.9)	444 (2.6)	19 (1.9)	432 (9.5)	1 (0.5)	~ ~	11.4 (0.09)	0.8 (0.16)	▲
Ireland	79 (2.9)	570 (3.0)	19 (2.8)	555 (4.8)	2 (1.0)	~ ~	11.6 (0.15)	0.4 (0.21)	
Australia	78 (3.0)	551 (2.9)	20 (3.0)	526 (5.9)	2 (0.6)	~ ~	11.4 (0.14)	0.4 (0.21)	r
Netherlands	78 (3.6)	549 (2.2)	21 (3.7)	535 (4.5)	1 (1.1)	~ ~	11.1 (0.13)	0.3 (0.20)	
New Zealand	77 (2.4)	536 (2.4)	21 (2.3)	497 (6.1)	2 (0.8)	~ ~	11.4 (0.12)	0.5 (0.17)	▲
Oman	76 (2.7)	421 (3.7)	23 (2.7)	411 (7.4)	0 (0.2)	~ ~	11.0 (0.11)	1.0 (0.14)	▲
Spain	76 (3.1)	532 (1.8)	23 (3.0)	517 (4.0)	2 (0.8)	~ ~	11.2 (0.13)	1.7 (0.20)	▲
Macao SAR	75 (0.1)	548 (1.2)	23 (0.1)	535 (2.2)	2 (0.0)	~ ~	10.9 (0.00)	--	
Portugal	72 (3.4)	532 (2.8)	26 (3.3)	519 (3.6)	2 (0.9)	~ ~	10.9 (0.13)	1.4 (0.23)	▲
Kuwait	71 (3.8)	398 (5.0)	29 (3.8)	387 (9.2)	0 (0.1)	~ ~	10.7 (0.16)	--	
United Arab Emirates	71 (2.1)	469 (3.9)	28 (2.0)	411 (5.6)	1 (0.7)	~ ~	11.0 (0.09)	0.2 (0.12)	
Bulgaria	68 (3.7)	563 (4.7)	31 (3.6)	530 (8.4)	1 (0.6)	~ ~	10.3 (0.13)	0.4 (0.19)	
Saudi Arabia	68 (3.6)	439 (4.6)	29 (3.5)	414 (10.9)	3 (1.3)	385 (13.1)	10.8 (0.14)	0.7 (0.20)	▲
Singapore	67 (2.1)	578 (4.1)	30 (2.1)	573 (5.5)	2 (0.6)	~ ~	10.8 (0.09)	0.5 (0.13)	▲
Iran, Islamic Rep. of	66 (3.8)	433 (4.9)	30 (3.7)	417 (10.1)	4 (1.4)	425 (35.4)	10.6 (0.14)	0.4 (0.20)	
Egypt	63 (4.1)	340 (7.3)	35 (4.0)	313 (10.4)	2 (1.0)	~ ~	10.5 (0.16)	--	
Hong Kong SAR	63 (4.5)	571 (3.6)	36 (4.6)	565 (4.7)	1 (0.9)	~ ~	10.5 (0.17)	0.6 (0.24)	
Bahrain	62 (3.2)	460 (3.2)	34 (3.2)	422 (5.2)	3 (1.4)	420 (16.2)	10.7 (0.13)	--	
United States	62 (3.9)	563 (3.3)	30 (3.6)	531 (7.1)	8 (2.1)	517 (8.8)	10.3 (0.19)	0.0 (0.21)	
Austria	62 (4.0)	547 (2.7)	36 (3.9)	532 (4.0)	1 (0.7)	~ ~	10.3 (0.13)	0.4 (0.18)	
Canada	62 (2.3)	548 (2.1)	36 (2.2)	538 (2.7)	3 (0.8)	497 (16.8)	10.6 (0.11)	0.2 (0.17)	
Lithuania	60 (3.8)	550 (2.7)	40 (3.8)	549 (4.4)	1 (0.8)	~ ~	10.2 (0.13)	0.6 (0.18)	▲
Russian Federation	59 (3.2)	581 (3.2)	40 (3.3)	580 (4.0)	1 (0.7)	~ ~	10.2 (0.12)	0.5 (0.21)	
Slovak Republic	58 (3.1)	542 (3.8)	38 (3.2)	530 (5.0)	3 (1.1)	472 (34.4)	10.0 (0.11)	0.7 (0.13)	▲
Poland	57 (4.3)	566 (3.1)	42 (4.3)	562 (3.1)	1 (0.5)	~ ~	10.0 (0.13)	--	
Denmark	56 (4.0)	554 (2.9)	40 (3.9)	539 (3.2)	4 (1.5)	546 (8.2)	10.1 (0.16)	-0.4 (0.20)	
Latvia	56 (3.8)	559 (2.6)	43 (3.9)	556 (3.0)	1 (0.8)	~ ~	9.8 (0.11)	--	
Czech Republic	53 (3.2)	548 (2.4)	45 (3.3)	541 (3.2)	2 (0.9)	~ ~	9.8 (0.10)	0.3 (0.16)	
Chile	52 (4.4)	510 (4.4)	41 (4.4)	491 (4.1)	7 (2.5)	435 (11.3)	10.0 (0.20)	--	
Hungary	51 (3.9)	563 (4.8)	46 (4.0)	548 (4.5)	3 (1.5)	497 (18.2)	9.7 (0.13)	0.0 (0.18)	
Germany	48 (3.8)	554 (3.2)	48 (3.7)	524 (5.8)	4 (1.7)	461 (29.5)	9.8 (0.13)	0.2 (0.17)	
Morocco	48 (3.3)	385 (5.9)	43 (3.3)	333 (5.5)	9 (1.8)	333 (7.9)	9.8 (0.15)	1.2 (0.21)	▲
Sweden	47 (3.9)	564 (3.4)	49 (3.8)	551 (3.0)	4 (1.3)	512 (12.4)	9.9 (0.16)	0.4 (0.22)	
South Africa	r 47 (3.7)	326 (8.2)	43 (3.7)	319 (8.2)	11 (1.9)	314 (13.9)	9.6 (0.16)	0.6 (0.20)	▲
Chinese Taipei	46 (4.2)	554 (2.8)	52 (4.2)	563 (2.7)	2 (1.0)	~ ~	9.7 (0.15)	0.8 (0.21)	▲
Belgium (Flemish)	45 (3.8)	533 (2.3)	52 (3.7)	521 (3.1)	3 (1.1)	488 (12.0)	9.5 (0.12)	--	
Malta	44 (0.1)	459 (2.5)	47 (0.2)	449 (2.2)	9 (0.1)	436 (5.6)	9.6 (0.01)	-0.4 (0.01)	▼
Belgium (French)	40 (3.7)	507 (3.7)	51 (3.8)	496 (3.7)	9 (2.0)	466 (10.0)	9.2 (0.14)	0.4 (0.22)	
Finland	40 (3.5)	569 (2.7)	52 (3.5)	565 (2.7)	7 (1.6)	559 (4.9)	9.4 (0.11)	0.2 (0.17)	
France	40 (3.2)	521 (4.2)	57 (3.4)	507 (3.2)	4 (1.1)	482 (7.2)	9.5 (0.13)	0.1 (0.17)	
Trinidad and Tobago	38 (4.1)	493 (6.6)	48 (4.0)	474 (4.8)	14 (2.4)	464 (11.7)	9.1 (0.19)	0.7 (0.27)	▲
Slovenia	21 (3.1)	545 (4.2)	71 (3.3)	540 (2.1)	8 (1.8)	555 (5.6)	8.7 (0.13)	-0.1 (0.17)	
Italy	20 (3.0)	556 (4.0)	76 (3.3)	548 (2.9)	4 (1.3)	523 (13.4)	8.8 (0.11)	0.2 (0.14)	
International Avg.	62 (0.5)	517 (0.5)	35 (0.5)	502 (0.8)	3 (0.2)	466 (3.6)			

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2011 based on the combined response distribution of all 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.

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

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

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼

Exhibit 7.2: Safe and Orderly School – Teachers' Reports (Continued)

Country	Very Safe and Orderly		Somewhat Safe and Orderly		Less than Safe and Orderly		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Benchmarking Participants								
Andalusia, Spain	81 (2.9)	530 (2.0)	15 (2.9)	502 (8.1)	4 (1.5)	488 (7.9)	11.3 (0.16)	2.0 (0.23) ▲
Dubai, UAE	78 (2.1)	529 (2.5)	21 (2.1)	474 (6.7)	1 (0.3)	~ ~	11.4 (0.09)	0.2 (0.12)
Madrid, Spain	78 (3.5)	553 (2.3)	22 (3.5)	536 (3.7)	0 (0.0)	~ ~	11.4 (0.17)	- -
Norway (4)	72 (3.5)	517 (2.4)	27 (3.4)	516 (3.8)	2 (1.0)	~ ~	10.8 (0.14)	0.3 (0.21)
Buenos Aires, Argentina	67 (3.1)	491 (3.9)	28 (3.2)	457 (6.7)	4 (1.6)	446 (18.1)	10.5 (0.15)	- -
Abu Dhabi, UAE	64 (3.8)	430 (6.2)	35 (3.8)	390 (9.3)	1 (0.7)	~ ~	10.5 (0.15)	-0.2 (0.21)
Ontario, Canada	62 (4.1)	552 (3.7)	33 (4.1)	534 (5.0)	5 (1.7)	512 (16.3)	10.5 (0.19)	0.5 (0.27)
Moscow City, Russian Fed.	60 (3.9)	612 (3.1)	39 (4.0)	614 (3.2)	2 (1.0)	~ ~	10.2 (0.14)	- -
Eng/Afr/Zulu - RSA (5)	55 (6.1)	419 (11.5)	37 (5.7)	400 (9.8)	8 (3.6)	437 (33.7)	10.0 (0.31)	- -
Denmark (3)	51 (3.6)	505 (3.7)	45 (3.6)	496 (4.0)	3 (1.5)	508 (17.5)	10.0 (0.15)	- -
Quebec, Canada	44 (4.8)	547 (4.4)	56 (4.8)	547 (3.6)	0 (0.1)	~ ~	9.8 (0.17)	0.1 (0.24)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼

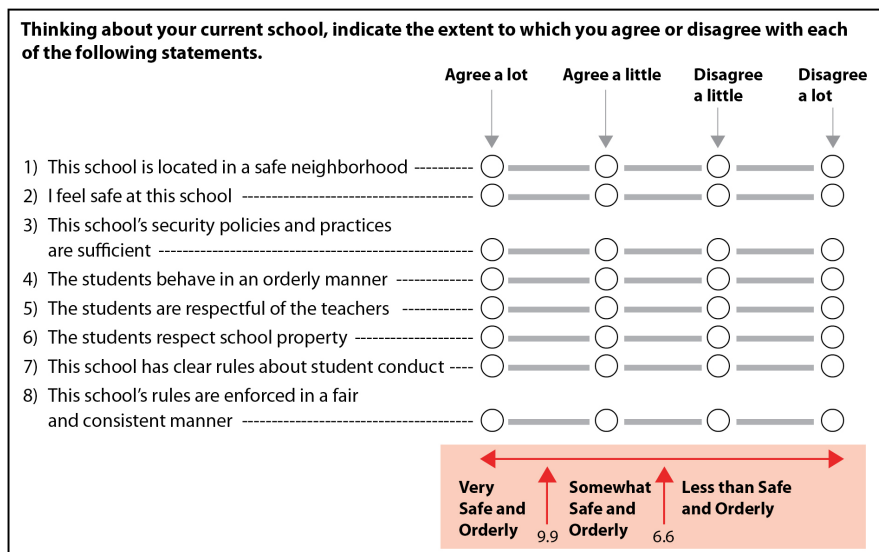


Exhibit 7.3: Student Bullying

Exhibit 7.3 summarizes students' responses about how often they were bullied in school. On average across the PIRLS 2016 countries, the majority of fourth grade students (57%) reported **Almost Never** being bullied. However, 29 percent reported they were bullied on a **Monthly** basis, and 14 percent on a **Weekly** basis. There were a number of countries where 20 percent or more of the students reported being bullied weekly. Fourth grade students' reports about being bullied were directly related to their average reading achievement, with each successive category of increased bullying being related to a decrease in average reading achievement (521 average for **Almost Never**, 507 for **Monthly**, and 482 for **Weekly**—for a decrease of 39 points overall).

Exhibit 7.3: Student Bullying

Students' Reports

Students were scored according to their responses to how often they experienced eight bullying behaviors on the *Student Bullying* scale. Students bullied **Almost Never** had a score on the scale of at least 9.5, which corresponds to “never” experiencing four of the eight bullying behaviors and experiencing each of the other four behaviors “a few times a year,” on average. Students bullied **About Weekly** had a score no higher than 7.9, which corresponds to their experiencing each of four of the eight behaviors “once or twice a month” and each of the other four “a few times a year,” on average. All other students were bullied **About Monthly**.

Country	Almost Never		About Monthly		About Weekly		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Kazakhstan	77 (1.2)	540 (2.5)	17 (0.8)	527 (3.7)	6 (0.5)	519 (5.8)	11.2 (0.07)
Finland	75 (1.0)	571 (1.9)	21 (0.9)	557 (3.4)	5 (0.4)	532 (6.1)	10.7 (0.05)
Ireland	74 (1.1)	575 (2.3)	20 (0.9)	551 (3.8)	5 (0.5)	526 (7.6)	10.8 (0.05)
Norway (5)	74 (1.0)	564 (2.3)	21 (0.8)	552 (3.8)	5 (0.4)	524 (6.5)	10.6 (0.05)
Georgia	74 (1.4)	497 (2.8)	18 (1.0)	484 (4.0)	8 (0.6)	439 (5.9)	10.9 (0.06)
Egypt	73 (2.0)	337 (5.9)	18 (1.5)	325 (8.1)	9 (1.0)	294 (13.5)	10.9 (0.10)
Poland	72 (1.0)	573 (2.0)	20 (0.8)	550 (3.6)	7 (0.5)	523 (6.4)	10.7 (0.04)
Azerbaijan	72 (1.2)	483 (4.2)	20 (0.8)	469 (4.1)	8 (0.6)	429 (6.7)	10.9 (0.06)
Sweden	71 (1.0)	562 (2.7)	23 (0.7)	547 (2.9)	6 (0.5)	526 (6.3)	10.5 (0.05)
Denmark	67 (1.2)	552 (2.2)	27 (0.9)	543 (3.4)	7 (0.6)	526 (5.3)	10.3 (0.05)
Iran, Islamic Rep. of	66 (1.9)	430 (4.8)	23 (1.2)	430 (7.4)	10 (1.0)	417 (6.6)	10.6 (0.11)
France	66 (1.2)	518 (2.2)	26 (0.9)	506 (3.8)	8 (0.6)	476 (5.3)	10.4 (0.06)
Chile	64 (1.2)	506 (2.4)	23 (0.9)	493 (3.7)	13 (0.8)	448 (4.7)	10.3 (0.05)
Austria	63 (1.0)	549 (2.4)	27 (0.9)	535 (3.3)	11 (0.6)	512 (4.0)	10.2 (0.04)
Czech Republic	62 (1.0)	549 (2.5)	28 (0.8)	541 (2.5)	10 (0.5)	517 (4.5)	10.3 (0.04)
Chinese Taipei	62 (1.1)	565 (2.4)	27 (0.8)	554 (2.7)	11 (0.5)	540 (3.8)	10.3 (0.05)
Portugal	60 (1.0)	533 (2.5)	28 (0.9)	525 (2.9)	12 (0.7)	509 (4.4)	10.2 (0.05)
Hungary	60 (1.2)	563 (3.1)	31 (0.9)	546 (3.8)	9 (0.7)	524 (5.8)	10.0 (0.04)
Hong Kong SAR	60 (1.4)	575 (2.6)	29 (1.1)	563 (4.2)	11 (0.7)	551 (4.8)	10.0 (0.05)
Lithuania	60 (1.4)	560 (2.8)	30 (1.1)	537 (4.0)	11 (0.7)	519 (4.8)	10.0 (0.06)
Northern Ireland	59 (1.3)	576 (2.6)	29 (1.0)	557 (2.9)	11 (0.8)	531 (5.7)	10.0 (0.06)
Netherlands	58 (1.1)	548 (2.0)	31 (0.9)	546 (2.3)	10 (0.6)	525 (3.7)	9.9 (0.04)
Germany	57 (1.1)	553 (2.9)	32 (0.9)	537 (2.8)	11 (0.6)	510 (5.7)	10.0 (0.04)
Slovak Republic	57 (1.2)	543 (3.4)	29 (1.1)	534 (3.5)	14 (0.8)	502 (6.1)	10.0 (0.05)
Morocco	57 (1.8)	373 (4.1)	29 (1.0)	347 (5.2)	14 (1.0)	325 (7.5)	10.1 (0.08)
Bulgaria	56 (1.8)	561 (5.0)	30 (1.2)	546 (4.3)	14 (1.0)	528 (6.6)	9.9 (0.07)
Slovenia	56 (1.1)	548 (2.3)	29 (0.8)	546 (2.6)	15 (0.7)	517 (4.4)	9.8 (0.04)
United States	56 (1.2)	561 (3.4)	30 (0.9)	549 (3.3)	15 (0.7)	521 (4.6)	9.9 (0.05)
Italy	55 (1.0)	554 (2.5)	31 (0.8)	544 (2.9)	14 (0.7)	538 (3.9)	9.9 (0.04)
Spain	54 (0.8)	536 (1.4)	31 (0.7)	524 (2.6)	15 (0.6)	506 (4.2)	9.9 (0.03)
Malta	54 (0.7)	468 (2.0)	30 (0.7)	445 (3.5)	16 (0.5)	418 (5.0)	9.8 (0.03)
Saudi Arabia	53 (1.8)	453 (4.5)	25 (1.1)	432 (5.5)	22 (1.3)	385 (6.9)	9.9 (0.09)
Belgium (Flemish)	52 (1.2)	531 (2.3)	34 (1.0)	523 (2.6)	13 (0.6)	508 (3.0)	9.7 (0.05)
England	52 (1.2)	569 (2.3)	33 (0.9)	558 (2.5)	15 (0.7)	531 (3.8)	9.7 (0.04)
Russian Federation	52 (1.4)	588 (2.7)	34 (1.1)	578 (2.6)	14 (0.8)	565 (3.5)	9.8 (0.06)
Singapore	50 (0.7)	590 (3.2)	33 (0.7)	572 (3.2)	16 (0.5)	543 (4.8)	9.6 (0.03)
Canada	50 (0.8)	554 (1.9)	33 (0.7)	539 (2.1)	16 (0.7)	521 (3.3)	9.7 (0.03)
Oman	48 (1.7)	437 (4.1)	32 (1.0)	417 (3.7)	20 (1.0)	387 (4.5)	9.7 (0.08)
Kuwait	47 (1.8)	410 (4.2)	37 (1.5)	391 (5.8)	16 (0.9)	367 (8.8)	9.6 (0.07)
Australia	46 (1.1)	557 (3.4)	35 (1.0)	544 (2.7)	19 (0.7)	519 (4.6)	9.5 (0.04)
Latvia	44 (1.2)	568 (2.2)	35 (1.0)	559 (2.3)	20 (0.9)	534 (3.1)	9.4 (0.04)
United Arab Emirates	43 (0.8)	477 (3.5)	32 (0.5)	454 (4.0)	25 (0.7)	408 (4.4)	9.4 (0.04)
Qatar	43 (1.3)	469 (2.3)	32 (0.6)	448 (3.0)	26 (0.9)	402 (4.2)	9.4 (0.06)
Macao SAR	42 (0.7)	555 (1.5)	42 (0.7)	541 (1.6)	16 (0.6)	532 (3.4)	9.3 (0.02)
Belgium (French)	42 (1.1)	505 (3.0)	38 (0.8)	497 (2.7)	20 (0.9)	484 (4.2)	9.3 (0.04)
New Zealand	40 (1.0)	541 (2.9)	36 (0.7)	525 (3.0)	24 (0.8)	494 (3.4)	9.2 (0.04)
Trinidad and Tobago	37 (1.5)	494 (3.6)	36 (1.0)	478 (4.2)	27 (1.4)	462 (4.7)	9.2 (0.07)
Bahrain	36 (1.1)	470 (3.3)	32 (0.7)	451 (3.5)	32 (1.0)	417 (3.4)	9.1 (0.05)
South Africa	22 (0.8)	349 (5.9)	35 (0.7)	332 (4.4)	42 (1.0)	299 (4.5)	8.4 (0.04)
Israel	--	--	--	--	--	--	--
International Avg.	57 (0.2)	521 (0.4)	29 (0.1)	507 (0.5)	14 (0.1)	482 (0.8)	

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

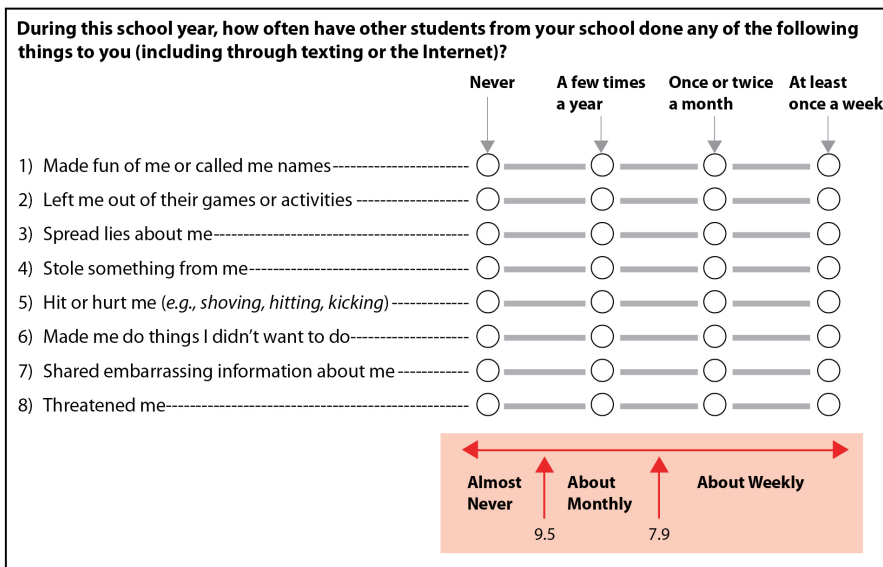
() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

A dash (-) indicates comparable data not available.

Exhibit 7.3: Student Bullying (Continued)

Country	Almost Never		About Monthly		About Weekly		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Benchmarking Participants							
Norway (4)	69 (1.1)	522 (2.2)	24 (1.0)	513 (3.1)	7 (0.5)	492 (4.7)	10.5 (0.05)
Denmark (3)	58 (1.1)	510 (3.0)	32 (1.0)	495 (3.4)	10 (0.7)	471 (6.3)	10.1 (0.05)
Madrid, Spain	56 (1.2)	554 (2.3)	31 (0.9)	547 (2.5)	13 (0.6)	531 (3.1)	10.0 (0.05)
Quebec, Canada	55 (1.5)	553 (3.2)	33 (1.2)	546 (3.5)	13 (0.9)	531 (4.4)	9.9 (0.06)
Andalusia, Spain	53 (1.2)	533 (2.4)	32 (0.9)	518 (2.4)	15 (0.8)	511 (3.3)	9.9 (0.05)
Dubai, UAE	48 (1.2)	532 (2.2)	32 (0.6)	518 (2.4)	20 (0.9)	478 (4.0)	9.6 (0.04)
Moscow City, Russian Fed.	47 (1.2)	621 (2.4)	35 (0.8)	609 (2.3)	18 (0.9)	596 (3.7)	9.5 (0.05)
Ontario, Canada	47 (1.3)	557 (3.6)	35 (1.6)	541 (3.7)	18 (1.3)	521 (4.6)	9.5 (0.05)
Buenos Aires, Argentina	45 (1.2)	494 (3.5)	36 (1.0)	486 (3.6)	18 (0.7)	453 (4.4)	9.6 (0.05)
Abu Dhabi, UAE	38 (1.7)	444 (6.2)	32 (1.0)	424 (5.6)	30 (1.7)	376 (6.0)	9.1 (0.09)
Eng/Afr/Zulu - RSA (5)	27 (1.6)	439 (6.4)	39 (1.1)	413 (6.5)	34 (1.7)	379 (6.1)	8.7 (0.07)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016



PIRLS
2016

CHAPTER 8: TEACHERS' AND PRINCIPALS' PREPARATION

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016



IEA

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Students Have Well Qualified Teachers and Principals

Teachers' Preparation and Experience

Internationally, teachers of fourth grade students reported high levels of education and considerable experience.



86%

of students were taught by teachers with at least a Bachelor's degree

26%

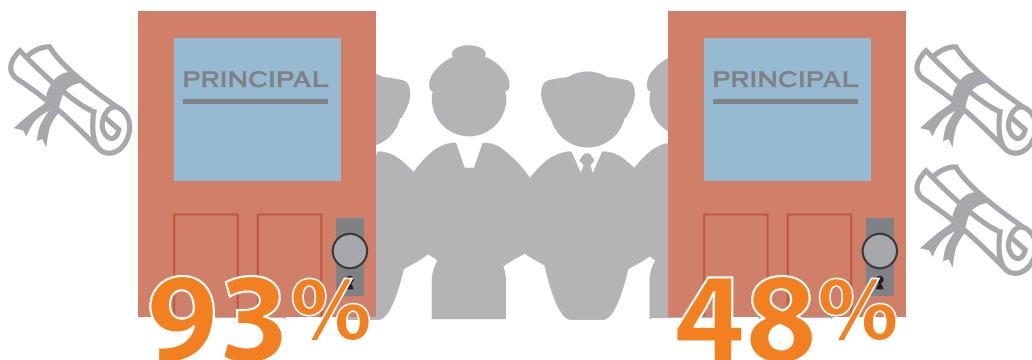
of students were taught by teachers with an advanced degree

42%

of students were taught by teachers with at least 20 years of experience (on average, students' teachers had 17 years of experience).

Principals' Preparation and Experience

Internationally, principals of fourth grade students reported high levels of education and considerable experience.



93%

of students had principals with at least a Bachelor's degree

48%

of students had principals with an advanced degree

On average, principals had 10 years of experience. They were required to have teaching experience in 41 countries, but completion of a specialized leadership program was less common (28 countries).

CHAPTER 8

Teachers' and Principals' Preparation

Exhibit 8.1 and 8.2: Teachers' Formal Education

Exhibit 8.1 presents teachers' reports about their highest level of formal education. On average, 26 percent of the fourth grade students had teachers with a postgraduate university degree, 60 percent had teachers with a bachelor's degree (or equivalent) but not a postgraduate degree, 11 percent had teachers with post-secondary education but not a bachelor's degree, and 3 percent had teachers with an upper-secondary degree.

Exhibit 8.2 presents the percentages of students whose teacher had various areas of specialization in their formal education. Seventy percent of the students had teachers whose education included an emphasis on language, 64 percent had teachers with an emphasis on pedagogy/teaching reading, and 32 percent had teachers with an emphasis on reading theory. The PIRLS results do not show any relationship between emphasis on these specializations and students' average reading achievement. This was consistent across the three areas of emphasis (language, pedagogy, and reading theory).

Exhibit 8.1: Teachers' Formal Education*

Students Categorized by Teachers' Reports

Country	Percent of Students by Teacher Education Level			
	Completed Postgraduate University Degree**	Completed Bachelor's Degree or Equivalent but Not a Postgraduate Degree	Completed Post-Secondary Education but Not a Bachelor's Degree	No Further than Upper-Secondary Education
Australia	12 (2.3)	82 (2.8)	7 (2.0)	0 (0.0)
Austria	5 (1.2)	26 (3.0)	68 (2.9)	0 (0.3)
Azerbaijan	12 (2.6)	46 (3.9)	41 (3.8)	1 (0.6)
Bahrain	17 (3.5)	81 (3.6)	1 (0.5)	1 (0.7)
Belgium (Flemish)	2 (0.8)	96 (1.2)	2 (0.8)	0 (0.4)
Belgium (French)	2 (0.9)	98 (1.0)	0 (0.0)	0 (0.4)
Bulgaria	76 (3.0)	18 (2.7)	6 (1.6)	0 (0.0)
Canada	16 (1.8)	84 (1.8)	0 (0.0)	0 (0.0)
Chile	10 (2.5)	65 (4.3)	25 (3.9)	0 (0.0)
Chinese Taipei	42 (4.1)	58 (4.1)	0 (0.0)	0 (0.0)
Czech Republic	92 (1.5)	2 (0.7)	2 (0.7)	5 (1.1)
Denmark	4 (1.5)	79 (3.0)	15 (2.7)	2 (1.0)
Egypt	1 (0.8)	71 (3.9)	24 (3.8)	3 (1.1)
England	8 (2.2)	92 (2.1)	0 (0.0)	0 (0.3)
Finland	92 (1.8)	6 (1.5)	1 (0.5)	1 (0.4)
France	42 (4.0)	44 (3.8)	11 (2.4)	3 (1.1)
Georgia	82 (2.9)	9 (2.2)	9 (2.1)	0 (0.0)
Germany	90 (2.2)	2 (1.2)	7 (1.9)	0 (0.5)
Hong Kong SAR	37 (3.5)	59 (3.5)	4 (1.7)	0 (0.0)
Hungary	5 (1.7)	95 (1.8)	0 (0.2)	0 (0.0)
Iran, Islamic Rep. of	5 (1.5)	58 (4.1)	26 (3.1)	11 (2.8)
Ireland	26 (3.6)	74 (3.6)	0 (0.0)	0 (0.0)
Israel	34 (3.9)	61 (3.9)	4 (1.3)	0 (0.0)
Italy	2 (1.1)	16 (2.6)	19 (2.9)	63 (3.8)
Kazakhstan	1 (0.7)	84 (2.7)	12 (2.3)	3 (1.1)
Kuwait	9 (2.5)	89 (2.7)	2 (1.0)	0 (0.3)
Latvia	51 (4.1)	44 (4.2)	4 (1.6)	1 (0.2)
Lithuania	27 (3.6)	70 (3.8)	3 (1.2)	0 (0.0)
Macao SAR	9 (0.1)	81 (0.1)	9 (0.0)	1 (0.0)
Malta	7 (0.1)	84 (0.1)	6 (0.1)	3 (0.1)
Morocco	0 (0.4)	42 (3.4)	13 (2.4)	44 (3.5)
Netherlands	4 (1.4)	91 (2.1)	4 (1.4)	1 (0.7)
New Zealand	5 (1.3)	82 (2.4)	13 (2.3)	0 (0.0)
Northern Ireland	19 (3.4)	80 (3.5)	1 (0.7)	0 (0.0)
Norway (5)	22 (3.2)	73 (3.2)	4 (1.4)	0 (0.3)
Oman	11 (1.8)	73 (3.1)	12 (2.4)	3 (1.0)
Poland	100 (0.3)	0 (0.0)	0 (0.3)	0 (0.0)
Portugal	13 (2.5)	83 (2.7)	5 (1.2)	0 (0.0)
Qatar	25 (2.0)	71 (2.1)	3 (0.7)	1 (0.6)
Russian Federation	43 (3.5)	37 (3.3)	19 (2.6)	0 (0.0)
Saudi Arabia	4 (1.7)	77 (3.6)	13 (2.7)	6 (1.8)
Singapore	9 (1.5)	72 (2.7)	18 (2.4)	1 (0.5)
Slovak Republic	98 (1.3)	2 (1.1)	1 (0.7)	0 (0.0)
Slovenia	2 (0.9)	62 (3.2)	36 (3.2)	0 (0.0)
South Africa	1 (0.9)	46 (4.0)	45 (3.9)	7 (1.8)
Spain	24 (2.9)	76 (2.9)	0 (0.1)	0 (0.0)
Sweden	13 (2.8)	81 (3.1)	5 (1.7)	0 (0.2)
Trinidad and Tobago	9 (2.2)	62 (4.0)	24 (3.5)	5 (1.9)
United Arab Emirates	22 (2.4)	71 (2.1)	7 (1.6)	0 (0.0)
United States	55 (4.0)	45 (4.0)	0 (0.0)	0 (0.0)
International Avg.	26 (0.3)	60 (0.4)	11 (0.3)	3 (0.1)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

* Based on countries' categorizations according to UNESCO's International Standard Classification of Education (Operational Manual for ISCED-2011).

** For example, doctorate, master's, or other postgraduate degree.

() 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.

Exhibit 8.1: Teachers' Formal Education* (Continued)

Country	Percent of Students by Teacher Education Level			
	Completed Postgraduate University Degree**	Completed Bachelor's Degree or Equivalent but Not a Postgraduate Degree	Completed Post-Secondary Education but Not a Bachelor's Degree	No Further than Upper-Secondary Education
Benchmarking Participants				
Buenos Aires, Argentina	9 (2.2)	12 (2.7)	78 (3.5)	2 (0.9)
Ontario, Canada	15 (3.1)	85 (3.1)	0 (0.0)	0 (0.0)
Quebec, Canada	13 (3.4)	87 (3.4)	0 (0.0)	0 (0.0)
Denmark (3)	8 (2.5)	81 (3.6)	9 (2.2)	1 (1.3)
Norway (4)	20 (3.3)	75 (3.4)	4 (1.3)	0 (0.2)
Moscow City, Russian Fed.	63 (3.9)	33 (3.8)	4 (1.8)	0 (0.0)
Eng/Afr/Zulu - RSA (5)	0 (0.0)	55 (5.9)	38 (5.7)	7 (2.7)
Andalusia, Spain	18 (2.8)	82 (2.7)	1 (0.6)	0 (0.0)
Madrid, Spain	28 (4.3)	72 (4.3)	0 (0.3)	0 (0.0)
Abu Dhabi, UAE	16 (2.6)	78 (3.2)	6 (2.4)	0 (0.0)
Dubai, UAE	29 (4.0)	63 (3.0)	8 (2.6)	0 (0.0)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 8.2: Emphasis on Language and Reading Areas in Teachers' Formal Education*Students Categorized by Teachers' Reports*

Country	Language			Pedagogy / Teaching Reading			Reading Theory		
	Percent of Students	Average Achievement		Percent of Students	Average Achievement		Percent of Students	Average Achievement	
	Area Emphasized	Area Emphasized	Area Not Emphasized	Area Emphasized	Area Emphasized	Area Not Emphasized	Area Emphasized	Area Emphasized	Area Not Emphasized
Australia	81 (2.8)	547 (3.1)	539 (6.7)	68 (3.2)	544 (3.1)	547 (4.8)	38 (3.1)	548 (4.0)	544 (3.5)
Austria	72 (3.1)	540 (2.9)	544 (4.3)	57 (3.4)	541 (3.4)	541 (3.2)	44 (3.2)	542 (3.5)	541 (3.0)
Azerbaijan	84 (2.4)	470 (5.0)	477 (9.2)	85 (2.8)	476 (4.0)	457 (17.5)	69 (3.3)	476 (5.0)	473 (7.6)
Bahrain	87 (2.4)	445 (2.9)	450 (11.8)	66 (4.2)	449 (3.5)	442 (7.2)	32 (3.8)	451 (6.0)	445 (3.5)
Belgium (Flemish)	77 (3.3)	526 (2.4)	523 (3.7)	63 (3.7)	525 (2.5)	525 (3.2)	43 (3.8)	529 (3.2)	523 (2.7)
Belgium (French)	76 (3.8)	496 (3.0)	505 (6.0)	57 (3.9)	501 (3.0)	494 (4.7)	25 (3.3)	498 (5.0)	498 (3.0)
Bulgaria	97 (1.1)	550 (4.3)	591 (16.0)	95 (1.7)	552 (4.4)	560 (12.6)	39 (3.8)	555 (6.4)	551 (6.3)
Canada	55 (2.3)	541 (2.3)	547 (2.3)	61 (2.2)	543 (2.3)	544 (2.7)	20 (1.8)	543 (3.9)	543 (2.1)
Chile	60 (4.6)	491 (4.2)	504 (4.8)	57 (4.8)	491 (4.4)	504 (5.4)	r 28 (4.3)	490 (6.9)	502 (3.6)
Chinese Taipei	22 (3.3)	556 (3.8)	560 (2.3)	48 (3.8)	560 (2.6)	558 (2.7)	14 (2.8)	555 (5.0)	559 (2.2)
Czech Republic	89 (2.0)	543 (2.2)	550 (6.0)	69 (3.2)	545 (2.3)	540 (3.9)	24 (2.2)	544 (3.9)	543 (2.3)
Denmark	77 (3.3)	548 (2.4)	545 (4.2)	57 (3.9)	547 (2.6)	548 (3.6)	42 (4.0)	548 (3.3)	548 (2.9)
Egypt	83 (3.6)	339 (6.5)	290 (18.4)	70 (4.1)	338 (7.5)	320 (11.2)	44 (4.5)	338 (11.0)	327 (8.2)
England	74 (3.5)	558 (2.3)	559 (4.1)	65 (3.5)	561 (2.8)	554 (4.2)	16 (2.6)	561 (7.7)	558 (2.5)
Finland	23 (2.9)	564 (3.3)	567 (2.1)	21 (2.5)	565 (3.0)	567 (2.2)	10 (2.1)	555 (5.1)	567 (2.1)
France	70 (3.6)	512 (2.6)	511 (4.8)	41 (3.8)	516 (3.9)	508 (2.5)	18 (3.3)	517 (6.7)	510 (2.3)
Georgia	73 (3.6)	491 (3.6)	489 (4.4)	82 (2.9)	488 (2.9)	498 (7.4)	58 (3.5)	486 (3.7)	497 (4.4)
Germany	60 (3.6)	542 (3.3)	530 (6.8)	44 (3.7)	537 (6.5)	538 (3.7)	24 (3.1)	540 (5.0)	537 (4.1)
Hong Kong SAR	79 (3.0)	571 (3.0)	559 (5.9)	58 (4.4)	572 (3.6)	564 (4.3)	14 (3.4)	568 (10.0)	570 (2.9)
Hungary	84 (2.8)	555 (3.1)	551 (10.8)	86 (3.0)	555 (3.3)	551 (11.2)	26 (3.5)	546 (5.6)	557 (3.9)
Iran, Islamic Rep. of	36 (3.1)	421 (7.8)	432 (5.4)	64 (3.4)	424 (5.9)	435 (6.0)	19 (3.2)	411 (9.9)	432 (5.0)
Ireland	69 (4.1)	568 (2.6)	563 (4.9)	76 (3.6)	567 (3.2)	565 (5.0)	36 (4.1)	565 (5.4)	567 (2.9)
Israel	66 (3.8)	519 (4.4)	551 (4.5)	68 (3.9)	529 (3.7)	530 (8.2)	42 (4.1)	520 (5.9)	538 (5.2)
Italy	33 (3.8)	554 (2.8)	546 (3.4)	30 (3.6)	548 (5.0)	549 (2.7)	13 (2.8)	553 (5.3)	548 (2.9)
Kazakhstan	60 (3.5)	543 (3.9)	528 (3.6)	74 (3.2)	539 (3.0)	531 (5.4)	56 (4.6)	540 (3.9)	533 (4.1)
Kuwait	81 (3.1)	396 (4.6)	388 (14.6)	r 64 (5.7)	395 (7.0)	399 (12.5)	r 32 (4.5)	383 (11.3)	401 (6.6)
Latvia	67 (3.6)	557 (2.1)	559 (3.9)	73 (3.6)	560 (2.1)	557 (4.1)	33 (3.6)	557 (3.3)	559 (2.4)
Lithuania	64 (3.7)	551 (3.2)	542 (5.1)	80 (3.1)	550 (3.0)	541 (6.9)	56 (4.2)	548 (3.7)	548 (4.2)
Macao SAR	53 (0.1)	554 (1.4)	535 (1.6)	38 (0.1)	561 (1.7)	536 (1.2)	9 (0.1)	548 (3.6)	545 (1.0)
Malta	71 (0.1)	453 (1.9)	449 (3.0)	80 (0.1)	454 (2.0)	444 (3.4)	28 (0.1)	460 (2.7)	449 (2.1)
Morocco	85 (2.4)	362 (4.4)	339 (13.1)	74 (3.3)	353 (5.9)	371 (9.6)	r 35 (3.4)	363 (7.7)	356 (6.3)
Netherlands	35 (4.4)	540 (3.9)	547 (2.3)	59 (4.0)	543 (2.8)	546 (2.5)	29 (3.4)	545 (5.0)	544 (2.0)
New Zealand	70 (2.9)	525 (2.7)	532 (4.8)	73 (2.6)	531 (2.9)	515 (6.3)	39 (3.1)	528 (4.2)	525 (4.2)
Northern Ireland	69 (3.8)	564 (2.9)	564 (4.8)	r 56 (5.0)	567 (3.6)	561 (3.7)	r 26 (4.3)	571 (5.9)	561 (2.8)
Norway (5)	57 (3.5)	560 (2.7)	558 (3.2)	47 (4.0)	562 (3.4)	556 (2.8)	12 (2.3)	560 (6.2)	559 (2.4)
Oman	86 (2.2)	419 (3.7)	417 (7.8)	75 (3.0)	423 (4.1)	406 (5.3)	32 (2.9)	420 (6.7)	419 (4.1)
Poland	94 (1.8)	565 (2.3)	564 (9.5)	50 (4.0)	561 (3.2)	569 (3.1)	30 (3.8)	557 (4.4)	568 (2.5)
Portugal	67 (3.4)	527 (2.7)	532 (5.0)	63 (3.6)	527 (2.9)	530 (4.9)	29 (3.2)	529 (4.4)	528 (3.1)
Qatar	90 (1.4)	439 (2.4)	465 (13.8)	75 (2.3)	446 (2.7)	435 (7.0)	37 (3.0)	436 (6.5)	447 (4.7)
Russian Federation	75 (3.1)	583 (2.7)	571 (4.9)	85 (2.2)	582 (2.5)	574 (6.4)	46 (3.9)	579 (4.3)	582 (3.2)
Saudi Arabia	72 (3.5)	438 (5.1)	420 (9.1)	r 70 (4.1)	434 (6.2)	433 (9.2)	s 32 (4.7)	434 (9.2)	433 (7.8)
Singapore	83 (2.2)	578 (3.4)	567 (8.5)	80 (2.0)	580 (3.4)	560 (7.5)	28 (2.4)	591 (5.8)	571 (3.8)
Slovak Republic	93 (1.7)	535 (3.1)	532 (13.3)	76 (2.6)	536 (3.1)	532 (8.4)	36 (3.3)	535 (4.5)	535 (4.2)
Slovenia	59 (4.0)	544 (2.3)	540 (3.6)	24 (3.0)	543 (2.8)	542 (2.4)	6 (2.1)	544 (5.1)	542 (2.1)
South Africa	r 71 (3.7)	328 (6.7)	313 (10.2)	s 58 (4.1)	320 (7.8)	330 (9.7)	s 36 (4.1)	313 (6.3)	330 (8.7)
Spain	82 (2.5)	529 (2.0)	526 (4.9)	58 (3.4)	531 (2.0)	523 (3.4)	15 (2.2)	538 (3.3)	526 (2.1)
Sweden	82 (3.0)	555 (2.6)	559 (5.8)	56 (4.1)	556 (3.2)	555 (3.5)	46 (4.6)	556 (3.8)	555 (3.1)
Trinidad and Tobago	77 (3.1)	484 (4.3)	464 (6.5)	72 (3.7)	478 (4.7)	480 (7.7)	49 (4.3)	477 (5.1)	480 (6.6)
United Arab Emirates	85 (1.8)	450 (3.8)	470 (9.3)	69 (2.5)	454 (4.6)	457 (6.9)	43 (2.7)	456 (6.4)	454 (5.5)
United States	45 (3.7)	552 (4.9)	548 (4.1)	76 (3.0)	550 (3.5)	548 (7.2)	39 (3.4)	558 (4.1)	545 (4.3)
International Avg.	70 (0.4)	512 (0.5)	510 (1.1)	64 (0.5)	512 (0.6)	509 (0.9)	32 (0.5)	511 (0.8)	511 (0.6)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

() 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.

Exhibit 8.2: Emphasis on Language and Reading Areas in Teachers' Formal Education (Continued)

Country	Language			Pedagogy / Teaching Reading			Reading Theory			
	Percent of Students	Average Achievement		Percent of Students	Average Achievement		Percent of Students	Average Achievement		
	Area Emphasized	Area Emphasized	Area Not Emphasized	Area Emphasized	Area Emphasized	Area Not Emphasized	Area Emphasized	Area Emphasized	Area Not Emphasized	
Benchmarking Participants										
Buenos Aires, Argentina	r 43 (4.4)	488 (6.0)	477 (4.9)	61 (4.3)	481 (4.8)	482 (6.4)	r 31 (4.0)	482 (5.4)	483 (4.7)	
Ontario, Canada	51 (4.4)	545 (4.3)	545 (4.4)	63 (4.0)	545 (4.1)	542 (4.0)	19 (3.3)	539 (6.4)	544 (3.7)	
Quebec, Canada	74 (4.5)	546 (2.9)	549 (6.2)	68 (4.5)	545 (3.1)	550 (5.8)	18 (4.0)	543 (7.6)	547 (3.2)	
Denmark (3)	78 (3.2)	503 (3.2)	498 (5.4)	66 (3.5)	503 (3.7)	497 (4.6)	52 (4.4)	504 (4.0)	498 (3.8)	
Norway (4)	45 (3.7)	516 (3.1)	518 (2.5)	46 (3.5)	515 (2.8)	519 (2.5)	13 (2.4)	510 (7.3)	518 (2.0)	
Moscow City, Russian Fed.	69 (3.6)	615 (2.6)	606 (3.7)	85 (3.0)	614 (2.5)	605 (4.9)	39 (3.7)	615 (3.6)	610 (2.6)	
Eng/Afr/Zulu - RSA (5)	s 77 (4.8)	423 (8.4)	403 (14.8)	s 61 (6.5)	406 (11.9)	440 (14.9)	s 40 (6.3)	387 (11.3)	440 (11.0)	
Andalusia, Spain	84 (2.8)	526 (1.9)	515 (7.3)	59 (4.3)	527 (2.7)	521 (3.8)	17 (2.9)	534 (3.2)	522 (2.5)	
Madrid, Spain	81 (3.0)	548 (2.3)	552 (3.8)	66 (3.8)	548 (2.4)	551 (3.0)	24 (3.4)	550 (5.3)	549 (2.1)	
Abu Dhabi, UAE	87 (2.6)	412 (5.3)	446 (15.3)	69 (4.2)	415 (6.6)	423 (11.2)	36 (4.6)	412 (9.9)	420 (7.4)	
Dubai, UAE	85 (1.9)	515 (2.5)	527 (6.0)	64 (2.0)	520 (2.6)	515 (4.7)	37 (3.3)	520 (4.6)	515 (3.6)	

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 8.3: Teachers' Years of Experience

Exhibit 8.3 presents teachers' reports about their years of experience. On average, fourth grade students' reading teachers had been teaching for 17 years. Forty-two percent of the students had very experienced teachers with 20 years or more of experience, and another 30 percent had teachers with at least 10 years of experience.

Some research has found experience can have a large impact on effectiveness, especially during the first few years of teaching, and the PIRLS results show this pattern. Fifteen percent of the students had teachers with at least 5 years of experience and 13 percent had teachers with less than 5 years of experience, with somewhat higher reading achievement associated with teachers having more than 5 years of experience (510 vs. 505). Of course, there is a variety of policies about whether more or less experienced teachers are assigned to higher or lower achieving students.

Exhibit 8.3: Teachers' Years of Experience

Students Categorized by Teachers' Reports

Country	20 Years or More		At Least 10 but Less than 20 Years		At Least 5 but Less than 10 Years		Less than 5 Years		Average Years of Experience
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Australia	40 (3.3)	547 (4.4)	23 (2.9)	542 (4.2)	15 (2.7)	549 (7.4)	22 (2.8)	542 (7.6)	17 (0.8)
Austria	59 (3.7)	541 (3.1)	19 (2.9)	551 (5.3)	12 (2.2)	528 (6.8)	10 (2.0)	542 (6.8)	22 (0.9)
Azerbaijan	64 (3.3)	474 (5.7)	24 (2.9)	471 (9.6)	6 (1.8)	475 (17.7)	6 (1.6)	451 (10.0)	23 (0.7)
Bahrain	12 (2.5)	429 (9.9)	45 (4.8)	450 (4.8)	18 (3.9)	452 (9.0)	25 (2.6)	438 (7.8)	11 (0.5)
Belgium (Flemish)	37 (3.5)	529 (3.2)	37 (3.6)	529 (2.8)	10 (1.9)	516 (7.8)	17 (2.7)	514 (5.0)	17 (0.7)
Belgium (French)	47 (3.8)	503 (3.5)	31 (3.5)	494 (5.2)	15 (2.7)	494 (8.0)	6 (1.6)	479 (8.8)	19 (0.8)
Bulgaria	87 (2.9)	550 (4.7)	8 (2.3)	549 (13.1)	3 (1.2)	583 (8.8)	2 (0.8)	~ ~	28 (0.7)
Canada	28 (2.1)	545 (3.4)	37 (2.4)	545 (3.0)	20 (1.9)	540 (3.9)	16 (1.7)	540 (6.4)	14 (0.4)
Chile	28 (4.6)	503 (5.1)	27 (4.4)	498 (6.7)	28 (4.6)	487 (7.8)	17 (3.3)	501 (8.4)	15 (1.1)
Chinese Taipei	42 (4.0)	556 (2.6)	45 (4.1)	561 (3.0)	8 (2.3)	565 (5.8)	4 (1.6)	549 (9.9)	18 (0.6)
Czech Republic	54 (3.5)	545 (3.0)	24 (3.0)	545 (3.9)	11 (2.4)	537 (7.9)	11 (2.1)	538 (4.4)	20 (0.7)
Denmark	31 (3.8)	554 (3.6)	38 (4.3)	543 (3.7)	21 (3.1)	547 (4.3)	10 (2.2)	546 (6.6)	16 (0.8)
Egypt	43 (4.4)	315 (9.3)	32 (3.9)	353 (9.5)	18 (3.6)	332 (16.9)	7 (1.9)	318 (29.5)	17 (0.9)
England	20 (3.0)	563 (4.7)	26 (3.3)	554 (4.6)	18 (2.8)	563 (4.3)	35 (3.3)	557 (4.1)	11 (0.7)
Finland	38 (3.1)	567 (3.2)	25 (2.5)	565 (4.9)	18 (2.5)	563 (3.6)	18 (2.8)	571 (3.4)	16 (0.8)
France	30 (3.6)	521 (3.6)	41 (3.7)	510 (3.3)	18 (2.6)	509 (8.1)	12 (2.2)	495 (7.0)	16 (0.7)
Georgia	67 (3.5)	488 (3.2)	23 (3.1)	492 (6.4)	7 (1.9)	486 (11.4)	3 (1.2)	518 (16.0)	23 (0.8)
Germany	38 (3.8)	536 (6.7)	32 (3.7)	544 (4.0)	17 (2.8)	527 (8.7)	13 (2.5)	544 (8.0)	18 (0.9)
Hong Kong SAR	34 (3.9)	576 (5.0)	40 (4.3)	570 (4.8)	13 (3.0)	563 (8.6)	13 (2.4)	561 (6.6)	15 (0.6)
Hungary	61 (4.0)	558 (4.1)	22 (3.2)	560 (6.4)	13 (2.5)	535 (11.2)	4 (1.5)	532 (20.2)	24 (1.0)
Iran, Islamic Rep. of	49 (3.6)	444 (5.6)	23 (3.4)	415 (11.0)	15 (2.2)	404 (14.6)	13 (2.6)	415 (12.0)	17 (0.7)
Ireland	20 (3.3)	567 (5.0)	29 (3.4)	569 (4.0)	34 (4.1)	567 (4.8)	17 (2.6)	563 (5.5)	13 (0.9)
Israel	34 (3.5)	547 (6.3)	34 (4.0)	520 (8.1)	23 (3.8)	525 (9.6)	9 (2.4)	520 (16.6)	16 (0.8)
Italy	71 (3.0)	552 (2.7)	22 (2.9)	543 (5.4)	3 (0.8)	530 (12.9)	4 (1.7)	524 (13.8)	25 (0.8)
Kazakhstan	50 (4.0)	540 (3.5)	30 (3.7)	536 (5.2)	9 (2.2)	535 (8.5)	10 (2.2)	521 (7.5)	20 (0.8)
Kuwait	14 (3.6)	398 (22.8)	40 (5.5)	400 (8.8)	23 (4.0)	383 (8.0)	23 (4.6)	399 (15.6)	11 (0.7)
Latvia	81 (2.9)	557 (2.1)	12 (2.3)	565 (5.5)	4 (1.6)	556 (8.7)	3 (1.1)	548 (7.6)	27 (0.7)
Lithuania	86 (2.4)	548 (2.7)	11 (2.1)	549 (13.0)	2 (1.0)	~ ~	1 (0.6)	~ ~	27 (0.6)
Macao SAR	30 (0.1)	547 (1.7)	28 (0.1)	545 (2.4)	18 (0.1)	546 (2.3)	23 (0.1)	542 (2.8)	14 (0.0)
Malta	19 (0.1)	462 (3.8)	35 (0.2)	464 (2.6)	17 (0.1)	448 (3.8)	30 (0.1)	434 (2.5)	11 (0.0)
Morocco	56 (2.8)	346 (5.0)	21 (2.8)	364 (8.8)	13 (2.5)	369 (16.9)	10 (2.4)	383 (19.2)	21 (0.6)
Netherlands	39 (3.9)	548 (2.7)	29 (3.2)	545 (3.6)	15 (3.0)	545 (4.7)	17 (2.9)	540 (7.3)	17 (0.9)
New Zealand	21 (2.3)	529 (5.9)	40 (2.6)	532 (3.6)	18 (1.9)	521 (6.0)	22 (2.6)	520 (7.7)	13 (0.6)
Northern Ireland	45 (4.2)	558 (3.3)	29 (4.2)	570 (5.2)	15 (3.6)	577 (6.0)	11 (2.6)	554 (8.6)	18 (0.9)
Norway (5)	28 (3.5)	562 (4.0)	37 (4.1)	559 (2.8)	19 (3.3)	559 (4.5)	16 (2.9)	554 (5.2)	15 (0.8)
Oman	20 (2.9)	434 (8.0)	33 (3.1)	412 (4.4)	30 (3.2)	415 (7.2)	17 (2.2)	417 (5.4)	12 (0.5)
Poland	56 (3.8)	566 (2.9)	29 (3.3)	564 (4.0)	4 (1.3)	563 (8.8)	10 (2.6)	561 (8.2)	21 (0.9)
Portugal	46 (2.6)	529 (2.5)	48 (3.3)	527 (4.2)	4 (2.2)	538 (8.4)	2 (0.9)	~ ~	21 (0.4)
Qatar	14 (1.7)	452 (9.8)	27 (2.0)	440 (4.7)	33 (2.2)	440 (6.5)	27 (2.2)	442 (7.0)	10 (0.4)
Russian Federation	75 (3.3)	583 (2.9)	12 (2.5)	572 (9.1)	7 (1.8)	582 (10.6)	6 (1.7)	570 (10.2)	25 (0.9)
Saudi Arabia	33 (4.0)	424 (7.9)	36 (4.0)	420 (7.7)	23 (3.8)	435 (11.0)	8 (2.2)	458 (23.0)	15 (0.6)
Singapore	19 (2.3)	580 (9.1)	36 (2.9)	578 (5.3)	22 (2.0)	579 (6.4)	22 (2.4)	567 (6.3)	13 (0.5)
Slovak Republic	56 (3.7)	540 (3.9)	27 (3.1)	527 (6.6)	9 (1.8)	536 (9.8)	8 (1.9)	520 (13.3)	22 (0.8)
Slovenia	66 (3.7)	543 (2.6)	25 (3.3)	539 (3.3)	6 (1.8)	543 (6.9)	3 (1.2)	562 (7.2)	24 (0.7)
South Africa	40 (4.0)	315 (7.8)	24 (3.3)	325 (7.6)	13 (2.5)	313 (17.9)	23 (3.1)	322 (11.4)	15 (0.7)
Spain	47 (3.2)	527 (2.3)	26 (2.5)	531 (3.2)	18 (2.5)	526 (7.5)	8 (1.6)	525 (4.4)	19 (0.8)
Sweden	19 (3.2)	554 (4.9)	43 (4.7)	559 (3.1)	17 (3.8)	563 (6.4)	21 (3.5)	544 (4.3)	13 (0.7)
Trinidad and Tobago	44 (3.9)	478 (5.8)	36 (3.6)	472 (7.5)	9 (2.0)	510 (14.7)	11 (2.9)	482 (14.8)	18 (0.8)
United Arab Emirates	12 (1.4)	444 (11.7)	34 (2.6)	433 (5.0)	30 (2.2)	465 (7.6)	24 (2.4)	471 (6.5)	10 (0.3)
United States	30 (3.4)	557 (4.9)	37 (3.8)	549 (5.7)	16 (3.3)	553 (6.9)	17 (2.4)	535 (8.7)	15 (0.8)
International Avg.	42 (0.5)	513 (0.9)	30 (0.5)	511 (0.9)	15 (0.4)	510 (1.3)	13 (0.3)	505 (1.6)	17 (0.1)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

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

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.

Exhibit 8.3: Teachers' Years of Experience (Continued)

Country	20 Years or More		At Least 10 but Less than 20 Years		At Least 5 but Less than 10 Years		Less than 5 Years		Average Years of Experience
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Benchmarking Participants									
Buenos Aires, Argentina	25 (3.6)	495 (6.1)	25 (3.3)	469 (6.6)	34 (4.2)	484 (6.0)	16 (3.0)	473 (8.2)	12 (0.8)
Ontario, Canada	23 (3.4)	547 (6.9)	41 (4.6)	543 (5.4)	22 (3.3)	542 (6.1)	14 (2.9)	549 (5.6)	14 (0.6)
Quebec, Canada	36 (5.5)	550 (5.8)	37 (4.7)	545 (4.4)	15 (3.0)	547 (5.6)	12 (3.0)	547 (8.0)	16 (1.0)
Denmark (3)	30 (3.7)	509 (5.0)	45 (3.9)	499 (3.7)	12 (2.5)	505 (7.9)	12 (2.5)	489 (9.5)	16 (0.7)
Norway (4)	24 (3.0)	515 (4.0)	40 (3.4)	519 (3.3)	22 (3.0)	514 (4.0)	14 (2.5)	523 (5.4)	15 (0.7)
Moscow City, Russian Fed.	65 (3.6)	615 (2.5)	20 (2.9)	612 (5.4)	9 (2.1)	605 (8.2)	7 (1.9)	598 (8.7)	23 (0.8)
Eng/Afr/Zulu - RSA (5)	40 (5.8)	427 (10.3)	29 (5.6)	420 (15.6)	12 (4.0)	408 (29.3)	18 (4.8)	416 (14.1)	16 (1.0)
Andalusia, Spain	48 (4.0)	527 (2.5)	25 (3.5)	527 (4.4)	17 (3.0)	522 (5.0)	10 (2.6)	511 (11.3)	19 (0.9)
Madrid, Spain	38 (4.2)	547 (3.2)	31 (4.1)	551 (3.8)	20 (3.4)	548 (4.2)	11 (2.7)	551 (4.6)	17 (1.0)
Abu Dhabi, UAE	15 (3.0)	386 (15.7)	33 (4.1)	400 (9.3)	28 (3.2)	417 (11.1)	25 (3.5)	453 (10.9)	10 (0.6)
Dubai, UAE	17 (2.9)	505 (10.5)	28 (2.7)	503 (7.2)	31 (3.7)	528 (5.3)	24 (3.9)	525 (5.7)	11 (0.5)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 8.4: Teacher Time Spent on Professional Development Related to Reading in the Past Two Years

In general, teachers did not spend very much time on professional development related to reading. Exhibit 8.4 shows the results for teachers' reports about how much time they had spent on professional development related to reading in the past two years. Sixteen percent of the fourth grade students had teachers who had spent no time and another 22 percent had teachers who had spent less than 6 hours (38% in total). Twenty-seven percent of the students had teachers who had spent 6 to 15 hours and 36 percent had teachers who had spent 16 hours or more on professional development related to reading. Consistent with considerable research showing little impact from small amounts of time spent on professional development, students had essentially the same average reading achievement for the different amounts of their teachers' professional development.

Exhibit 8.4: Teacher Time Spent on Professional Development Related to Reading in the Past Two Years

Students Categorized by Teachers' Reports

Country	16 Hours or More		6–15 Hours		Less Than 6 Hours		None	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	49 (3.8)	542 (3.8)	27 (3.6)	544 (5.2)	21 (2.7)	556 (5.7)	3 (0.9)	536 (12.8)
Austria	28 (3.2)	542 (4.3)	49 (3.4)	539 (3.5)	16 (2.4)	547 (5.3)	7 (1.9)	544 (5.2)
Azerbaijan	67 (3.7)	477 (4.7)	22 (3.1)	468 (12.9)	6 (1.7)	455 (16.4)	5 (1.4)	455 (18.9)
Bahrain	42 (3.1)	460 (5.2)	27 (3.1)	433 (6.1)	20 (2.5)	439 (7.5)	11 (2.2)	422 (13.8)
Belgium (Flemish)	6 (1.5)	516 (9.7)	20 (3.2)	527 (4.8)	39 (3.5)	522 (3.5)	35 (3.6)	530 (3.4)
Belgium (French)	8 (1.8)	496 (7.3)	24 (3.4)	505 (6.0)	30 (3.3)	491 (4.8)	38 (3.7)	499 (4.2)
Bulgaria	33 (3.3)	556 (6.3)	35 (3.7)	552 (7.2)	18 (3.0)	550 (10.6)	13 (2.7)	540 (11.5)
Canada	34 (2.0)	537 (3.3)	30 (2.1)	545 (3.1)	29 (2.2)	546 (3.1)	8 (1.3)	556 (4.5)
Chile	49 (4.4)	496 (5.2)	28 (3.7)	495 (5.0)	15 (3.5)	490 (7.6)	9 (2.8)	518 (9.3)
Chinese Taipei	39 (4.1)	562 (2.9)	31 (3.9)	559 (4.1)	26 (3.6)	554 (2.8)	4 (1.7)	565 (11.6)
Czech Republic	12 (2.4)	543 (5.8)	36 (3.3)	542 (3.3)	30 (3.3)	546 (3.3)	22 (2.7)	542 (5.7)
Denmark	26 (3.2)	549 (5.0)	17 (3.3)	552 (4.7)	14 (2.7)	548 (6.9)	43 (3.6)	545 (2.7)
Egypt	52 (4.3)	328 (7.7)	29 (3.6)	328 (13.2)	14 (3.1)	342 (14.8)	5 (1.8)	328 (13.8)
England	20 (2.9)	551 (5.8)	29 (3.5)	560 (5.3)	34 (3.4)	556 (3.5)	18 (2.9)	566 (4.5)
Finland	5 (1.1)	549 (5.5)	12 (2.2)	563 (5.3)	24 (3.0)	562 (4.3)	59 (3.1)	569 (2.1)
France	6 (1.4)	502 (12.0)	18 (3.1)	515 (4.2)	38 (3.8)	509 (4.4)	38 (4.3)	514 (3.1)
Georgia	68 (3.9)	489 (3.5)	19 (2.9)	487 (6.9)	6 (2.1)	492 (11.9)	7 (2.0)	490 (11.0)
Germany	5 (1.8)	563 (9.4)	26 (3.3)	530 (9.4)	41 (3.8)	539 (4.3)	27 (3.4)	539 (5.4)
Hong Kong SAR	22 (3.7)	573 (7.7)	35 (4.0)	562 (4.5)	31 (4.1)	572 (4.7)	12 (2.8)	576 (9.3)
Hungary	25 (3.4)	551 (6.6)	15 (2.5)	567 (5.8)	25 (3.6)	564 (6.9)	36 (3.4)	544 (6.8)
Iran, Islamic Rep. of	58 (3.5)	426 (6.4)	15 (2.5)	417 (11.8)	13 (2.7)	439 (11.4)	14 (2.9)	435 (8.6)
Ireland	34 (3.3)	564 (5.9)	22 (3.3)	567 (4.8)	35 (3.6)	567 (4.2)	10 (2.2)	572 (6.2)
Israel	54 (3.5)	522 (5.0)	19 (3.4)	528 (10.8)	16 (2.9)	544 (7.5)	11 (2.5)	553 (7.2)
Italy	25 (3.7)	549 (4.1)	26 (3.2)	549 (4.7)	23 (3.3)	551 (4.9)	26 (3.4)	546 (5.4)
Kazakhstan	60 (3.5)	540 (3.6)	25 (3.3)	532 (4.4)	11 (2.4)	526 (8.4)	3 (1.4)	547 (19.0)
Kuwait	24 (3.2)	388 (12.1)	34 (5.8)	395 (11.5)	29 (4.4)	396 (10.6)	13 (4.0)	395 (18.9)
Latvia	48 (3.9)	558 (3.2)	33 (4.0)	552 (3.4)	14 (2.7)	570 (4.3)	5 (1.6)	564 (9.8)
Lithuania	27 (3.7)	544 (6.0)	48 (3.5)	550 (3.5)	21 (2.8)	552 (7.6)	5 (1.7)	538 (10.7)
Macao SAR	62 (0.1)	550 (1.3)	21 (0.1)	545 (2.0)	14 (0.1)	532 (2.9)	2 (0.0)	~ ~
Malta	29 (0.1)	442 (3.1)	38 (0.1)	460 (2.2)	29 (0.1)	449 (3.1)	5 (0.1)	463 (5.5)
Morocco	7 (1.7)	393 (21.6)	6 (1.4)	396 (17.3)	21 (2.9)	359 (11.1)	66 (3.0)	350 (5.2)
Netherlands	28 (3.9)	539 (4.1)	30 (4.0)	546 (3.8)	33 (4.4)	546 (4.0)	10 (2.0)	560 (4.1)
New Zealand	41 (2.7)	517 (4.0)	30 (2.5)	529 (3.8)	22 (2.2)	534 (5.5)	7 (1.4)	547 (8.3)
Northern Ireland	25 (4.4)	566 (5.6)	31 (4.8)	559 (5.1)	34 (4.9)	565 (4.2)	10 (2.7)	568 (8.5)
Norway (5)	32 (3.5)	561 (3.6)	32 (3.5)	559 (4.0)	18 (3.1)	560 (4.7)	18 (2.7)	553 (4.0)
Oman	52 (3.0)	420 (4.8)	26 (2.6)	425 (5.5)	17 (2.6)	411 (6.2)	5 (1.5)	407 (8.8)
Poland	23 (3.7)	561 (5.2)	27 (2.9)	556 (4.6)	33 (3.5)	570 (2.9)	17 (3.4)	573 (6.4)
Portugal	33 (2.9)	531 (4.5)	20 (2.4)	529 (4.8)	20 (2.8)	529 (5.6)	28 (2.8)	523 (3.3)
Qatar	57 (2.6)	432 (3.2)	27 (2.7)	454 (6.3)	12 (1.5)	457 (7.9)	4 (1.0)	476 (20.3)
Russian Federation	59 (3.3)	582 (3.5)	16 (2.5)	577 (6.1)	15 (2.4)	581 (5.7)	10 (1.7)	580 (5.9)
Saudi Arabia	46 (4.0)	432 (6.5)	37 (3.9)	433 (8.2)	13 (2.2)	414 (13.9)	4 (1.5)	436 (15.8)
Singapore	46 (2.8)	584 (5.0)	31 (2.5)	571 (5.6)	16 (1.9)	573 (8.7)	7 (1.2)	562 (10.8)
Slovak Republic	24 (3.2)	523 (8.7)	15 (2.3)	544 (3.7)	24 (3.3)	540 (8.2)	37 (3.1)	535 (5.8)
Slovenia	13 (2.2)	542 (3.7)	39 (3.6)	542 (3.6)	32 (3.6)	541 (3.2)	15 (2.9)	544 (5.5)
South Africa	43 (3.8)	322 (7.6)	25 (3.0)	315 (13.7)	24 (3.3)	323 (9.1)	9 (1.9)	326 (21.2)
Spain	48 (2.9)	527 (2.1)	21 (2.0)	526 (5.8)	15 (2.4)	528 (4.4)	17 (2.3)	535 (3.3)
Sweden	37 (3.9)	555 (3.8)	25 (3.6)	556 (5.3)	24 (3.8)	557 (4.6)	15 (2.9)	554 (5.7)
Trinidad and Tobago	49 (4.1)	471 (5.8)	26 (3.5)	473 (6.7)	16 (3.0)	494 (10.5)	9 (2.6)	519 (17.7)
United Arab Emirates	50 (2.6)	437 (4.9)	31 (2.6)	457 (7.2)	17 (2.3)	484 (8.6)	2 (0.6)	~ ~
United States	55 (4.2)	539 (4.3)	28 (3.9)	566 (5.0)	15 (2.4)	556 (8.2)	2 (0.8)	~ ~
International Avg.	36 (0.5)	510 (0.9)	27 (0.5)	512 (1.0)	22 (0.4)	513 (1.1)	16 (0.4)	514 (1.5)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

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

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

Exhibit 8.4: Teacher Time Spent on Professional Development Related to Reading in the Past Two Years (Continued)

Country	16 Hours or More		6–15 Hours		Less Than 6 Hours		None	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants								
Buenos Aires, Argentina	39 (3.9)	477 (6.3)	26 (3.6)	473 (5.8)	20 (3.4)	490 (7.9)	15 (2.8)	488 (10.6)
Ontario, Canada	32 (4.1)	538 (5.7)	27 (3.7)	548 (6.1)	33 (4.4)	544 (5.5)	9 (2.6)	562 (7.8)
Quebec, Canada	16 (3.4)	548 (5.4)	39 (4.6)	540 (5.7)	36 (4.8)	555 (4.0)	9 (2.0)	544 (7.4)
Denmark (3)	19 (3.4)	501 (6.1)	18 (3.2)	505 (6.7)	16 (3.2)	509 (7.4)	47 (3.7)	497 (4.1)
Norway (4)	27 (3.2)	521 (3.9)	35 (3.8)	515 (3.5)	25 (3.3)	519 (4.1)	14 (2.9)	512 (4.5)
Moscow City, Russian Fed.	64 (4.2)	612 (2.7)	20 (3.5)	618 (4.9)	10 (2.4)	608 (6.1)	6 (2.2)	602 (11.7)
Eng/Afr/Zulu - RSA (5)	33 (5.6)	397 (8.6)	44 (5.0)	430 (10.2)	17 (4.0)	410 (20.6)	6 (2.7)	429 (35.2)
Andalusia, Spain	55 (3.9)	521 (3.2)	22 (3.0)	531 (4.2)	11 (2.4)	521 (5.3)	13 (2.9)	528 (4.8)
Madrid, Spain	42 (4.1)	546 (3.3)	21 (2.9)	551 (3.2)	16 (3.1)	558 (5.4)	21 (3.7)	547 (4.0)
Abu Dhabi, UAE	63 (4.5)	407 (6.5)	23 (4.1)	415 (13.4)	12 (2.5)	470 (17.3)	2 (1.1)	~ ~
Dubai, UAE	42 (2.4)	501 (4.1)	32 (3.6)	523 (5.8)	22 (3.1)	532 (6.1)	3 (0.7)	535 (8.3)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 8.5: Principals' Formal Education

Exhibit 8.5 presents principals' reports about their formal education. On average, about half the students (48%) had principals with a postgraduate university degree, 45 percent had principals with a bachelor's degree, and 7 percent had principals who had not completed a bachelor's degree. In 41 of the 50 PIRLS 2016 countries, principals are required to have teaching experience and in 28 countries they must complete a leadership training program.

Exhibit 8.5: Principals' Formal Education*

Students Categorized by Principals' Reports; Current Requirements Reported by National Research Coordinators

Country	Percent of Students by Principal Education Level			Current Requirements	
	Completed Postgraduate University Degree**	Completed Bachelor's Degree or Equivalent but Not a Postgraduate Degree	Did Not Complete Bachelor's Degree	Teaching Experience	Completion of Specialized School Leadership Training Program
Australia	41 (3.3)	59 (3.3)	1 (0.4)	●	○
Austria	9 (2.1)	6 (2.0)	85 (2.9)	●	●
Azerbaijan	46 (3.8)	54 (3.8)	0 (0.0)	●	●
Bahrain	54 (2.9)	44 (2.9)	2 (0.9)	●	●
Belgium (Flemish)	4 (1.7)	95 (1.9)	1 (0.9)	●	○
Belgium (French)	6 (2.1)	94 (2.1)	0 (0.0)	●	●
Bulgaria	95 (1.3)	5 (1.3)	0 (0.0)	●	○
Canada	64 (2.3)	35 (2.3)	0 (0.3)	●	●
Chile	69 (4.4)	31 (4.4)	0 (0.0)	●	●
Chinese Taipei	95 (1.6)	5 (1.6)	0 (0.0)	●	●
Czech Republic	99 (0.8)	1 (0.8)	0 (0.0)	●	●
Denmark	18 (2.8)	73 (3.5)	9 (2.3)	○	○
Egypt	3 (1.4)	58 (4.0)	39 (4.0)	●	●
England	28 (3.8)	69 (3.9)	3 (1.4)	○	○
Finland	89 (2.3)	10 (2.2)	1 (0.5)	●	●
France	25 (3.5)	49 (4.0)	26 (3.8)	●	○
Georgia	96 (1.4)	3 (1.2)	1 (1.0)	○	○
Germany	90 (1.3)	1 (0.8)	9 (1.6)	●	○
Hong Kong SAR	62 (3.3)	37 (3.2)	1 (0.9)	●	●
Hungary	37 (3.7)	61 (3.7)	3 (1.3)	●	●
Iran, Islamic Rep. of	14 (2.4)	78 (2.7)	8 (1.7)	○	○
Ireland	42 (4.5)	58 (4.5)	1 (0.6)	●	○
Israel	91 (2.4)	9 (2.4)	0 (0.0)	●	●
Italy	37 (4.3)	59 (4.5)	4 (1.0)	●	○
Kazakhstan	11 (2.5)	83 (3.0)	6 (1.8)	●	○
Kuwait	11 (2.2)	77 (3.6)	12 (2.9)	●	○
Latvia	92 (2.0)	8 (2.0)	0 (0.0)	●	○
Lithuania	61 (4.0)	39 (4.0)	0 (0.0)	●	○
Macao SAR	62 (0.1)	36 (0.1)	2 (0.0)	○	●
Malta	58 (0.2)	40 (0.2)	2 (0.0)	●	●
Morocco	3 (1.0)	63 (3.6)	34 (3.8)	●	○
Netherlands	7 (2.5)	92 (2.5)	0 (0.5)	○	●
New Zealand	30 (3.0)	55 (3.6)	14 (2.7)	●	○
Northern Ireland	80 (3.7)	19 (4.1)	1 (0.8)	●	○
Norway (5)	45 (4.5)	52 (4.4)	3 (1.5)	○	○
Oman	21 (2.1)	62 (2.7)	16 (2.5)	●	●
Poland	99 (0.7)	1 (0.7)	0 (0.0)	-	-
Portugal	37 (4.1)	62 (4.1)	1 (0.4)	●	●
Qatar	43 (0.4)	54 (0.4)	3 (0.1)	●	●
Russian Federation	90 (2.2)	10 (2.2)	0 (0.0)	●	●
Saudi Arabia	8 (2.0)	73 (3.7)	18 (3.3)	●	○
Singapore	61 (0.0)	37 (0.0)	1 (0.0)	●	●
Slovak Republic	100 (0.0)	0 (0.0)	0 (0.0)	●	●
Slovenia	13 (3.3)	82 (3.7)	5 (1.6)	●	●
South Africa	8 (2.3)	74 (3.7)	18 (3.2)	●	○
Spain	41 (2.6)	59 (2.6)	0 (0.1)	●	●
Sweden	29 (4.1)	66 (4.1)	4 (1.7)	○	●
Trinidad and Tobago	37 (4.2)	58 (4.3)	5 (1.9)	●	●
United Arab Emirates	59 (2.2)	33 (2.4)	8 (1.2)	●	●
United States	98 (1.2)	2 (1.2)	0 (0.0)	●	●
International Avg.	48 (0.4)	45 (0.4)	7 (0.2)		

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

* Based on countries' categorizations according to UNESCO's International Standard Classification of Education (Operational Manual for ISCED-2011).

** For example, doctorate, master's, or other postgraduate degree.

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

A dash (-) indicates comparable data not available.

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.

● Yes
○ No

Exhibit 8.5: Principals' Formal Education* (Continued)

Country	Percent of Students by Principal Education Level			Current Requirements	
	Completed Postgraduate University Degree**	Completed Bachelor's Degree or Equivalent but Not a Postgraduate Degree	Did Not Complete Bachelor's Degree	Teaching Experience	Completion of Specialized School Leadership Training Program
Benchmarking Participants					
Buenos Aires, Argentina	17 (3.1)	23 (3.5)	60 (3.9)	●	●
Ontario, Canada	50 (4.0)	50 (4.0)	0 (0.0)	●	●
Quebec, Canada	66 (5.4)	33 (5.2)	2 (1.4)	●	●
Denmark (3)	18 (3.0)	74 (3.8)	9 (2.4)	○	○
Norway (4)	45 (4.5)	52 (4.5)	3 (1.6)	○	○
Moscow City, Russian Fed.	95 (1.8)	5 (1.8)	0 (0.0)	●	●
Eng/Afr/Zulu - RSA (5)	9 (3.6)	67 (5.7)	24 (4.9)	●	○
Andalusia, Spain	30 (4.4)	70 (4.4)	0 (0.0)	○	○
Madrid, Spain	54 (3.8)	46 (3.7)	1 (0.7)	●	●
Abu Dhabi, UAE	56 (3.9)	36 (4.1)	9 (2.2)	●	○
Dubai, UAE	73 (0.2)	23 (0.2)	4 (0.0)	●	●

● Yes
○ No

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 8.6: Principals' Years of Experience

Exhibit 8.6 presents principals' reports about their years of experience. Fourth grade students' principals had 10 years of experience as principals on average. Fourteen percent of the students had very experienced principals with 20 years or more of experience, 31 percent had principals with at least 10 years of experience, 27 percent had principals with at least 5 years of experience, and 28 percent had principals with less than 5 years of experience.

Exhibit 8.6: Principals' Years of Experience

Students Categorized by Principals' Reports

Country	Percent of Students by Principals' Years of Experience as a Principal				Average Years of Experience as a Principal
	20 Years or More	At Least 10 but Less than 20 Years	At Least 5 but Less than 10 Years	Less than 5 Years	
Australia	15 (2.9)	32 (3.8)	25 (2.9)	27 (3.1)	10 (0.5)
Austria	6 (1.8)	37 (4.4)	38 (4.2)	20 (3.8)	10 (0.5)
Azerbaijan	32 (3.6)	29 (3.3)	20 (3.5)	19 (3.2)	14 (0.8)
Bahrain	8 (1.1)	12 (2.0)	36 (2.6)	44 (2.9)	7 (0.4)
Belgium (Flemish)	8 (2.5)	39 (4.0)	34 (4.4)	19 (2.7)	10 (0.5)
Belgium (French)	5 (1.8)	34 (3.9)	34 (4.5)	27 (4.0)	9 (0.5)
Bulgaria	27 (3.6)	35 (4.1)	21 (3.7)	17 (3.4)	13 (0.8)
Canada	5 (0.9)	33 (2.5)	32 (2.7)	30 (2.3)	8 (0.3)
Chile	15 (3.4)	23 (3.4)	31 (5.3)	31 (4.7)	10 (0.9)
Chinese Taipei	4 (1.6)	36 (3.8)	36 (4.0)	24 (3.8)	9 (0.5)
Czech Republic	19 (3.1)	38 (3.5)	22 (3.4)	22 (3.4)	12 (0.6)
Denmark	10 (2.5)	37 (3.5)	24 (3.1)	30 (3.6)	10 (0.5)
Egypt	2 (0.4)	11 (2.9)	28 (3.7)	59 (4.3)	5 (0.3)
England	8 (2.3)	30 (3.6)	25 (3.5)	36 (3.8)	9 (0.6)
Finland	20 (3.6)	33 (4.0)	24 (3.8)	23 (3.2)	12 (0.7)
France	15 (3.3)	35 (4.3)	30 (4.5)	21 (3.6)	11 (0.7)
Georgia	11 (2.1)	28 (3.6)	29 (3.5)	32 (3.4)	9 (0.6)
Germany	12 (2.4)	29 (3.8)	24 (3.0)	35 (3.5)	9 (0.6)
Hong Kong SAR	10 (2.7)	42 (4.3)	27 (4.4)	22 (3.3)	10 (0.6)
Hungary	12 (3.1)	30 (4.1)	35 (3.5)	23 (3.8)	10 (0.6)
Iran, Islamic Rep. of	18 (2.9)	38 (3.6)	23 (2.5)	21 (3.6)	12 (0.6)
Ireland	13 (2.9)	30 (3.9)	31 (3.8)	25 (3.3)	10 (0.7)
Israel	10 (2.1)	26 (3.9)	31 (3.9)	33 (3.4)	9 (0.6)
Italy	13 (3.2)	21 (3.7)	25 (3.7)	41 (4.0)	9 (0.8)
Kazakhstan	11 (2.7)	21 (2.7)	27 (3.2)	41 (3.5)	9 (0.6)
Kuwait	8 (2.1)	19 (4.7)	37 (5.4)	36 (3.5)	8 (0.6)
Latvia	38 (4.0)	31 (3.6)	14 (3.0)	17 (3.2)	16 (0.8)
Lithuania	41 (3.7)	34 (3.6)	10 (2.3)	15 (2.7)	16 (0.7)
Macao SAR	28 (0.1)	24 (0.1)	26 (0.1)	21 (0.1)	14 (0.0)
Malta	9 (0.1)	21 (0.1)	36 (0.1)	34 (0.1)	9 (0.0)
Morocco	3 (1.0)	57 (3.2)	25 (2.6)	16 (2.3)	11 (0.3)
Netherlands	r 21 (3.4)	39 (4.9)	24 (4.7)	17 (3.4)	13 (0.8)
New Zealand	26 (3.0)	32 (3.7)	21 (3.3)	21 (3.0)	13 (0.7)
Northern Ireland	r 27 (4.5)	40 (4.5)	19 (4.2)	15 (3.3)	14 (0.8)
Norway (5)	12 (2.7)	23 (3.7)	26 (3.9)	40 (4.6)	9 (0.7)
Oman	12 (2.1)	46 (2.8)	21 (2.7)	20 (2.5)	12 (0.5)
Poland	21 (3.7)	36 (3.5)	22 (3.5)	20 (3.9)	13 (0.7)
Portugal	14 (3.0)	32 (4.5)	27 (4.1)	26 (3.8)	10 (0.6)
Qatar	5 (0.1)	31 (0.4)	39 (0.3)	24 (0.3)	9 (0.0)
Russian Federation	15 (2.4)	32 (3.3)	26 (2.9)	26 (3.5)	11 (0.6)
Saudi Arabia	12 (2.3)	35 (3.2)	20 (2.8)	33 (3.8)	10 (0.6)
Singapore	1 (0.0)	41 (0.0)	30 (0.0)	28 (0.0)	9 (0.0)
Slovak Republic	8 (2.2)	41 (3.6)	27 (3.4)	24 (3.8)	10 (0.5)
Slovenia	9 (2.7)	44 (4.3)	29 (4.3)	17 (3.0)	11 (0.5)
South Africa	r 21 (3.4)	32 (4.1)	21 (3.0)	26 (3.6)	12 (0.7)
Spain	9 (1.6)	26 (2.5)	29 (2.9)	36 (2.9)	9 (0.5)
Sweden	10 (3.2)	28 (4.0)	32 (4.4)	30 (3.6)	9 (0.9)
Trinidad and Tobago	r 2 (1.5)	12 (2.4)	40 (4.5)	46 (4.2)	6 (0.4)
United Arab Emirates	15 (1.8)	35 (2.4)	24 (2.3)	25 (2.0)	11 (0.5)
United States	11 (2.5)	22 (3.8)	22 (3.6)	44 (4.5)	8 (0.6)
International Avg.	14 (0.4)	31 (0.5)	27 (0.5)	28 (0.5)	10 (0.1)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

() 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 8.6: Principals' Years of Experience (Continued)

Country	Percent of Students by Principals' Years of Experience as a Principal				Average Years of Experience as a Principal
	20 Years or More	At Least 10 but Less than 20 Years	At Least 5 but Less than 10 Years	Less than 5 Years	
Benchmarking Participants					
Buenos Aires, Argentina	9 (2.7)	13 (2.6)	42 (4.0)	36 (4.0)	8 (0.7)
Ontario, Canada	2 (1.7)	33 (4.5)	32 (4.4)	32 (4.3)	8 (0.5)
Quebec, Canada	5 (2.3)	47 (4.6)	27 (4.3)	21 (4.3)	10 (0.7)
Denmark (3)	10 (2.5)	37 (3.6)	24 (3.4)	29 (3.7)	10 (0.6)
Norway (4)	12 (2.5)	24 (4.0)	26 (3.9)	39 (4.5)	9 (0.7)
Moscow City, Russian Fed.	22 (3.3)	30 (3.9)	21 (3.4)	26 (3.9)	12 (0.8)
Eng/Afr/Zulu - RSA (5)	18 (4.3)	33 (4.9)	18 (5.1)	31 (5.3)	11 (0.9)
Andalusia, Spain	5 (2.0)	30 (4.3)	33 (4.0)	33 (4.0)	8 (0.6)
Madrid, Spain	10 (2.4)	29 (4.0)	29 (3.5)	32 (4.1)	9 (0.7)
Abu Dhabi, UAE	16 (2.7)	37 (4.1)	25 (3.2)	22 (3.6)	11 (0.5)
Dubai, UAE	11 (0.1)	37 (0.2)	21 (0.3)	32 (0.2)	10 (0.0)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

PIRLS
2016

CHAPTER 9: CLASSROOM INSTRUCTION

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016

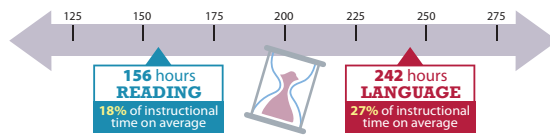


IEA

TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

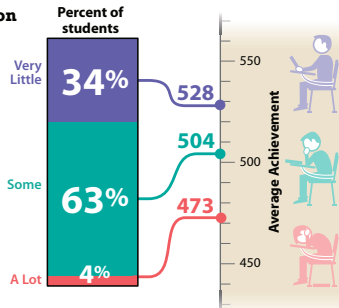
Instructional Time

On average, the fourth grade students in PIRLS 2016 received 898 hours per year of instruction across all subjects, with 27% of that time devoted to language instruction, including reading, writing, speaking, literature, and other language skills. Reading instruction, including reading across the curriculum, on average was allotted 18% of total instructional time.



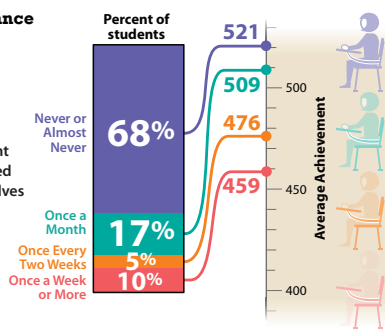
Classroom Instruction Limited by Student Attributes

Extent to which teachers reported instruction being limited by students' attributes (e.g., lacking prerequisite skills, absent, suffering from lack of nutrition or sleep, disruptive)



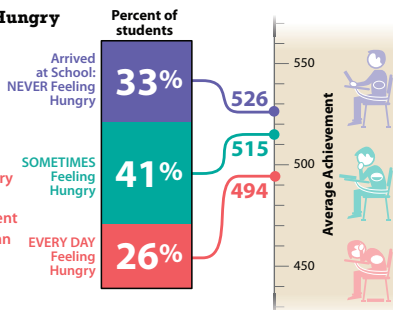
Student Attendance

Frequency of student absences, as reported by students themselves



Students Feel Hungry

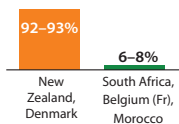
1 in 4 students arrived at school feeling hungry every day, and had an average achievement 32 points lower than students who never felt hungry



Computer Activities During Reading Lessons

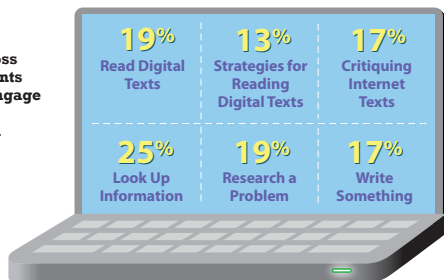
Teachers reported considerable variation in computer availability for use in lessons.

Average achievement for students with computer availability compared to those without availability:



516 vs 508

On average across countries, students were asked to engage in various computer-based activities on at least a weekly basis



CHAPTER 9

Classroom Instruction

Exhibit 9.1: Instruction Time Spent on Language and Reading

A wide variety of factors influence the relationship between amount of instructional time and student achievement, primarily the quality of the instruction and the students' readiness to learn. Nevertheless, instructional time remains a crucial component in considering students' opportunity to learn.

Exhibit 9.1 presents principals' and teachers' reports about the instructional hours per year spent on language and reading instruction. The principals provided the number of school days per year and the number of instructional hours per day, and the teachers provided the weekly number of hours of language and reading instruction. The results for the time spent were based on a series of calculations as explained on the second page of the exhibit. On average, the fourth grade students in PIRLS 2016 received 898 hours per year of instruction across all subjects. On average, 27 percent of that instructional time was devoted to language instruction, including reading, writing, speaking, literature, and other language skills, which averaged to 242 hours of instruction per year, while 18 percent of the total instructional time was devoted to reading, including reading instruction across the curriculum, which averaged to 156 hours per year. As might be anticipated, these estimates vary somewhat from the levels of instructional time set as a matter of policy.

Exhibit 9.1: Instruction Time Spent on Language and Reading*Students Categorized by Principals' and Teachers' Reports*

Country	Total Instruction Hours per Year All Subjects	Language Instruction, Including Reading, Writing, Speaking, Literature, and Other Language Skills		Reading Instruction, Including Reading Across the Curriculum	
		Hours per Year	Percent of Total Instruction Time	Hours per Year	Percent of Total Instruction Time
South Africa	s 1180 (16.7)	s 240 (14.3)	20 (1.3)	x 122 (8.0)	10 (0.6)
Chile	r 1141 (17.9)	r 278 (20.1)	24 (1.7)	r 252 (22.3)	22 (1.9)
Netherlands	s 1092 (16.8)	s 363 (14.6)	34 (1.3)	s 205 (19.5)	19 (1.8)
Israel	1079 (13.5)	235 (9.4)	22 (0.8)	98 (8.7)	9 (0.8)
Italy	1064 (15.4)	r 290 (7.5)	28 (0.7)	r 148 (9.2)	14 (0.9)
United States	1061 (12.7)	r 301 (15.3)	30 (1.6)	r 327 (15.6)	32 (1.5)
Qatar	r 1045 (1.1)	r 327 (18.8)	31 (1.8)	r 182 (14.9)	18 (1.2)
Singapore	1040 (0.0)	278 (9.1)	27 (0.9)	124 (7.0)	12 (0.7)
Morocco	r 1036 (13.4)	r 224 (13.1)	21 (1.2)	r 109 (7.8)	11 (0.9)
Saudi Arabia	r 1034 (16.7)	r 179 (14.4)	18 (1.7)	r 175 (13.6)	16 (1.2)
United Arab Emirates	r 1018 (6.7)	r 234 (9.3)	23 (1.0)	r 139 (6.3)	13 (0.7)
Trinidad and Tobago	r 1008 (17.1)	r 361 (22.8)	36 (2.1)	r 299 (26.4)	30 (2.6)
Denmark	r 1006 (13.5)	231 (5.5)	23 (0.6)	132 (7.8)	13 (0.8)
Australia	r 1001 (6.7)	r 336 (7.9)	34 (0.8)	r 199 (9.9)	19 (1.0)
England	r 993 (10.5)	273 (9.5)	28 (0.9)	125 (11.3)	12 (1.1)
Oman	r 989 (12.1)	r 197 (7.4)	20 (0.9)	r 150 (7.5)	16 (0.9)
Hong Kong SAR	987 (10.3)	226 (14.8)	24 (1.9)	128 (7.1)	13 (0.8)
Northern Ireland	s 958 (10.5)	s 257 (10.7)	27 (1.3)	s 137 (7.8)	14 (0.8)
Belgium (Flemish)	s 956 (13.4)	r 248 (10.5)	26 (0.8)	s 84 (5.1)	9 (0.6)
Canada	952 (5.1)	r 292 (4.9)	31 (0.6)	r 206 (7.0)	22 (0.8)
Malta	942 (0.4)	178 (0.4)	19 (0.0)	83 (0.4)	9 (0.0)
Belgium (French)	r 940 (8.9)	r 320 (7.8)	34 (0.9)	r 247 (16.6)	27 (1.9)
Bahrain	934 (2.1)	202 (6.7)	22 (0.7)	114 (6.0)	12 (0.6)
Macao SAR	928 (0.2)	186 (0.2)	20 (0.0)	100 (0.2)	10 (0.0)
New Zealand	926 (4.0)	r 340 (8.6)	37 (1.0)	r 215 (8.9)	24 (1.0)
Egypt	924 (12.5)	297 (11.9)	34 (1.7)	r 161 (11.6)	18 (1.3)
Ireland	915 (0.3)	206 (5.2)	23 (0.6)	150 (7.2)	16 (0.8)
Portugal	895 (11.8)	288 (6.1)	32 (0.6)	301 (10.4)	34 (1.2)
France	r 883 (9.3)	r 330 (8.2)	37 (0.9)	r 165 (11.6)	19 (1.2)
Kuwait	s 860 (19.9)	s 178 (16.5)	21 (2.0)	s 139 (13.8)	17 (1.5)
Spain	853 (7.8)	212 (7.0)	25 (0.8)	136 (6.7)	16 (0.8)
Chinese Taipei	845 (9.2)	212 (4.0)	26 (0.6)	123 (8.0)	15 (1.0)
Germany	r 841 (10.7)	r 239 (9.9)	29 (1.2)	r 87 (7.3)	11 (1.0)
Kazakhstan	835 (21.8)	221 (10.7)	27 (1.1)	212 (11.0)	26 (1.3)
Norway (5)	827 (11.1)	186 (6.0)	23 (0.8)	134 (7.5)	17 (1.0)
Hungary	826 (13.7)	284 (9.1)	35 (1.3)	201 (9.3)	25 (1.4)
Sweden	r 809 (6.4)	r 185 (6.9)	22 (0.8)	101 (8.0)	12 (1.0)
Slovak Republic	778 (9.5)	233 (5.6)	30 (0.6)	180 (9.5)	23 (1.2)
Czech Republic	769 (7.4)	242 (10.1)	31 (1.1)	143 (8.9)	19 (1.1)
Austria	768 (7.0)	260 (6.8)	34 (1.0)	95 (5.5)	13 (0.8)
Azerbaijan	755 (21.4)	226 (8.9)	31 (1.5)	r 141 (6.8)	19 (1.1)
Poland	r 754 (5.4)	r 140 (1.0)	19 (0.1)	r 33 (1.7)	4 (0.2)
Slovenia	734 (7.8)	193 (8.5)	26 (1.0)	84 (5.7)	12 (0.8)
Finland	731 (7.5)	186 (4.9)	26 (0.7)	122 (6.3)	17 (0.9)
Georgia	r 725 (13.2)	185 (9.3)	26 (1.0)	132 (9.5)	19 (1.3)
Bulgaria	692 (20.4)	213 (10.2)	33 (1.7)	247 (14.5)	39 (2.5)
Latvia	669 (11.9)	193 (8.2)	30 (1.3)	184 (10.3)	28 (1.6)
Russian Federation	652 (5.4)	263 (6.4)	41 (1.0)	171 (7.0)	27 (1.1)
Lithuania	627 (3.7)	183 (1.9)	29 (0.4)	144 (8.7)	23 (1.4)
Iran, Islamic Rep. of	627 (5.3)	143 (2.4)	23 (0.4)	124 (13.8)	20 (2.2)
International Avg.	898 (1.6)	242 (1.4)	27 (0.2)	156 (1.5)	18 (0.2)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

() 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 less than 50% of students—interpret with caution.

Exhibit 9.1: Instruction Time Spent on Language and Reading (Continued)

Country	Total Instruction Hours per Year All Subjects	Language Instruction, Including Reading, Writing, Speaking, Literature, and Other Language Skills		Reading Instruction, Including Reading Across the Curriculum		
		Hours per Year	Percent of Total Instruction Time	Hours per Year	Percent of Total Instruction Time	
Benchmarking Participants						
Eng/Afr/Zulu - RSA (5)	s 1195 (17.5)	s 223 (8.7)	18 (0.8)	s 97 (7.0)	8 (0.7)	
Dubai, UAE	r 1013 (0.9)	r 220 (8.7)	22 (1.0)	r 135 (7.4)	12 (0.8)	
Abu Dhabi, UAE	r 1012 (8.5)	r 280 (20.3)	27 (2.2)	r 156 (11.5)	15 (1.2)	
Buenos Aires, Argentina	994 (26.4)	r 228 (10.6)	24 (1.2)	r 188 (19.9)	19 (1.9)	
Ontario, Canada	973 (9.9)	r 290 (8.2)	31 (1.0)	r 234 (12.5)	24 (1.7)	
Denmark (3)	r 915 (12.9)	278 (4.0)	31 (0.5)	158 (11.2)	17 (1.2)	
Quebec, Canada	906 (6.1)	305 (8.5)	34 (1.1)	145 (7.7)	16 (0.9)	
Madrid, Spain	878 (7.5)	203 (6.8)	23 (0.8)	141 (12.1)	17 (1.5)	
Andalusia, Spain	844 (9.0)	229 (6.3)	28 (0.8)	170 (11.6)	21 (1.5)	
Norway (4)	825 (11.2)	233 (8.7)	29 (1.2)	176 (10.9)	22 (1.5)	
Moscow City, Russian Fed.	621 (3.8)	260 (5.3)	42 (0.9)	178 (7.0)	29 (1.1)	

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Total Instruction Hours per Year	=	Principal Reports of School Days per Year	X	Principal Reports of Instruction Hours per Day
Language Instruction Hours per Year	=	$\frac{\text{Teacher Reports of Weekly Language Instruction Hours, Including Reading, Writing, Speaking, Literature, and Other Language Skills}}{\text{Principal Reports of School Days per Week}}$	X	Principal Reports of School Days per Year
Reading Instruction Hours per Year	=	$\frac{\text{Teacher Reports of Weekly Reading Instruction Hours, Including Reading Across the Curriculum}}{\text{Principal Reports of School Days per Week}}$	X	Principal Reports of School Days per Year

Exhibit 9.2: Teachers Develop Students' Reading Comprehension Skills and Strategies

Exhibit 9.2 presents teachers' reports about the reading skills and strategies that they include in their reading instruction on at least a weekly basis. Most of the students (94-96%) have lessons at least weekly on how to locate information within texts, identify main ideas, and explain or support their understanding of what they read. Somewhat smaller percentages (75-83%) have at least weekly lessons that cover: 1) comparing what they have read to their own experiences, 2) making comparisons across texts, 3) making predictions about the texts, or 4) making generalizations or inferences. About two-thirds (66-69%) have at least weekly lessons on describing text style or structure, or on determining the author's perspective.

Exhibit 9.2: Teachers Develop Students' Reading Comprehension Skills and Strategies*Students Categorized by Teachers' Reports*

Country	Percent of Students Whose Teachers Ask Them to Do the Following At Least Weekly								
	Locate Information Within the Text	Identify the Main Ideas of What They Have Read	Explain or Support Their Understanding of What They Have Read	Compare What They Have Read with Experiences They Have Had	Compare What They Have Read with Other Things They Have Read	Make Predictions About What Will Happen Next in the Text	Make Generalizations and Draw Inferences	Describe the Style or Structure of the Text	Determine the Author's Perspective or Intention
Australia	98 (0.7)	96 (1.3)	98 (0.8)	89 (1.7)	87 (2.0)	94 (1.5)	93 (1.4)	83 (2.4)	82 (2.1)
Austria	93 (1.3)	91 (1.9)	87 (2.7)	66 (3.3)	48 (3.5)	38 (3.1)	50 (3.3)	25 (3.0)	20 (2.6)
Azerbaijan	94 (1.7)	98 (0.9)	98 (1.0)	95 (1.5)	95 (1.6)	92 (1.8)	90 (1.8)	90 (2.2)	95 (1.5)
Bahrain	96 (1.3)	96 (1.1)	97 (1.2)	88 (1.7)	85 (2.5)	83 (2.1)	78 (2.4)	80 (2.3)	77 (2.5)
Belgium (Flemish)	87 (2.6)	76 (3.3)	90 (2.1)	65 (3.5)	45 (3.9)	61 (3.5)	59 (3.7)	48 (3.6)	48 (3.6)
Belgium (French)	92 (1.8)	86 (3.1)	87 (2.7)	42 (4.0)	35 (3.7)	53 (3.7)	56 (4.0)	45 (3.8)	41 (4.1)
Bulgaria	100 (0.0)	100 (0.0)	100 (0.0)	95 (1.8)	90 (2.5)	84 (2.7)	99 (0.8)	95 (1.9)	92 (2.3)
Canada	96 (0.8)	91 (1.3)	92 (1.2)	82 (1.9)	72 (1.9)	88 (1.5)	86 (1.6)	61 (2.5)	59 (2.5)
Chile	99 (1.2)	99 (1.0)	100 (0.0)	99 (1.2)	98 (1.0)	97 (1.5)	94 (2.2)	96 (1.9)	89 (3.0)
Chinese Taipei	91 (2.3)	87 (2.5)	82 (3.0)	76 (3.5)	63 (4.1)	52 (4.0)	67 (3.9)	74 (2.9)	76 (3.2)
Czech Republic	99 (0.5)	97 (1.0)	99 (0.8)	83 (2.7)	55 (3.0)	59 (3.1)	72 (2.8)	41 (2.8)	39 (3.1)
Denmark	90 (2.1)	92 (1.6)	88 (2.5)	68 (3.6)	66 (3.5)	61 (3.8)	64 (4.2)	49 (4.1)	46 (4.2)
Egypt	96 (1.7)	98 (1.2)	97 (1.3)	86 (3.1)	72 (3.8)	87 (3.0)	79 (3.5)	82 (3.5)	78 (3.6)
England	98 (1.3)	99 (1.0)	99 (0.2)	76 (3.3)	72 (3.6)	94 (2.3)	94 (2.2)	83 (3.4)	74 (4.0)
Finland	85 (2.6)	86 (2.2)	79 (3.2)	72 (3.0)	45 (3.2)	44 (3.7)	51 (3.3)	20 (2.7)	15 (1.9)
France	99 (0.7)	89 (2.2)	91 (1.8)	41 (4.0)	50 (4.4)	59 (3.4)	64 (3.0)	41 (3.7)	36 (4.2)
Georgia	99 (0.6)	100 (0.4)	100 (0.4)	98 (1.0)	97 (1.2)	96 (1.5)	99 (0.4)	94 (1.6)	98 (1.1)
Germany	96 (1.7)	89 (2.0)	95 (1.3)	69 (3.1)	45 (3.8)	52 (3.7)	63 (3.6)	24 (2.9)	32 (3.0)
Hong Kong SAR	97 (1.4)	94 (2.4)	91 (2.3)	78 (3.6)	66 (4.1)	75 (3.7)	80 (2.8)	71 (3.9)	79 (3.6)
Hungary	99 (1.0)	97 (1.5)	100 (0.0)	95 (1.4)	91 (2.5)	86 (2.5)	94 (1.9)	75 (3.4)	70 (3.5)
Iran, Islamic Rep. of	91 (2.0)	93 (1.7)	88 (2.4)	79 (2.8)	74 (3.2)	71 (3.3)	82 (2.7)	77 (3.1)	70 (3.4)
Ireland	98 (0.9)	99 (0.8)	97 (1.3)	90 (2.1)	82 (2.5)	96 (1.7)	88 (2.3)	66 (4.0)	62 (3.9)
Israel	99 (0.8)	99 (0.9)	99 (0.9)	91 (2.4)	89 (2.2)	89 (2.8)	95 (1.8)	92 (2.0)	88 (2.1)
Italy	100 (0.0)	99 (1.0)	98 (1.1)	91 (2.2)	82 (2.9)	84 (2.5)	78 (2.9)	83 (2.8)	78 (2.9)
Kazakhstan	100 (0.2)	100 (0.0)	100 (0.0)	97 (1.3)	99 (0.8)	93 (1.9)	100 (0.1)	98 (1.1)	100 (0.0)
Kuwait	95 (1.9)	90 (4.1)	98 (1.2)	95 (2.0)	85 (2.9)	74 (5.0)	79 (3.6)	75 (3.1)	68 (4.9)
Latvia	100 (0.0)	100 (0.4)	97 (1.3)	92 (2.1)	72 (3.6)	79 (2.9)	94 (1.8)	55 (3.7)	67 (3.6)
Lithuania	98 (1.2)	99 (0.5)	100 (0.0)	94 (1.9)	96 (1.5)	86 (2.2)	97 (1.2)	90 (2.1)	78 (3.0)
Macao SAR	89 (0.1)	90 (0.1)	85 (0.1)	68 (0.1)	52 (0.1)	68 (0.1)	74 (0.1)	62 (0.1)	63 (0.1)
Malta	96 (0.1)	97 (0.1)	96 (0.1)	89 (0.1)	78 (0.1)	87 (0.1)	75 (0.1)	69 (0.1)	57 (0.1)
Morocco	99 (0.3)	97 (0.9)	96 (1.1)	77 (3.0)	72 (2.8)	62 (2.8)	79 (2.7)	66 (3.3)	56 (3.7)
Netherlands	96 (1.6)	78 (3.3)	87 (2.8)	64 (3.6)	45 (4.1)	78 (3.4)	73 (3.5)	37 (4.4)	32 (4.2)
New Zealand	98 (0.6)	96 (1.1)	95 (1.2)	87 (2.0)	76 (2.6)	94 (1.1)	90 (2.1)	70 (2.5)	66 (2.7)
Northern Ireland	99 (0.7)	96 (2.1)	98 (1.1)	78 (3.7)	78 (3.3)	93 (2.2)	86 (3.2)	73 (4.3)	67 (4.2)
Norway (5)	98 (1.0)	89 (2.6)	87 (2.4)	72 (3.2)	61 (3.3)	42 (3.7)	54 (3.8)	29 (3.3)	21 (3.2)
Oman	97 (1.0)	99 (0.8)	100 (0.2)	95 (1.2)	92 (1.4)	94 (1.3)	96 (1.1)	92 (1.8)	90 (2.1)
Poland	100 (0.0)	100 (0.3)	99 (0.5)	97 (1.1)	87 (2.4)	65 (3.5)	98 (0.9)	86 (2.2)	87 (2.3)
Portugal	100 (0.0)	99 (0.9)	99 (0.9)	92 (2.0)	85 (2.5)	92 (2.1)	92 (1.9)	98 (1.1)	89 (2.1)
Qatar	99 (0.7)	99 (0.6)	99 (0.6)	89 (1.7)	84 (1.8)	87 (1.5)	89 (2.4)	87 (1.8)	80 (2.8)
Russian Federation	100 (0.0)	100 (0.0)	100 (0.0)	97 (1.2)	93 (1.7)	90 (2.2)	100 (0.0)	90 (2.2)	99 (0.9)
Saudi Arabia	91 (2.0)	92 (2.0)	94 (1.9)	81 (3.0)	72 (3.2)	74 (3.1)	82 (2.6)	78 (2.9)	63 (3.0)
Singapore	93 (1.4)	89 (1.4)	91 (1.4)	81 (2.1)	79 (2.0)	90 (1.5)	87 (1.6)	66 (2.6)	62 (2.7)
Slovak Republic	99 (0.4)	98 (0.8)	99 (0.7)	94 (1.4)	85 (2.2)	75 (3.0)	85 (2.5)	62 (3.5)	72 (3.2)
Slovenia	94 (1.8)	90 (2.1)	93 (1.9)	82 (3.6)	57 (3.8)	57 (3.5)	71 (4.1)	47 (3.9)	33 (3.8)
South Africa	r 93 (1.8)	r 96 (1.4)	r 95 (1.6)	r 91 (2.0)	r 89 (2.1)	r 91 (2.1)	r 87 (2.3)	r 87 (2.3)	r 79 (3.1)
Spain	97 (1.0)	96 (1.5)	99 (0.3)	83 (2.4)	72 (2.9)	68 (2.8)	71 (2.4)	61 (2.8)	51 (2.8)
Sweden	89 (2.2)	79 (3.3)	79 (3.6)	67 (3.8)	53 (4.1)	68 (4.3)	71 (3.8)	36 (3.9)	28 (3.8)
Trinidad and Tobago	99 (0.7)	95 (2.0)	98 (1.3)	92 (2.0)	86 (2.9)	95 (1.8)	92 (1.9)	64 (4.0)	69 (3.9)
United Arab Emirates	97 (1.2)	98 (0.5)	99 (0.5)	92 (1.2)	89 (1.4)	90 (1.7)	87 (1.6)	83 (1.8)	81 (2.0)
United States	100 (0.0)	98 (1.3)	99 (0.9)	91 (2.1)	89 (2.5)	91 (2.5)	96 (1.8)	82 (3.0)	85 (2.9)
International Avg.	96 (0.2)	94 (0.2)	95 (0.2)	83 (0.4)	75 (0.4)	77 (0.4)	82 (0.4)	69 (0.4)	66 (0.4)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

() 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.

Exhibit 9.2: Teachers Develop Students' Reading Comprehension Skills and Strategies (Continued)

Country	Percent of Students Whose Teachers Ask Them to Do the Following At Least Weekly								
	Locate Information Within the Text	Identify the Main Ideas of What They Have Read	Explain or Support Their Understanding of What They Have Read	Compare What They Have Read with Experiences They Have Had	Compare What They Have Read with Other Things They Have Read	Make Predictions About What Will Happen Next in the Text	Make Generalizations and Draw Inferences	Describe the Style or Structure of the Text	Determine the Author's Perspective or Intention
Benchmarking Participants									
Buenos Aires, Argentina	99 (0.9)	96 (1.7)	98 (1.0)	92 (2.5)	92 (2.5)	82 (3.4)	87 (2.7)	84 (3.0)	87 (2.8)
Ontario, Canada	96 (1.7)	95 (1.9)	95 (1.9)	89 (2.7)	81 (3.2)	94 (1.8)	90 (2.5)	69 (4.4)	66 (4.2)
Quebec, Canada	95 (2.3)	79 (4.6)	84 (3.3)	64 (5.2)	49 (5.2)	77 (4.1)	82 (3.9)	62 (4.7)	57 (5.5)
Denmark (3)	85 (2.8)	86 (2.9)	90 (2.4)	71 (3.6)	57 (4.2)	61 (3.9)	51 (3.9)	46 (4.0)	35 (3.8)
Norway (4)	99 (0.8)	93 (2.1)	83 (2.6)	74 (3.4)	57 (3.8)	46 (3.6)	59 (3.4)	40 (3.2)	26 (2.9)
Moscow City, Russian Fed.	100 (0.0)	100 (0.0)	100 (0.0)	95 (1.8)	90 (2.3)	84 (3.1)	99 (0.5)	87 (2.8)	96 (1.6)
Eng/Afr/Zulu - RSA (5)	r 96 (2.3)	r 93 (3.1)	r 96 (2.1)	s 91 (3.2)	r 87 (4.1)	r 89 (3.1)	r 92 (3.2)	r 77 (5.0)	r 71 (5.2)
Andalusia, Spain	98 (1.0)	98 (1.0)	98 (1.1)	83 (2.9)	73 (3.6)	73 (3.3)	76 (3.4)	61 (3.9)	58 (4.0)
Madrid, Spain	98 (0.9)	99 (0.9)	100 (0.4)	81 (3.4)	66 (4.0)	67 (4.1)	72 (3.4)	56 (4.1)	48 (4.0)
Abu Dhabi, UAE	98 (1.1)	96 (1.6)	98 (1.2)	91 (2.2)	84 (3.3)	91 (2.4)	84 (3.4)	74 (4.1)	81 (3.2)
Dubai, UAE	98 (1.0)	98 (0.5)	99 (0.5)	90 (1.4)	89 (1.3)	89 (1.8)	91 (0.8)	87 (1.5)	80 (2.2)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 9.3: Organizing Students for Reading Instruction

Exhibit 9.3 provides information about how often teachers use different types of grouping for reading instruction. According to teachers' reports, about one-third of the fourth grade students (32%) "always or almost always" are taught reading as a whole-class activity and most of the rest (65%) are "often or sometimes" taught as a whole class. Other grouping approaches—ability grouping, mixed-ability grouping, and assigning independent work—are used "often or sometimes" with substantial percentages of students (74, 79, and 81%, respectively) but "always or almost always" with fewer students (11, 13, and 14%).

Exhibit 9.3: Organizing Students for Reading Instruction

Students Categorized by Teachers' Reports

Country	Percent of Students Whose Teachers Organize Students in the Following Ways											
	Teach Reading as a Whole-Class Activity			Create Same-Ability Groups			Create Mixed-Ability Groups			Have Students Work Independently on an Assigned Plan or Goal		
	Always or Almost Always	Often or Sometimes	Never	Always or Almost Always	Often or Sometimes	Never	Always or Almost Always	Often or Sometimes	Never	Always or Almost Always	Often or Sometimes	Never
Australia	14 (2.5)	83 (2.9)	3 (1.2)	34 (3.3)	62 (3.2)	3 (1.5)	7 (1.9)	87 (2.5)	6 (1.5)	13 (2.4)	84 (2.6)	2 (0.9)
Austria	20 (2.7)	75 (2.9)	5 (1.4)	4 (1.3)	80 (3.1)	15 (2.8)	4 (1.5)	85 (2.5)	11 (2.1)	23 (2.9)	73 (3.1)	4 (1.2)
Azerbaijan	31 (3.1)	69 (3.1)	0 (0.3)	10 (2.3)	82 (2.8)	8 (1.8)	9 (1.8)	90 (2.0)	1 (0.8)	22 (2.8)	78 (2.9)	0 (0.3)
Bahrain	33 (2.6)	66 (2.5)	1 (0.7)	13 (2.0)	63 (3.9)	25 (3.9)	50 (3.4)	49 (3.4)	0 (0.4)	30 (3.4)	69 (3.5)	1 (0.7)
Belgium (Flemish)	3 (1.6)	92 (2.1)	5 (1.4)	5 (1.9)	83 (2.8)	12 (2.4)	4 (1.6)	88 (2.6)	7 (2.0)	4 (1.4)	95 (1.4)	1 (0.4)
Belgium (French)	35 (3.7)	64 (3.8)	1 (0.7)	1 (0.5)	68 (4.1)	32 (4.0)	5 (1.9)	73 (3.8)	22 (3.7)	7 (2.1)	84 (3.0)	9 (2.4)
Bulgaria	60 (3.6)	40 (3.6)	0 (0.0)	6 (2.1)	92 (2.4)	2 (1.2)	4 (1.2)	91 (2.1)	5 (1.8)	25 (3.6)	75 (3.6)	0 (0.0)
Canada	21 (1.7)	78 (1.8)	1 (0.5)	11 (1.6)	84 (1.8)	5 (1.0)	4 (0.9)	91 (1.6)	6 (1.3)	5 (1.0)	92 (1.2)	3 (0.7)
Chile	66 (3.9)	33 (3.8)	1 (0.9)	12 (3.2)	74 (3.8)	14 (3.3)	16 (3.1)	72 (3.5)	13 (3.2)	23 (4.1)	73 (4.2)	4 (1.8)
Chinese Taipei	45 (3.4)	55 (3.4)	0 (0.0)	1 (0.7)	51 (4.5)	48 (4.5)	20 (3.0)	67 (3.5)	13 (2.2)	10 (2.2)	85 (2.5)	5 (1.2)
Czech Republic	19 (2.6)	79 (2.8)	2 (1.0)	1 (0.6)	83 (2.4)	17 (2.4)	2 (0.9)	90 (2.2)	8 (2.0)	1 (0.7)	93 (1.8)	6 (1.6)
Denmark	15 (2.7)	85 (2.7)	0 (0.2)	5 (1.5)	91 (2.3)	5 (1.7)	3 (1.1)	92 (2.1)	5 (1.8)	13 (2.8)	78 (3.7)	9 (2.2)
Egypt	52 (4.2)	47 (4.2)	1 (0.5)	18 (3.2)	63 (3.9)	19 (3.1)	24 (3.7)	65 (3.8)	11 (2.4)	15 (2.8)	75 (3.2)	11 (2.4)
England	12 (2.7)	85 (2.7)	3 (1.3)	26 (3.3)	72 (3.3)	3 (1.2)	7 (1.9)	90 (2.3)	3 (1.2)	9 (1.9)	87 (2.4)	4 (1.5)
Finland	26 (2.8)	70 (2.8)	3 (1.1)	1 (0.7)	83 (2.4)	15 (2.4)	4 (1.7)	86 (2.3)	10 (2.0)	6 (1.4)	90 (1.9)	5 (1.4)
France	32 (3.4)	65 (3.5)	3 (1.4)	6 (1.8)	78 (3.2)	16 (2.7)	3 (1.5)	67 (3.8)	29 (3.7)	5 (1.7)	68 (3.7)	28 (3.3)
Georgia	32 (3.5)	62 (3.6)	6 (1.7)	6 (1.7)	80 (3.0)	14 (2.6)	11 (2.4)	86 (2.6)	3 (1.1)	17 (2.8)	82 (2.7)	1 (0.5)
Germany	26 (2.9)	72 (3.0)	2 (1.0)	2 (1.0)	86 (2.5)	12 (2.4)	3 (0.9)	85 (2.8)	12 (2.6)	9 (1.9)	86 (2.4)	5 (1.7)
Hong Kong SAR	28 (4.4)	72 (4.3)	1 (0.7)	0 (0.0)	60 (4.6)	40 (4.6)	20 (3.3)	72 (3.7)	8 (2.4)	3 (1.6)	89 (2.9)	7 (2.5)
Hungary	7 (1.9)	93 (1.9)	0 (0.0)	2 (0.9)	93 (2.0)	5 (1.8)	7 (1.9)	91 (2.2)	2 (1.1)	3 (1.3)	97 (1.3)	0 (0.0)
Iran, Islamic Rep. of	64 (3.3)	36 (3.3)	0 (0.0)	7 (1.8)	50 (4.0)	43 (3.7)	44 (3.5)	49 (3.5)	7 (1.6)	20 (2.7)	77 (2.7)	4 (1.2)
Ireland	25 (3.3)	74 (3.3)	1 (0.4)	9 (2.0)	79 (3.0)	13 (2.5)	5 (1.6)	86 (2.6)	10 (2.1)	5 (1.7)	88 (2.5)	7 (1.8)
Israel	40 (4.0)	57 (4.2)	3 (1.5)	13 (2.7)	81 (3.2)	6 (2.0)	12 (2.5)	83 (3.1)	5 (1.8)	22 (3.5)	77 (3.6)	2 (1.0)
Italy	56 (4.0)	44 (4.0)	0 (0.0)	2 (1.2)	70 (3.5)	29 (3.6)	10 (2.7)	79 (3.6)	11 (2.4)	23 (3.4)	73 (3.4)	4 (1.4)
Kazakhstan	76 (3.4)	24 (3.4)	0 (0.0)	18 (2.6)	78 (2.9)	4 (1.5)	14 (2.4)	85 (2.4)	1 (0.6)	44 (3.5)	56 (3.4)	1 (0.7)
Kuwait	40 (4.2)	53 (4.4)	8 (1.8)	30 (4.8)	63 (5.0)	7 (2.2)	24 (3.7)	69 (4.1)	7 (2.2)	24 (5.1)	73 (5.1)	4 (1.4)
Latvia	51 (4.1)	48 (4.0)	1 (0.6)	3 (1.3)	89 (2.0)	7 (1.8)	4 (1.4)	90 (2.6)	6 (2.1)	8 (2.0)	91 (2.1)	1 (0.8)
Lithuania	20 (2.6)	75 (2.9)	5 (1.7)	3 (0.9)	89 (2.4)	8 (2.3)	6 (1.8)	93 (1.9)	1 (0.6)	9 (2.2)	90 (2.3)	1 (0.8)
Macao SAR	28 (0.1)	72 (0.1)	0 (0.0)	2 (0.0)	52 (0.1)	47 (0.1)	19 (0.1)	73 (0.1)	8 (0.1)	9 (0.1)	85 (0.1)	6 (0.0)
Malta	30 (0.1)	68 (0.1)	2 (0.0)	7 (0.1)	74 (0.1)	20 (0.1)	6 (0.1)	77 (0.1)	16 (0.1)	7 (0.1)	80 (0.1)	13 (0.1)
Morocco	38 (3.4)	52 (3.5)	10 (1.8)	10 (1.7)	71 (2.9)	20 (2.5)	12 (2.3)	68 (3.0)	20 (2.6)	25 (2.8)	61 (3.4)	14 (2.3)
Netherlands	7 (2.2)	84 (2.8)	9 (2.0)	17 (3.1)	71 (3.5)	11 (2.6)	7 (2.1)	80 (3.3)	14 (2.9)	11 (2.7)	82 (3.2)	7 (2.1)
New Zealand	r 2 (1.0)	84 (2.5)	14 (2.3)	r 43 (3.3)	55 (3.2)	2 (0.9)	r 6 (1.3)	83 (2.6)	11 (2.3)	r 14 (1.9)	82 (2.0)	3 (1.1)
Northern Ireland	r 6 (2.3)	85 (3.7)	9 (3.0)	55 (4.4)	44 (4.3)	1 (0.8)	r 1 (0.8)	87 (3.1)	12 (2.9)	r 10 (2.5)	84 (3.0)	6 (1.9)
Norway (5)	24 (3.0)	76 (3.0)	0 (0.2)	3 (1.4)	78 (3.1)	19 (2.9)	4 (1.6)	87 (2.5)	9 (2.2)	6 (1.9)	86 (2.6)	8 (2.2)
Oman	32 (2.9)	62 (2.9)	6 (1.6)	13 (2.0)	64 (3.0)	23 (2.9)	45 (3.2)	52 (3.1)	2 (0.8)	34 (2.7)	66 (2.8)	1 (0.4)
Poland	24 (3.5)	68 (3.4)	9 (2.0)	1 (0.6)	76 (3.7)	23 (3.8)	14 (2.7)	81 (3.6)	5 (2.4)	10 (2.4)	90 (2.4)	0 (0.0)
Portugal	41 (3.7)	59 (3.7)	0 (0.3)	1 (0.4)	78 (2.8)	21 (2.8)	8 (2.1)	83 (2.8)	9 (2.0)	13 (2.7)	85 (2.8)	2 (1.0)
Qatar	28 (3.0)	67 (3.1)	5 (0.8)	19 (1.8)	66 (3.1)	15 (2.7)	34 (1.8)	61 (2.1)	4 (1.2)	23 (2.0)	74 (2.0)	3 (0.8)
Russian Federation	51 (3.7)	49 (3.7)	0 (0.0)	3 (1.1)	96 (1.4)	2 (0.9)	4 (1.2)	95 (1.5)	2 (1.0)	4 (1.5)	95 (1.6)	1 (0.6)
Saudi Arabia	42 (4.0)	56 (4.0)	2 (1.2)	36 (3.6)	56 (3.5)	8 (1.9)	50 (3.8)	46 (3.6)	4 (1.3)	30 (3.5)	65 (3.8)	5 (1.7)
Singapore	33 (2.8)	67 (2.9)	0 (0.2)	3 (1.0)	77 (2.0)	20 (2.1)	13 (1.9)	79 (2.3)	8 (1.4)	10 (1.4)	83 (2.0)	6 (1.3)
Slovak Republic	41 (3.3)	57 (3.4)	1 (0.7)	1 (0.6)	85 (2.3)	14 (2.4)	6 (1.7)	86 (2.1)	8 (1.6)	12 (2.0)	88 (2.0)	0 (0.2)
Slovenia	15 (3.3)	82 (3.4)	3 (1.1)	2 (0.8)	86 (2.5)	12 (2.4)	9 (2.2)	84 (2.8)	7 (1.8)	2 (1.0)	97 (1.3)	1 (0.8)
South Africa	r 47 (3.4)	52 (3.4)	0 (0.3)	r 20 (3.2)	70 (3.9)	10 (2.6)	r 28 (3.4)	69 (3.4)	3 (1.3)	r 33 (3.3)	66 (3.3)	0 (0.2)
Spain	55 (3.1)	45 (3.0)	0 (0.2)	2 (0.7)	70 (2.1)	29 (2.0)	8 (1.4)	71 (2.5)	22 (2.7)	8 (1.9)	77 (2.4)	15 (2.3)
Sweden	23 (3.5)	73 (3.6)	4 (1.7)	2 (1.1)	82 (2.9)	16 (2.8)	6 (2.0)	80 (3.0)	13 (2.7)	6 (2.1)	85 (3.3)	8 (2.7)
Trinidad and Tobago	26 (3.6)	74 (3.6)	0 (0.0)	7 (2.2)	83 (2.9)	10 (2.5)	10 (2.4)	87 (2.7)	4 (1.5)	13 (2.6)	84 (3.0)	4 (1.5)
United Arab Emirates	47 (2.3)	51 (2.3)	2 (0.7)	35 (2.2)	60 (2.2)	5 (1.0)	35 (2.1)	63 (2.4)	3 (0.9)	30 (2.2)	68 (2.1)	2 (0.7)
United States	28 (4.0)	72 (4.0)	0 (0.0)	20 (3.0)	77 (3.3)	3 (1.3)	9 (2.4)	88 (2.5)	2 (0.9)	15 (2.7)	81 (3.1)	4 (1.7)
International Avg.	32 (0.4)	65 (0.5)	3 (0.2)	11 (0.3)	74 (0.4)	15 (0.4)	13 (0.3)	79 (0.4)	8 (0.3)	14 (0.4)	81 (0.4)	5 (0.2)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

() 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.

Exhibit 9.3: Organizing Students for Reading Instruction (Continued)

Country	Percent of Students Whose Teachers Organize Students in the Following Ways											
	Teach Reading as a Whole-Class Activity			Create Same-Ability Groups			Create Mixed-Ability Groups			Have Students Work Independently on an Assigned Plan or Goal		
	Always or Almost Always	Often or Sometimes	Never	Always or Almost Always	Often or Sometimes	Never	Always or Almost Always	Often or Sometimes	Never	Always or Almost Always	Often or Sometimes	Never
Benchmarking Participants												
Buenos Aires, Argentina	63 (3.9)	37 (3.9)	0 (0.3)	10 (2.2)	61 (3.9)	28 (3.6)	27 (3.7)	64 (3.7)	10 (2.3)	29 (3.5)	65 (3.6)	6 (2.0)
Ontario, Canada	19 (3.3)	80 (3.4)	1 (1.2)	15 (3.4)	82 (3.6)	3 (1.5)	1 (0.7)	93 (2.4)	6 (2.2)	5 (1.7)	93 (1.9)	1 (0.8)
Quebec, Canada	35 (4.5)	65 (4.6)	1 (0.6)	5 (2.4)	85 (3.3)	11 (2.8)	8 (3.1)	85 (3.5)	7 (2.4)	4 (1.7)	91 (3.0)	6 (2.4)
Denmark (3)	14 (2.7)	86 (2.8)	1 (0.8)	7 (2.2)	90 (2.2)	4 (1.2)	1 (0.8)	95 (1.6)	4 (1.6)	8 (2.0)	84 (2.9)	8 (2.2)
Norway (4)	20 (3.4)	79 (3.4)	1 (0.4)	8 (1.9)	84 (2.8)	8 (2.3)	3 (1.2)	88 (2.5)	8 (2.3)	5 (1.5)	88 (2.5)	7 (2.2)
Moscow City, Russian Fed.	55 (4.0)	45 (4.0)	0 (0.0)	2 (1.2)	95 (1.4)	2 (1.3)	6 (1.9)	94 (1.9)	0 (0.0)	3 (1.2)	96 (1.4)	1 (0.7)
Eng/Afr/Zulu - RSA (5)	38 (5.1)	62 (5.1)	0 (0.0)	9 (2.2)	80 (4.1)	11 (3.7)	19 (4.3)	75 (4.7)	6 (2.5)	19 (4.5)	77 (4.9)	3 (2.2)
Andalusia, Spain	60 (3.8)	40 (3.8)	1 (0.5)	2 (1.1)	64 (4.0)	35 (3.9)	11 (2.6)	68 (3.6)	21 (3.2)	12 (2.4)	75 (3.6)	13 (2.7)
Madrid, Spain	57 (4.1)	43 (4.1)	0 (0.0)	3 (1.3)	58 (3.8)	40 (3.6)	7 (2.1)	64 (3.8)	29 (3.7)	9 (2.1)	76 (3.4)	15 (3.0)
Abu Dhabi, UAE	44 (3.8)	56 (3.8)	0 (0.2)	40 (3.7)	54 (4.0)	6 (1.9)	40 (4.2)	58 (4.4)	2 (1.1)	26 (3.5)	72 (3.6)	1 (0.9)
Dubai, UAE	36 (1.8)	62 (1.9)	2 (0.7)	28 (2.6)	67 (2.7)	5 (0.9)	29 (2.6)	69 (2.6)	2 (0.9)	34 (2.5)	66 (2.6)	1 (0.5)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 9.4: Classroom Libraries

A number of countries have invested in classroom libraries so that children can have ready access to books and magazines as part of the reading lessons and activities. Exhibit 9.4 presents teachers' reports about the size and use of classroom libraries in their reading instruction, with the results ordered from high to low by the percentage of students with classroom libraries. There was substantial variation in the results, from a number of countries where almost all students (95-98%) had classroom libraries to countries such as Saudi Arabia, Norway, Sweden, Kuwait, Denmark, and Finland with 31 to 45 percent and Egypt with 14 percent. It is useful to consider the results about classroom libraries together with the results about central school libraries in Exhibit 5.5, because most students in the Nordic countries attend schools with sizable school libraries.

On average, 72 percent of the fourth grade students were in classrooms with libraries, with about one-third (33%) in classrooms with libraries that had 50 books or more. Across the PIRLS countries, teachers reported that 61 percent of the students, on average, were given class time to use the classroom library and 55 percent could borrow books from it.

Exhibit 9.4: Classroom Libraries

Students Categorized by Teachers' Reports

For information about school libraries, see Exhibit 5.5

Country	Have a Classroom Library			Percent of Students				
	Percent of Students	Average Achievement		With More than 50 Books in Their Classroom Library	With At Least 3 Magazine Titles in Their Classroom Library	Given Class Time to Use Classroom Library At Least Once a Week	Who Can Borrow Books From Classroom Library	Whose Teachers Take Them to Library Other than the Classroom Library At Least Once a Month
		Yes	Yes					
United States	98 (1.1)	550 (3.2)	~ ~	92 (1.9)	35 (3.6)	97 (1.3)	87 (2.7)	94 (1.9)
Macao SAR	98 (0.0)	546 (1.1)	~ ~	62 (0.1)	74 (0.1)	86 (0.1)	66 (0.1)	40 (0.1)
Hong Kong SAR	97 (1.2)	569 (2.8)	546 (32.3)	78 (3.3)	46 (4.5)	82 (2.9)	47 (4.5)	59 (5.0)
New Zealand	97 (1.2)	527 (2.4)	533 (11.6)	36 (3.5)	42 (3.5)	95 (1.4)	60 (3.1)	91 (2.0)
Ireland	96 (2.0)	567 (2.6)	569 (18.7)	82 (3.7)	23 (3.0)	94 (2.2)	86 (3.1)	43 (4.6)
Belgium (Flemish)	96 (1.4)	526 (1.8)	510 (10.4)	79 (2.9)	22 (2.3)	87 (2.2)	59 (3.3)	51 (3.2)
Canada	95 (1.0)	542 (2.0)	564 (6.8)	84 (1.7)	47 (2.2)	94 (1.2)	76 (2.1)	93 (1.2)
Malta	94 (0.1)	452 (1.9)	463 (7.3)	54 (0.1)	40 (0.1)	90 (0.1)	71 (0.1)	82 (0.1)
France	94 (1.7)	512 (2.1)	502 (10.7)	57 (3.8)	68 (3.6)	84 (2.6)	64 (3.5)	47 (4.6)
Chinese Taipei	94 (2.0)	559 (2.1)	562 (6.2)	73 (3.7)	42 (3.9)	77 (2.8)	68 (3.4)	86 (2.8)
Spain	93 (1.0)	528 (1.8)	520 (4.8)	46 (2.7)	29 (2.9)	82 (2.4)	79 (2.2)	52 (2.6)
Northern Ireland	93 (2.4)	565 (2.3)	551 (14.1)	85 (3.0)	23 (3.6)	90 (3.0)	88 (3.1)	65 (4.5)
Belgium (French)	93 (1.9)	497 (2.7)	503 (9.4)	69 (3.3)	74 (3.2)	81 (2.8)	60 (3.9)	46 (4.1)
England	92 (2.2)	557 (2.1)	574 (7.8)	78 (3.3)	29 (3.3)	89 (2.6)	81 (3.0)	80 (2.8)
Australia	88 (2.2)	542 (2.7)	562 (9.0)	56 (3.6)	37 (3.0)	87 (2.4)	54 (3.5)	93 (1.5)
Germany	87 (2.5)	535 (4.0)	541 (6.2)	44 (3.9)	30 (3.8)	66 (3.4)	62 (3.6)	56 (3.8)
Singapore	84 (2.0)	575 (3.6)	584 (7.7)	33 (2.0)	33 (2.4)	70 (2.5)	63 (2.4)	50 (2.2)
Lithuania	84 (2.7)	549 (2.8)	543 (8.0)	31 (3.9)	49 (3.5)	72 (3.8)	82 (2.9)	78 (3.2)
Kazakhstan	83 (2.5)	533 (2.8)	549 (7.5)	22 (3.0)	76 (3.0)	80 (2.9)	79 (2.9)	95 (1.1)
Netherlands	80 (3.3)	547 (2.2)	539 (3.5)	50 (3.9)	34 (4.0)	78 (3.3)	18 (3.2)	64 (3.9)
Austria	79 (3.6)	540 (2.7)	546 (5.1)	43 (3.8)	27 (3.4)	73 (3.7)	68 (3.9)	69 (3.7)
Italy	77 (3.8)	550 (2.6)	543 (5.3)	27 (3.2)	14 (2.7)	56 (4.2)	73 (3.9)	37 (3.5)
Israel	75 (3.9)	529 (3.8)	534 (8.7)	15 (3.1)	31 (4.1)	66 (4.2)	57 (3.9)	61 (4.1)
Russian Federation	74 (3.2)	582 (2.6)	578 (4.9)	19 (2.6)	49 (3.2)	42 (3.5)	68 (3.7)	85 (2.6)
Czech Republic	74 (3.2)	544 (2.7)	542 (3.9)	20 (2.3)	29 (3.2)	56 (3.6)	55 (3.6)	40 (3.2)
Slovenia	72 (3.1)	541 (2.1)	545 (3.8)	10 (2.2)	31 (3.2)	57 (3.3)	45 (3.9)	76 (2.5)
Hungary	71 (3.7)	560 (3.6)	540 (6.3)	13 (2.8)	17 (2.7)	65 (3.6)	54 (3.8)	69 (3.9)
United Arab Emirates	71 (2.8)	454 (3.4)	450 (6.7)	23 (1.6)	31 (2.4)	67 (2.8)	57 (2.5)	82 (2.0)
Latvia	67 (3.7)	556 (2.3)	561 (3.3)	23 (3.1)	17 (2.8)	47 (3.6)	52 (3.9)	70 (3.6)
Qatar	66 (2.1)	450 (2.9)	428 (4.9)	14 (1.5)	35 (3.3)	51 (3.0)	52 (2.6)	88 (1.0)
Bulgaria	66 (3.9)	556 (5.2)	542 (8.6)	4 (1.4)	31 (3.4)	35 (3.8)	58 (3.9)	76 (3.2)
Azerbaijan	64 (3.4)	481 (4.2)	457 (9.1)	12 (2.3)	36 (3.2)	51 (3.6)	60 (3.2)	70 (3.1)
Slovak Republic	63 (3.3)	537 (4.1)	531 (5.8)	8 (1.8)	26 (3.3)	49 (3.3)	52 (3.4)	56 (3.6)
Trinidad and Tobago	61 (4.3)	479 (5.2)	479 (7.2)	16 (3.2)	27 (3.6)	57 (4.3)	38 (4.2)	59 (3.8)
Iran, Islamic Rep. of	60 (3.8)	450 (5.3)	395 (7.8)	19 (2.4)	22 (3.0)	46 (3.8)	60 (3.8)	40 (3.4)
Georgia	60 (3.5)	490 (3.7)	486 (4.6)	12 (2.0)	35 (3.3)	50 (3.6)	59 (3.6)	r 71 (3.2)
Oman	59 (2.8)	427 (4.4)	408 (4.2)	14 (2.2)	40 (3.4)	54 (3.0)	51 (2.8)	89 (2.0)
Bahrain	58 (3.4)	456 (3.4)	434 (4.0)	13 (2.2)	31 (3.0)	44 (3.8)	50 (3.5)	92 (1.7)
Chile	57 (4.4)	494 (4.1)	502 (5.3)	23 (4.2)	38 (4.7)	46 (4.1)	56 (4.2)	57 (4.6)
South Africa	r 54 (3.8)	332 (8.2)	308 (6.9)	r 24 (3.2)	r 31 (3.4)	r 46 (4.0)	r 41 (3.6)	r 53 (3.8)
Portugal	53 (3.4)	533 (3.2)	523 (3.3)	11 (2.5)	15 (2.4)	43 (3.5)	46 (3.5)	72 (3.1)
Morocco	51 (3.2)	371 (5.2)	343 (6.5)	10 (1.8)	25 (2.8)	29 (2.7)	44 (2.8)	15 (2.1)
Poland	48 (3.5)	562 (3.5)	567 (2.6)	11 (1.8)	9 (2.3)	15 (3.0)	21 (3.4)	70 (3.7)
Finland	45 (3.6)	563 (2.7)	568 (2.7)	19 (2.7)	8 (1.9)	40 (3.7)	23 (2.4)	72 (2.8)
Denmark	45 (3.9)	547 (3.3)	548 (2.8)	12 (2.0)	7 (2.1)	39 (3.9)	27 (3.6)	92 (1.5)
Kuwait	43 (4.2)	399 (6.6)	390 (6.0)	8 (2.6)	26 (5.1)	31 (5.0)	37 (3.8)	83 (2.9)
Sweden	41 (3.8)	552 (4.1)	557 (2.8)	19 (2.8)	11 (2.5)	35 (3.8)	26 (3.5)	71 (4.0)
Norway (5)	38 (4.0)	564 (3.9)	556 (2.6)	9 (2.2)	16 (3.0)	36 (4.0)	33 (3.9)	81 (3.4)
Saudi Arabia	31 (3.3)	456 (7.9)	419 (5.5)	10 (2.3)	22 (3.0)	22 (3.2)	27 (3.1)	54 (4.4)
Egypt	14 (2.8)	349 (17.8)	325 (6.3)	0 (0.0)	8 (2.6)	12 (2.8)	12 (2.7)	61 (4.1)
International Avg.	72 (0.4)	514 (0.6)	507 (1.2)	33 (0.4)	32 (0.4)	61 (0.5)	55 (0.5)	67 (0.5)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

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

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.

Exhibit 9.4: Classroom Libraries (Continued)

Country	Have a Classroom Library			Percent of Students				
	Percent of Students	Average Achievement		With More than 50 Books in Their Classroom Library	With At Least 3 Magazine Titles in Their Classroom Library	Given Class Time to Use Classroom Library At Least Once a Week	Who Can Borrow Books From Classroom Library	Whose Teachers Take Them to Library Other than the Classroom Library At Least Once a Month
		Yes	Yes					
Benchmarking Participants								
Quebec, Canada	98 (1.2)	546 (2.8)	~ ~	82 (4.1)	50 (4.8)	98 (1.2)	76 (4.7)	92 (2.6)
Madrid, Spain	94 (1.9)	550 (2.1)	543 (7.0)	51 (3.9)	27 (3.8)	80 (3.4)	84 (2.8)	43 (4.3)
Ontario, Canada	90 (2.4)	543 (3.3)	560 (7.9)	78 (3.2)	45 (4.4)	89 (2.5)	73 (3.8)	90 (2.2)
Andalusia, Spain	87 (2.9)	525 (2.3)	521 (5.3)	30 (3.8)	20 (3.3)	81 (3.2)	82 (3.3)	69 (3.6)
Moscow City, Russian Fed.	78 (3.4)	611 (2.4)	617 (4.5)	31 (3.6)	55 (4.1)	32 (4.0)	75 (3.7)	82 (3.4)
Dubai, UAE	77 (2.6)	525 (2.5)	494 (6.2)	25 (1.7)	29 (2.2)	73 (2.9)	59 (3.2)	91 (1.3)
Abu Dhabi, UAE	75 (3.1)	407 (5.9)	444 (9.2)	34 (3.7)	32 (3.7)	71 (3.5)	61 (3.3)	84 (2.4)
Eng/Afr/Zulu - RSA (5)	62 (5.8)	417 (9.6)	411 (13.7)	31 (5.1)	41 (6.4)	54 (6.3)	39 (6.0)	53 (5.8)
Buenos Aires, Argentina	59 (4.0)	469 (4.1)	493 (5.6)	13 (2.5)	37 (3.8)	50 (3.9)	48 (4.0)	77 (3.3)
Norway (4)	56 (3.9)	520 (3.0)	514 (2.7)	20 (3.3)	30 (3.3)	54 (4.1)	36 (3.5)	77 (3.4)
Denmark (3)	52 (4.1)	503 (4.3)	498 (4.0)	18 (2.8)	12 (3.0)	50 (4.2)	36 (4.0)	94 (2.2)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 9.5 and 9.6: Types of Texts Assigned for Reading Instruction

Consistent with the two overarching purposes for reading emphasized in the [PIRLS 2016 Assessment Framework](#), PIRLS inquired of teachers how frequently they asked their students to read various types of literary and informational texts.

Exhibit 9.5 presents information about the types of **literary** texts teachers ask students to read. Short stories were by far the most popular type of literary texts, assigned at least weekly for 78 percent of the students on average. Longer fiction books with chapters were assigned to only 41 percent of the students on a weekly basis, and few students were assigned plays (9%) this frequently.

Exhibit 9.6 presents information about the types of **informational** texts teachers ask students to read. Nonfiction subject area books were the most common types of informational texts, assigned at least for 71 percent of the students on average. Nonfiction articles were assigned to 39 percent of the students and longer nonfiction books with chapters to only 24 percent.

Exhibit 9.5: Teachers Assign Literary Texts for Reading Instruction

Students Categorized by Teachers' Reports

Country	Short Stories				Longer Fiction Books with Chapters				Plays			
	Once a Week or More		Less than Once a Week		Once a Week or More		Less than Once a Week		Once a Week or More		Less than Once a Week	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	85 (2.4)	544 (2.9)	15 (2.4)	553 (6.7)	80 (2.4)	549 (2.8)	20 (2.4)	529 (6.5)	7 (1.8)	549 (7.7)	93 (1.8)	545 (2.7)
Austria	78 (2.9)	544 (2.4)	22 (2.9)	533 (5.5)	15 (2.5)	537 (5.7)	85 (2.5)	542 (2.7)	2 (0.9)	~ ~	98 (0.9)	542 (2.4)
Azerbaijan	86 (2.4)	477 (3.9)	14 (2.4)	441 (17.3)	29 (2.8)	479 (7.7)	71 (2.8)	469 (5.0)	13 (2.6)	460 (14.5)	87 (2.6)	475 (4.5)
Bahrain	78 (2.3)	450 (3.3)	22 (2.3)	432 (6.2)	24 (2.0)	469 (6.4)	76 (2.0)	440 (2.9)	9 (1.7)	460 (12.5)	91 (1.7)	445 (2.8)
Belgium (Flemish)	64 (3.9)	526 (2.5)	36 (3.9)	524 (3.6)	29 (3.7)	525 (5.0)	71 (3.7)	525 (2.2)	1 (0.6)	~ ~	99 (0.6)	525 (2.1)
Belgium (French)	71 (3.4)	499 (3.2)	29 (3.4)	495 (4.8)	13 (2.3)	496 (6.5)	87 (2.3)	498 (2.9)	0 (0.0)	~ ~	100 (0.0)	498 (2.6)
Bulgaria	91 (2.3)	552 (4.4)	9 (2.3)	548 (13.3)	14 (2.3)	554 (9.2)	86 (2.3)	551 (4.7)	5 (1.6)	551 (17.1)	95 (1.6)	551 (4.5)
Canada	76 (1.9)	543 (2.1)	24 (1.9)	545 (4.0)	69 (2.2)	547 (2.3)	31 (2.2)	534 (2.5)	2 (0.8)	~ ~	98 (0.8)	543 (2.0)
Chile	98 (1.4)	497 (3.0)	2 (1.4)	~ ~	19 (3.2)	497 (5.5)	81 (3.2)	497 (3.7)	11 (2.6)	490 (8.9)	89 (2.6)	498 (3.4)
Chinese Taipei	67 (3.8)	559 (2.5)	33 (3.8)	558 (3.5)	20 (3.0)	569 (3.9)	80 (3.0)	556 (2.2)	7 (2.1)	559 (4.0)	93 (2.1)	559 (2.1)
Czech Republic	94 (1.5)	543 (2.0)	6 (1.5)	544 (9.7)	57 (3.3)	547 (2.5)	43 (3.3)	539 (4.0)	1 (0.6)	~ ~	99 (0.6)	543 (2.2)
Denmark	74 (3.6)	548 (2.5)	26 (3.6)	546 (4.0)	55 (3.8)	551 (3.0)	45 (3.8)	544 (3.1)	1 (0.8)	~ ~	99 (0.8)	549 (2.1)
Egypt	56 (4.5)	328 (7.6)	44 (4.5)	334 (10.2)	12 (2.8)	324 (19.6)	88 (2.8)	331 (6.3)	10 (2.8)	354 (21.2)	90 (2.8)	327 (6.0)
England	61 (3.9)	556 (2.7)	39 (3.9)	562 (3.8)	71 (3.5)	561 (2.5)	29 (3.5)	554 (4.0)	8 (2.0)	552 (7.3)	92 (2.0)	559 (2.3)
Finland	72 (3.2)	565 (2.3)	28 (3.2)	569 (3.2)	50 (3.3)	566 (2.7)	50 (3.3)	567 (2.8)	2 (0.8)	~ ~	98 (0.8)	566 (1.9)
France	78 (3.2)	510 (2.7)	22 (3.2)	517 (4.5)	53 (3.6)	514 (2.8)	47 (3.6)	509 (4.1)	7 (2.1)	530 (9.1)	93 (2.1)	510 (2.3)
Georgia	93 (1.7)	491 (2.8)	7 (1.7)	457 (15.9)	31 (3.4)	490 (5.5)	69 (3.4)	488 (3.4)	5 (1.6)	497 (10.9)	95 (1.6)	489 (3.0)
Germany	55 (3.4)	540 (4.9)	45 (3.4)	530 (5.3)	19 (2.8)	537 (5.9)	81 (2.8)	536 (4.2)	2 (2.0)	~ ~	98 (1.0)	536 (3.6)
Hong Kong SAR	55 (4.1)	570 (4.0)	45 (4.1)	567 (4.0)	8 (2.3)	573 (8.1)	92 (2.3)	568 (2.9)	3 (1.4)	567 (20.4)	97 (1.4)	569 (2.8)
Hungary	94 (2.1)	555 (2.8)	6 (2.1)	525 (11.1)	27 (3.4)	562 (6.4)	73 (3.4)	550 (3.5)	2 (1.0)	~ ~	98 (1.0)	553 (2.7)
Iran, Islamic Rep. of	60 (3.4)	434 (6.7)	40 (3.4)	418 (7.9)	24 (2.7)	427 (8.7)	76 (2.7)	428 (4.8)	10 (2.4)	430 (14.6)	90 (2.4)	431 (4.7)
Ireland	88 (2.0)	567 (2.8)	12 (2.0)	565 (4.6)	76 (3.4)	564 (2.9)	24 (3.4)	575 (5.2)	1 (0.7)	~ ~	99 (0.7)	567 (2.5)
Israel	88 (2.6)	531 (2.9)	12 (2.6)	526 (11.2)	39 (3.8)	549 (5.7)	61 (3.8)	518 (4.9)	8 (2.0)	497 (21.5)	92 (2.0)	532 (3.1)
Italy	94 (2.0)	550 (2.5)	6 (2.0)	538 (9.0)	41 (3.6)	550 (4.1)	59 (3.6)	549 (2.8)	5 (1.7)	540 (17.7)	95 (1.7)	550 (2.4)
Kazakhstan	97 (1.2)	536 (2.5)	3 (1.2)	529 (19.1)	84 (2.4)	536 (2.7)	16 (2.4)	538 (8.0)	65 (2.4)	527 (3.2)	35 (2.4)	551 (4.6)
Kuwait	67 (4.0)	392 (5.3)	33 (4.0)	395 (8.0)	25 (5.2)	397 (11.1)	75 (5.2)	391 (5.7)	11 (3.0)	369 (17.5)	89 (3.0)	396 (4.5)
Latvia	89 (2.3)	558 (1.7)	11 (2.3)	557 (5.9)	26 (3.9)	563 (3.3)	74 (3.9)	556 (2.3)	3 (1.2)	542 (7.3)	97 (1.2)	559 (1.8)
Lithuania	79 (3.5)	550 (3.2)	21 (3.5)	543 (5.3)	30 (3.5)	556 (6.0)	70 (3.5)	545 (2.7)	10 (2.0)	555 (8.8)	90 (2.0)	548 (2.9)
Macao SAR	77 (0.1)	549 (1.2)	23 (0.1)	535 (2.2)	21 (0.1)	559 (2.5)	79 (0.1)	542 (1.1)	7 (0.0)	563 (4.4)	93 (0.0)	544 (1.0)
Malta	89 (0.1)	454 (1.9)	11 (0.1)	447 (4.0)	58 (0.1)	461 (1.9)	42 (0.1)	441 (2.7)	7 (0.1)	455 (6.1)	93 (0.1)	453 (2.0)
Morocco	42 (3.1)	361 (7.0)	58 (3.1)	355 (5.5)	11 (2.5)	360 (13.2)	89 (2.5)	356 (4.3)	8 (1.6)	335 (18.4)	92 (1.6)	360 (4.0)
Netherlands	55 (4.4)	543 (2.6)	45 (4.4)	548 (3.3)	95 (1.6)	545 (1.8)	5 (1.6)	541 (8.5)	6 (2.2)	561 (6.0)	94 (2.2)	544 (1.8)
New Zealand	77 (2.4)	525 (2.9)	23 (2.4)	532 (5.2)	62 (3.3)	528 (3.3)	38 (3.3)	523 (5.2)	16 (1.8)	484 (7.7)	84 (1.8)	535 (2.2)
Northern Ireland	60 (4.2)	570 (3.1)	40 (4.2)	555 (4.2)	90 (3.2)	562 (2.3)	10 (3.2)	581 (6.9)	4 (2.1)	570 (16.3)	96 (2.1)	564 (2.4)
Norway (5)	64 (3.9)	559 (2.8)	36 (3.9)	558 (3.6)	80 (3.3)	559 (2.5)	20 (3.3)	559 (4.9)	0 (0.3)	~ ~	100 (0.3)	559 (2.3)
Oman	91 (1.9)	419 (3.5)	9 (1.9)	412 (9.8)	31 (2.5)	419 (5.2)	69 (2.5)	418 (4.6)	22 (2.8)	422 (5.2)	78 (2.8)	418 (3.9)
Poland	96 (1.4)	564 (2.1)	4 (1.4)	585 (8.0)	22 (2.9)	564 (3.9)	78 (2.9)	565 (2.5)	3 (1.2)	551 (10.2)	97 (1.2)	565 (2.2)
Portugal	90 (2.1)	529 (2.4)	10 (2.1)	521 (7.0)	26 (2.8)	536 (5.3)	74 (2.8)	525 (2.3)	13 (3.1)	542 (10.3)	87 (3.1)	526 (2.2)
Qatar	68 (2.6)	450 (3.8)	32 (2.6)	427 (6.3)	29 (2.1)	475 (5.4)	71 (2.1)	430 (3.1)	11 (1.3)	446 (9.9)	89 (1.3)	444 (2.3)
Russian Federation	90 (2.2)	582 (2.4)	10 (2.2)	569 (9.5)	61 (3.2)	584 (2.9)	39 (3.2)	575 (3.4)	6 (1.5)	596 (11.6)	94 (1.5)	580 (2.4)
Saudi Arabia	50 (3.8)	440 (6.6)	50 (3.8)	421 (6.4)	15 (3.0)	433 (14.3)	85 (3.0)	430 (4.9)	12 (3.0)	425 (15.5)	88 (3.0)	431 (4.6)
Singapore	75 (2.1)	577 (3.9)	25 (2.1)	572 (5.4)	35 (2.8)	594 (5.5)	65 (2.8)	567 (3.9)	3 (0.9)	590 (13.6)	97 (0.9)	576 (3.2)
Slovak Republic	93 (1.5)	534 (3.4)	7 (1.5)	541 (6.8)	26 (2.8)	552 (4.2)	74 (2.8)	529 (3.8)	5 (1.3)	556 (7.5)	95 (1.3)	534 (3.2)
Slovenia	82 (2.6)	542 (2.3)	18 (2.6)	543 (3.4)	14 (2.6)	544 (3.5)	86 (2.6)	542 (2.1)	6 (2.1)	548 (5.6)	94 (2.1)	542 (2.0)
South Africa	r 87 (2.3)	318 (5.1)	13 (2.3)	350 (20.6)	r 39 (3.5)	302 (6.3)	61 (3.5)	335 (7.2)	r 45 (3.8)	295 (5.8)	55 (3.8)	344 (6.8)
Spain	84 (2.0)	528 (2.0)	16 (2.0)	525 (3.9)	50 (3.2)	531 (1.9)	50 (3.2)	525 (3.2)	9 (2.0)	526 (5.4)	91 (2.0)	528 (2.0)
Sweden	62 (3.8)	556 (3.2)	38 (3.8)	554 (3.4)	93 (2.1)	555 (2.4)	7 (2.1)	563 (10.2)	3 (1.6)	552 (21.6)	97 (1.6)	555 (2.4)
Trinidad and Tobago	92 (2.4)	479 (3.5)	8 (2.4)	491 (7.4)	44 (4.1)	498 (5.7)	56 (4.1)	465 (5.6)	7 (2.1)	490 (15.5)	93 (2.1)	478 (3.9)
United Arab Emirates	85 (1.6)	451 (3.7)	15 (1.6)	464 (9.8)	36 (2.4)	472 (6.6)	64 (2.4)	442 (3.7)	22 (1.9)	460 (7.3)	78 (1.9)	451 (3.8)
United States	77 (3.5)	547 (3.6)	23 (3.5)	556 (7.4)	70 (4.0)	557 (3.3)	30 (4.0)	531 (5.4)	6 (1.7)	536 (15.0)	94 (1.7)	550 (3.3)
International Avg.	78 (0.4)	512 (0.5)	22 (0.4)	508 (1.2)	41 (0.4)	516 (0.9)	59 (0.4)	508 (0.6)	9 (0.3)	501 (2.0)	91 (0.3)	512 (0.4)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

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

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

**Exhibit 9.5: Teachers Assign Literary Texts for Reading Instruction
(Continued)**

Country	Short Stories				Longer Fiction Books with Chapters				Plays			
	Once a Week or More		Less than Once a Week		Once a Week or More		Less than Once a Week		Once a Week or More		Less than Once a Week	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants												
Buenos Aires, Argentina	89 (2.6)	479 (3.4)	11 (2.6)	474 (11.1)	54 (4.3)	480 (4.5)	46 (4.3)	478 (5.8)	20 (3.0)	479 (7.8)	80 (3.0)	479 (3.9)
Ontario, Canada	76 (3.7)	543 (3.7)	24 (3.7)	547 (6.7)	69 (4.3)	548 (4.1)	31 (4.3)	535 (4.5)	4 (1.6)	539 (12.6)	96 (1.6)	545 (3.4)
Quebec, Canada	87 (2.9)	547 (2.9)	13 (2.9)	546 (8.0)	58 (4.4)	552 (3.3)	42 (4.4)	539 (3.6)	0 (0.3)	~ ~	100 (0.3)	547 (2.9)
Denmark (3)	77 (3.8)	503 (3.3)	23 (3.8)	496 (5.9)	57 (4.1)	504 (3.6)	43 (4.1)	497 (4.1)	1 (0.8)	~ ~	99 (0.8)	501 (2.8)
Norway (4)	78 (2.8)	518 (2.2)	22 (2.8)	513 (4.2)	69 (3.8)	518 (2.2)	31 (3.8)	514 (4.1)	4 (1.5)	525 (7.5)	96 (1.5)	517 (2.1)
Moscow City, Russian Fed.	87 (2.8)	613 (2.4)	13 (2.8)	607 (5.4)	55 (4.2)	616 (3.1)	45 (4.2)	607 (3.2)	7 (2.2)	616 (8.2)	93 (2.2)	612 (2.2)
Eng/Afr/Zulu - RSA (5)	r 89 (3.5)	412 (7.0)	11 (3.5)	425 (19.9)	r 34 (6.0)	403 (14.9)	66 (6.0)	421 (8.7)	r 32 (4.6)	394 (7.7)	68 (4.6)	424 (9.2)
Andalusia, Spain	83 (2.9)	526 (2.5)	17 (2.9)	516 (4.2)	55 (4.1)	525 (2.8)	45 (4.1)	524 (3.6)	10 (2.3)	510 (12.4)	90 (2.3)	526 (2.0)
Madrid, Spain	86 (2.7)	549 (2.2)	14 (2.7)	550 (3.6)	59 (4.1)	548 (2.2)	41 (4.1)	552 (3.5)	5 (1.7)	550 (7.7)	95 (1.7)	549 (2.1)
Abu Dhabi, UAE	87 (2.9)	413 (4.9)	13 (2.9)	435 (18.8)	36 (4.2)	428 (10.8)	64 (4.2)	409 (6.5)	15 (2.2)	403 (10.4)	85 (2.2)	419 (5.5)
Dubai, UAE	85 (1.9)	519 (2.4)	15 (1.9)	513 (9.1)	49 (3.1)	531 (3.9)	51 (3.1)	505 (4.1)	24 (2.6)	517 (7.5)	76 (2.6)	518 (2.3)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 9.6: Teachers Assign Informational Texts for Reading Instruction

Students Categorized by Teachers' Reports

Country	Nonfiction Subject Area Books				Longer Nonfiction Books with Chapters				Nonfiction Articles			
	Once a Week or More		Less than Once a Week		Once a Week or More		Less than Once a Week		Once a Week or More		Less than Once a Week	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	83 (2.6)	545 (2.9)	17 (2.6)	541 (8.4)	50 (3.3)	550 (3.2)	50 (3.3)	540 (4.1)	67 (3.4)	545 (3.1)	33 (3.4)	546 (5.4)
Austria	72 (2.9)	542 (2.6)	28 (2.9)	540 (5.0)	17 (2.7)	539 (4.7)	83 (2.7)	542 (2.8)	52 (3.8)	539 (3.3)	48 (3.8)	544 (3.2)
Azerbaijan	63 (3.7)	479 (4.8)	37 (3.7)	460 (8.5)	18 (2.5)	474 (9.5)	82 (2.5)	471 (4.8)	44 (3.2)	485 (5.1)	56 (3.2)	463 (6.7)
Bahrain	74 (2.8)	451 (3.6)	26 (2.8)	432 (6.8)	29 (2.6)	456 (6.3)	71 (2.6)	442 (2.9)	41 (4.3)	456 (4.7)	59 (4.3)	439 (3.7)
Belgium (Flemish)	38 (3.2)	525 (3.7)	62 (3.2)	526 (2.6)	13 (2.5)	524 (6.1)	87 (2.5)	525 (2.2)	31 (3.0)	521 (2.8)	69 (3.0)	527 (2.5)
Belgium (French)	40 (3.4)	503 (3.4)	60 (3.4)	494 (3.9)	6 (2.2)	494 (9.7)	94 (2.2)	498 (2.8)	41 (3.8)	500 (3.7)	59 (3.8)	496 (3.8)
Bulgaria	71 (3.3)	555 (5.1)	29 (3.3)	544 (8.0)	10 (2.1)	571 (8.6)	90 (2.1)	550 (4.7)	29 (3.1)	553 (8.3)	71 (3.1)	552 (4.9)
Canada	89 (1.5)	542 (2.1)	11 (1.5)	550 (4.0)	37 (2.5)	543 (3.1)	63 (2.5)	543 (2.3)	50 (2.3)	543 (2.7)	50 (2.3)	543 (2.3)
Chile	81 (4.0)	495 (3.2)	19 (4.0)	507 (7.2)	18 (3.7)	504 (7.2)	82 (3.7)	495 (3.6)	65 (4.9)	493 (3.9)	35 (4.9)	504 (5.2)
Chinese Taipei	60 (3.8)	559 (2.7)	40 (3.8)	558 (2.7)	22 (3.5)	558 (4.6)	78 (3.5)	559 (2.2)	49 (3.8)	557 (2.6)	51 (3.8)	561 (2.9)
Czech Republic	68 (3.4)	547 (2.3)	32 (3.4)	535 (4.4)	19 (2.7)	549 (3.9)	81 (2.7)	542 (2.5)	23 (2.7)	545 (4.6)	77 (2.7)	543 (2.2)
Denmark	60 (3.3)	545 (2.8)	40 (3.3)	533 (3.3)	16 (2.6)	546 (7.3)	84 (2.6)	548 (2.1)	23 (3.1)	545 (3.8)	77 (3.1)	549 (2.5)
Egypt	60 (4.0)	329 (7.4)	40 (4.0)	334 (10.7)	18 (3.2)	308 (15.6)	82 (3.2)	335 (6.5)	30 (3.9)	337 (12.2)	70 (3.9)	327 (7.1)
England	67 (3.3)	556 (2.3)	33 (3.3)	564 (3.9)	33 (3.5)	556 (3.7)	67 (3.5)	560 (2.8)	51 (3.5)	555 (3.0)	49 (3.5)	562 (3.4)
Finland	93 (1.6)	567 (1.9)	7 (1.6)	562 (6.8)	11 (2.2)	569 (5.7)	89 (2.2)	566 (2.1)	14 (2.1)	564 (3.8)	86 (2.1)	567 (2.0)
France	55 (3.7)	512 (3.1)	45 (3.7)	511 (3.5)	8 (2.3)	524 (11.4)	92 (2.3)	511 (2.1)	37 (3.7)	508 (3.9)	63 (3.7)	514 (2.9)
Georgia	47 (3.9)	487 (4.1)	53 (3.9)	490 (4.1)	11 (2.1)	489 (11.6)	89 (2.1)	489 (2.9)	24 (3.5)	497 (5.5)	76 (3.5)	486 (3.2)
Germany	71 (3.4)	537 (5.3)	29 (3.4)	533 (5.5)	12 (2.3)	542 (5.6)	88 (2.3)	536 (4.3)	49 (3.8)	542 (4.5)	51 (3.8)	530 (5.3)
Hong Kong SAR	45 (4.5)	568 (4.6)	55 (4.5)	570 (3.5)	10 (2.7)	560 (9.0)	90 (2.7)	570 (2.8)	37 (4.6)	564 (5.7)	63 (4.6)	571 (3.0)
Hungary	74 (3.8)	550 (3.1)	26 (3.8)	560 (7.5)	12 (2.7)	552 (8.9)	88 (2.7)	553 (3.1)	25 (3.1)	553 (5.6)	75 (3.1)	553 (3.7)
Iran, Islamic Rep. of	52 (3.5)	432 (6.3)	48 (3.5)	424 (6.8)	22 (3.3)	417 (11.4)	78 (3.3)	432 (5.0)	26 (3.2)	429 (8.4)	74 (3.2)	428 (5.4)
Ireland	83 (2.8)	565 (2.9)	17 (2.8)	572 (5.9)	33 (3.8)	565 (4.4)	67 (3.8)	567 (3.5)	37 (3.6)	568 (3.5)	63 (3.6)	566 (3.2)
Israel	75 (3.2)	540 (3.7)	25 (3.2)	500 (9.3)	33 (3.9)	544 (7.0)	67 (3.9)	523 (4.0)	38 (3.9)	537 (6.0)	62 (3.9)	526 (4.3)
Italy	66 (4.0)	550 (3.1)	34 (4.0)	547 (3.5)	26 (3.5)	545 (4.6)	74 (3.5)	551 (2.7)	23 (3.3)	546 (5.8)	77 (3.3)	550 (2.4)
Kazakhstan	95 (1.5)	536 (2.5)	5 (1.5)	540 (11.8)	62 (3.7)	535 (3.4)	38 (3.7)	539 (4.5)	70 (3.5)	536 (2.6)	30 (3.5)	539 (6.2)
Kuwait	67 (5.5)	388 (6.9)	33 (5.5)	402 (11.5)	23 (3.8)	404 (8.7)	77 (3.8)	389 (5.1)	34 (5.3)	402 (10.0)	66 (5.3)	387 (6.5)
Latvia	68 (3.3)	562 (2.1)	32 (3.3)	551 (3.7)	9 (2.1)	565 (6.1)	91 (2.1)	557 (1.9)	22 (3.1)	562 (4.4)	78 (3.1)	557 (2.0)
Lithuania	59 (3.5)	550 (3.7)	41 (3.5)	546 (3.9)	14 (2.7)	542 (6.8)	86 (2.7)	549 (2.7)	33 (3.6)	548 (4.7)	67 (3.6)	548 (3.4)
Macao SAR	44 (0.1)	547 (1.4)	56 (0.1)	545 (1.5)	15 (0.1)	545 (3.1)	85 (0.1)	546 (1.3)	35 (0.1)	555 (1.7)	65 (0.1)	541 (1.2)
Malta	68 (0.1)	455 (1.9)	32 (0.1)	449 (2.9)	34 (0.1)	460 (2.4)	66 (0.1)	449 (2.2)	28 (0.1)	452 (2.6)	72 (0.1)	453 (2.0)
Morocco	57 (2.7)	367 (4.7)	43 (2.7)	345 (6.4)	15 (2.6)	353 (10.3)	85 (2.6)	358 (4.5)	15 (2.0)	375 (10.3)	85 (2.0)	354 (4.4)
Netherlands	78 (3.5)	546 (2.1)	22 (3.5)	540 (4.4)	50 (4.8)	545 (3.3)	50 (4.8)	544 (3.0)	50 (4.0)	545 (2.7)	50 (4.0)	545 (2.5)
New Zealand	83 (2.1)	527 (2.4)	17 (2.1)	526 (7.9)	38 (3.1)	523 (5.0)	62 (3.1)	528 (3.7)	65 (3.0)	527 (3.0)	35 (3.0)	526 (4.6)
Northern Ireland	69 (3.6)	564 (3.0)	31 (3.6)	563 (4.4)	37 (4.8)	556 (4.6)	63 (4.8)	569 (2.8)	34 (4.1)	572 (4.8)	66 (4.1)	560 (2.9)
Norway (5)	92 (2.2)	559 (2.4)	8 (2.2)	557 (6.0)	27 (3.1)	559 (4.4)	73 (3.1)	559 (2.3)	38 (4.1)	559 (3.2)	62 (4.1)	559 (3.0)
Oman	82 (2.5)	419 (3.5)	18 (2.5)	417 (7.4)	27 (2.8)	426 (6.1)	73 (2.8)	416 (3.7)	44 (2.9)	423 (4.8)	56 (2.9)	415 (4.4)
Poland	86 (2.8)	565 (2.4)	14 (2.8)	561 (6.5)	21 (3.3)	568 (5.2)	79 (3.3)	564 (2.4)	20 (2.9)	555 (5.1)	80 (2.9)	567 (2.5)
Portugal	70 (3.6)	529 (2.1)	30 (3.6)	526 (6.8)	27 (3.1)	535 (4.3)	73 (3.1)	526 (3.0)	30 (3.5)	529 (4.3)	70 (3.5)	528 (3.3)
Qatar	78 (3.3)	442 (3.3)	22 (3.3)	446 (8.4)	31 (3.1)	458 (7.2)	69 (3.1)	438 (3.5)	36 (2.4)	457 (5.9)	64 (2.4)	436 (3.7)
Russian Federation	75 (3.0)	585 (2.7)	25 (3.0)	567 (5.1)	32 (3.0)	594 (4.2)	68 (3.0)	574 (2.9)	38 (3.3)	590 (3.9)	62 (3.3)	575 (3.4)
Saudi Arabia	63 (3.8)	437 (5.9)	37 (3.8)	420 (8.0)	20 (3.6)	428 (10.9)	80 (3.6)	432 (4.9)	28 (4.1)	431 (10.3)	72 (4.1)	430 (5.3)
Singapore	59 (2.8)	576 (4.3)	41 (2.8)	577 (5.2)	21 (2.2)	579 (6.4)	79 (2.2)	576 (3.6)	45 (2.6)	584 (4.7)	55 (2.6)	570 (4.5)
Slovak Republic	65 (3.5)	538 (4.4)	35 (3.5)	529 (5.4)	11 (2.1)	560 (8.2)	89 (2.1)	532 (3.3)	35 (3.4)	536 (6.0)	65 (3.4)	534 (3.5)
Slovenia	90 (1.9)	542 (2.1)	10 (1.9)	541 (4.9)	8 (2.2)	550 (5.2)	92 (2.2)	542 (2.1)	25 (3.1)	544 (3.8)	75 (3.1)	542 (2.3)
South Africa	r 73 (3.7)	318 (6.2)	27 (3.7)	323 (9.0)	r 40 (3.4)	313 (7.3)	60 (3.4)	326 (6.4)	r 69 (3.5)	313 (6.3)	31 (3.5)	334 (10.0)
Spain	84 (2.7)	528 (1.8)	16 (2.7)	528 (4.2)	33 (2.4)	527 (2.2)	67 (2.4)	528 (2.5)	39 (2.8)	527 (2.5)	61 (2.8)	528 (2.2)
Sweden	84 (2.9)	556 (2.6)	16 (2.9)	554 (6.2)	28 (3.5)	553 (4.5)	72 (3.5)	556 (2.9)	34 (3.8)	550 (4.3)	66 (3.8)	558 (2.8)
Trinidad and Tobago	90 (2.3)	481 (3.8)	10 (2.3)	466 (17.1)	44 (4.3)	496 (5.5)	56 (4.3)	467 (5.6)	48 (4.6)	481 (5.2)	52 (4.6)	478 (6.7)
United Arab Emirates	78 (2.2)	451 (3.6)	22 (2.2)	456 (8.4)	35 (2.4)	467 (6.5)	65 (2.4)	445 (3.6)	51 (2.3)	457 (5.2)	49 (2.3)	448 (5.4)
United States	94 (1.8)	550 (3.2)	6 (1.8)	541 (11.4)	33 (3.9)	545 (5.6)	67 (3.9)	551 (3.8)	79 (2.7)	550 (3.5)	21 (2.7)	548 (7.2)
International Avg.	71 (0.4)	512 (0.5)	29 (0.4)	508 (1.0)	24 (0.4)	513 (1.0)	76 (0.4)	510 (0.5)	39 (0.5)	513 (0.8)	61 (0.5)	510 (0.6)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

() 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 9.6: Teachers Assign Informational Texts for Reading Instruction
(Continued)**

Country	Nonfiction Subject Area Books				Longer Nonfiction Books with Chapters				Nonfiction Articles			
	Once a Week or More		Less than Once a Week		Once a Week or More		Less than Once a Week		Once a Week or More		Less than Once a Week	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants												
Buenos Aires, Argentina	72 (3.8)	477 (3.8)	28 (3.8)	486 (7.5)	28 (3.0)	481 (6.0)	72 (3.0)	478 (4.3)	58 (3.9)	476 (4.5)	42 (3.9)	483 (6.2)
Ontario, Canada	90 (2.3)	544 (3.5)	10 (2.3)	550 (7.6)	39 (4.9)	549 (5.4)	61 (4.9)	541 (3.9)	62 (4.1)	547 (4.3)	38 (4.1)	539 (4.9)
Quebec, Canada	81 (3.8)	545 (3.1)	19 (3.8)	556 (6.2)	28 (4.4)	544 (5.6)	72 (4.4)	548 (3.3)	30 (4.0)	544 (6.1)	70 (4.0)	548 (3.1)
Denmark (3)	56 (4.1)	499 (4.0)	44 (4.1)	503 (4.2)	13 (2.6)	504 (7.8)	87 (2.6)	501 (2.8)	20 (3.6)	496 (7.9)	80 (3.6)	502 (3.0)
Norway (4)	92 (2.2)	518 (1.9)	8 (2.2)	509 (8.1)	32 (3.7)	518 (3.1)	68 (3.7)	517 (2.6)	44 (3.9)	519 (3.0)	56 (3.9)	516 (2.9)
Moscow City, Russian Fed.	86 (3.0)	613 (2.4)	14 (3.0)	605 (6.0)	39 (4.0)	615 (3.7)	61 (4.0)	610 (2.7)	37 (3.8)	618 (3.9)	63 (3.8)	609 (2.7)
Eng/Afr/Zulu - RSA (5)	r 74 (4.6)	420 (7.3)	26 (4.6)	402 (16.6)	r 37 (5.7)	406 (14.9)	63 (5.7)	419 (10.0)	r 61 (6.3)	408 (9.2)	39 (6.3)	424 (14.2)
Andalusia, Spain	90 (2.6)	526 (2.1)	10 (2.6)	519 (5.6)	42 (4.0)	525 (3.1)	58 (4.0)	524 (2.9)	36 (4.0)	525 (4.4)	64 (4.0)	524 (2.2)
Madrid, Spain	88 (2.6)	549 (2.1)	12 (2.6)	553 (4.5)	45 (3.4)	547 (3.5)	55 (3.4)	551 (2.2)	33 (4.1)	548 (3.5)	67 (4.1)	550 (2.4)
Abu Dhabi, UAE	76 (4.1)	408 (5.4)	24 (4.1)	438 (14.1)	29 (3.5)	418 (10.4)	71 (3.5)	415 (6.0)	48 (4.2)	412 (7.5)	52 (4.2)	420 (8.4)
Dubai, UAE	80 (2.1)	521 (2.3)	20 (2.1)	508 (6.4)	40 (2.1)	535 (4.3)	60 (2.1)	506 (3.3)	55 (2.4)	526 (3.6)	45 (2.4)	508 (4.2)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 9.7 and 9.8: Computers for Reading Lessons

Exhibit 9.7 provides information about students' access to computers as part of their reading lessons, and Exhibit 9.8 contains teachers' reports about the prevalence and types of computer-based activities used as part of reading instruction.

There was wide variation across the PIRLS countries in computer availability for use in reading lessons, from availability for most students (92-93%) in New Zealand and Denmark to availability for only a few students (6-8%) in South Africa, Belgium (French), and Morocco. Internationally, the fourth grade students with computers available for reading instruction had higher achievement (516 vs. 508), which also is likely to be related to socioeconomic factors. On average, relatively few students (10%) were in classrooms where every student had a computer, about one-fourth (23%) were in classrooms where students shared computers, and another one-third (36%) used computers available schoolwide.

On average across countries, students were asked to engage in various computer-based activities on at least a weekly basis without any one instructional use predominating: read digital texts (19%), strategies for reading digital texts (13%), critique Internet text (17%), look up information (25%), research a problem (19%), and write something (17%).

Exhibit 9.7: Access to Computers for Reading Lessons

Students Categorized by Teachers' Reports

Country	Computers Available for Students to Use for Reading Lessons			Percent of Students		
	Percent of Students	Average Achievement		Each Student has a Computer	The Class has Computers that Students can Share	The School has Computers that the Class can Sometimes Use
		Yes	Yes			
New Zealand	93 (1.6)	529 (2.5)	498 (15.9)	13 (2.5)	83 (2.5)	66 (2.8)
Denmark	92 (2.2)	548 (2.2)	540 (8.7)	38 (3.7)	8 (2.1)	64 (3.7)
Netherlands	87 (2.6)	545 (1.9)	545 (5.3)	17 (3.4)	79 (3.1)	77 (2.9)
Sweden	83 (3.3)	558 (2.6)	543 (5.3)	22 (4.0)	34 (4.4)	54 (4.3)
Northern Ireland	77 (3.6)	563 (3.0)	566 (4.4)	6 (2.2)	58 (4.9)	70 (3.7)
Georgia	75 (3.1)	487 (2.9)	490 (6.7)	60 (2.9)	18 (2.9)	65 (3.6)
Australia	75 (3.1)	546 (3.0)	542 (4.9)	17 (2.6)	58 (3.6)	64 (3.3)
Finland	72 (2.8)	566 (2.1)	566 (3.5)	9 (1.9)	26 (3.4)	70 (2.8)
United States	70 (3.8)	546 (3.6)	556 (5.7)	25 (4.0)	51 (4.0)	58 (4.4)
Norway (5)	66 (3.9)	558 (2.8)	561 (2.8)	9 (2.6)	33 (4.1)	60 (4.2)
Canada	65 (1.8)	544 (2.5)	542 (2.4)	8 (0.9)	41 (2.0)	59 (2.2)
Germany	65 (3.6)	539 (4.5)	531 (6.4)	3 (1.3)	48 (4.0)	52 (3.8)
Israel	62 (4.2)	547 (4.6)	503 (6.3)	18 (3.3)	26 (3.9)	59 (4.3)
Russian Federation	56 (3.0)	588 (3.3)	572 (4.3)	9 (2.0)	21 (2.8)	50 (3.3)
England	55 (4.0)	554 (3.0)	564 (3.4)	11 (2.2)	36 (3.3)	46 (4.0)
Singapore	55 (2.4)	584 (4.2)	567 (5.5)	31 (2.4)	20 (2.0)	54 (2.4)
Belgium (Flemish)	54 (3.6)	525 (2.9)	525 (2.9)	3 (1.3)	40 (3.7)	45 (3.4)
Austria	53 (4.0)	537 (3.2)	546 (3.5)	1 (0.9)	48 (4.0)	25 (3.7)
Malta	49 (0.1)	452 (2.3)	453 (2.1)	2 (0.0)	46 (0.1)	12 (0.1)
Macao SAR	49 (0.1)	548 (1.5)	543 (1.3)	18 (0.1)	23 (0.1)	39 (0.1)
Kazakhstan	49 (3.5)	537 (3.6)	536 (4.1)	20 (2.6)	36 (3.5)	44 (3.3)
Bulgaria	48 (3.9)	548 (6.6)	554 (5.6)	4 (1.6)	16 (2.5)	47 (3.9)
Qatar	45 (3.2)	452 (4.6)	436 (3.5)	12 (1.0)	23 (2.7)	37 (2.6)
Ireland	39 (3.7)	564 (3.9)	568 (3.4)	2 (1.0)	18 (3.0)	33 (3.7)
Iran, Islamic Rep. of	38 (3.8)	447 (7.2)	417 (5.8)	3 (1.4)	6 (1.9)	28 (3.5)
Latvia	37 (4.1)	557 (3.2)	558 (2.6)	10 (2.5)	13 (2.5)	37 (4.1)
Hungary	37 (4.0)	556 (5.4)	553 (4.1)	4 (1.2)	15 (2.8)	32 (3.7)
Chile	36 (4.6)	494 (5.8)	499 (3.8)	16 (3.2)	17 (3.7)	36 (4.6)
Hong Kong SAR	35 (4.1)	572 (4.6)	566 (3.8)	14 (3.1)	16 (2.8)	31 (4.0)
United Arab Emirates	34 (2.0)	494 (6.1)	431 (4.4)	16 (1.2)	19 (1.6)	29 (1.9)
Chinese Taipei	34 (3.6)	560 (3.7)	559 (2.3)	7 (2.0)	18 (2.8)	31 (3.4)
Lithuania	30 (3.9)	548 (5.3)	548 (3.3)	3 (1.5)	14 (2.7)	27 (3.7)
Spain	30 (2.0)	523 (4.6)	530 (1.9)	6 (1.1)	15 (1.6)	24 (1.9)
Czech Republic	29 (3.1)	540 (5.0)	545 (2.4)	6 (1.5)	12 (2.1)	27 (3.0)
Bahrain	29 (2.6)	461 (5.6)	440 (3.3)	4 (1.0)	7 (1.5)	28 (2.6)
Saudi Arabia	26 (3.1)	423 (9.6)	433 (4.9)	3 (1.3)	8 (1.8)	20 (2.7)
Poland	25 (3.0)	566 (4.4)	565 (2.6)	5 (1.6)	4 (1.4)	24 (2.9)
France	25 (3.4)	515 (4.4)	511 (2.5)	2 (1.3)	15 (3.0)	20 (3.1)
Oman	24 (2.2)	420 (6.6)	417 (3.6)	3 (0.8)	9 (1.7)	19 (2.2)
Kuwait	22 (3.4)	400 (14.9)	392 (5.3)	6 (2.1)	3 (1.1)	18 (2.8)
Italy	21 (3.4)	546 (5.8)	549 (2.8)	3 (1.6)	15 (2.9)	18 (3.2)
Slovak Republic	19 (2.8)	543 (6.8)	533 (3.6)	8 (1.8)	7 (1.9)	17 (2.7)
Azerbaijan	18 (2.7)	485 (9.1)	469 (4.9)	2 (0.8)	9 (2.1)	16 (2.4)
Slovenia	17 (2.8)	541 (4.1)	543 (2.2)	4 (1.2)	10 (2.1)	17 (2.8)
Egypt	15 (3.1)	337 (18.3)	329 (6.3)	1 (0.7)	2 (0.9)	14 (3.0)
Portugal	14 (2.2)	524 (6.1)	529 (2.5)	1 (0.4)	6 (1.7)	12 (2.3)
Trinidad and Tobago	12 (2.6)	501 (10.0)	477 (3.9)	5 (1.9)	0 (0.0)	8 (2.2)
South Africa	r 8 (1.6)	372 (20.0)	316 (5.3)	r 1 (0.5)	r 1 (0.8)	r 6 (1.5)
Belgium (French)	7 (2.1)	506 (7.1)	497 (2.8)	0 (0.0)	2 (0.9)	6 (2.0)
Morocco	6 (1.8)	406 (14.3)	354 (4.2)	0 (0.3)	1 (0.7)	5 (1.7)
International Avg.	43 (0.4)	516 (1.0)	508 (0.7)	10 (0.3)	23 (0.4)	36 (0.4)

() 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.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 9.7: Access to Computers for Reading Lessons (Continued)

Country	Computers Available for Students to Use for Reading Lessons			Percent of Students		
	Percent of Students	Average Achievement		Each Student has a Computer	The Class has Computers that Students can Share	The School has Computers that the Class can Sometimes Use
		Yes	Yes			
Benchmarking Participants						
Denmark (3)	89 (2.8)	502 (2.9)	492 (12.5)	32 (3.8)	9 (2.5)	65 (4.1)
Ontario, Canada	77 (3.5)	546 (3.7)	538 (5.6)	6 (1.6)	53 (4.3)	71 (4.0)
Moscow City, Russian Fed.	76 (3.4)	614 (2.4)	607 (4.6)	14 (3.0)	37 (3.4)	68 (3.8)
Norway (4)	64 (3.6)	521 (2.4)	511 (3.4)	7 (1.6)	39 (3.5)	61 (3.8)
Dubai, UAE	61 (1.3)	537 (2.6)	488 (4.1)	30 (1.4)	37 (2.7)	55 (1.6)
Buenos Aires, Argentina	56 (3.4)	463 (4.8)	500 (5.0)	39 (3.0)	16 (3.0)	51 (3.5)
Quebec, Canada	45 (4.9)	545 (4.2)	548 (3.9)	2 (1.1)	28 (4.3)	41 (4.9)
Madrid, Spain	35 (3.4)	551 (3.6)	548 (2.3)	8 (2.4)	12 (2.7)	34 (3.4)
Andalusia, Spain	31 (3.8)	530 (3.2)	522 (2.8)	3 (1.4)	12 (3.0)	26 (3.3)
Abu Dhabi, UAE	30 (3.1)	466 (10.9)	396 (4.8)	14 (2.1)	17 (3.0)	23 (3.3)
Eng/Afr/Zulu - RSA (5)	r 17 (4.7)	484 (21.0)	402 (7.5)	r 2 (1.8)	r 4 (2.5)	r 13 (4.0)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 9.8: Computer Activities During Reading Lessons

Students Categorized by Teachers' Reports

Country	Percent of Students Whose Teachers Do the Following Computer Activities in Reading Lessons at Least Weekly					
	Ask Students to Read Digital Texts	Teach Students Strategies for Reading Digital Texts	Teach Students to Be Critical When Reading on the Internet	Ask Students to Look Up Information (e.g., facts, definitions, etc.)	Ask Students to Research a Particular Topic or Problem	Ask Students to Write Stories or Other Texts
Australia	57 (3.1)	39 (3.4)	43 (3.2)	59 (3.4)	50 (3.4)	51 (3.4)
Austria	13 (2.5)	9 (2.0)	11 (2.2)	20 (2.8)	12 (2.3)	19 (3.0)
Azerbaijan	8 (1.8)	8 (1.6)	9 (2.1)	12 (2.3)	9 (2.0)	10 (2.1)
Bahrain	17 (2.6)	15 (2.3)	14 (2.2)	16 (2.4)	14 (2.3)	15 (2.2)
Belgium (Flemish)	3 (1.4)	1 (0.7)	10 (2.4)	20 (2.7)	10 (2.2)	5 (1.1)
Belgium (French)	1 (0.7)	1 (0.7)	0 (0.4)	1 (0.7)	0 (0.1)	0 (0.3)
Bulgaria	20 (2.6)	15 (2.8)	20 (2.9)	31 (3.5)	22 (3.4)	4 (1.3)
Canada	30 (1.9)	16 (1.7)	22 (1.8)	36 (1.9)	29 (1.7)	27 (2.2)
Chile	9 (2.5)	6 (2.0)	10 (2.7)	15 (3.5)	9 (2.6)	11 (3.1)
Chinese Taipei	7 (2.0)	5 (1.9)	8 (2.3)	10 (2.5)	7 (2.1)	6 (1.9)
Czech Republic	4 (1.2)	2 (0.8)	6 (1.7)	12 (2.1)	13 (2.3)	5 (1.9)
Denmark	40 (3.6)	13 (2.3)	29 (3.3)	51 (3.8)	43 (3.8)	47 (3.6)
Egypt	8 (2.2)	6 (1.9)	3 (1.5)	8 (2.5)	6 (2.1)	4 (1.6)
England	26 (3.4)	13 (2.6)	25 (3.4)	40 (3.4)	35 (3.5)	16 (2.5)
Finland	21 (2.9)	8 (1.5)	28 (3.3)	32 (3.5)	24 (3.2)	22 (3.0)
France	6 (1.9)	3 (1.2)	4 (1.4)	8 (2.1)	7 (2.0)	5 (1.7)
Georgia	34 (3.3)	31 (3.1)	35 (3.0)	54 (3.7)	16 (2.8)	33 (3.5)
Germany	10 (2.3)	4 (1.5)	9 (2.2)	21 (3.0)	19 (2.9)	10 (2.1)
Hong Kong SAR	20 (3.8)	7 (1.8)	9 (2.7)	12 (3.0)	7 (2.3)	6 (1.9)
Hungary	15 (2.7)	13 (2.7)	21 (3.2)	23 (2.9)	23 (3.4)	12 (2.6)
Iran, Islamic Rep. of	16 (3.1)	14 (3.1)	16 (2.9)	26 (3.0)	27 (3.0)	22 (3.6)
Ireland	14 (2.5)	10 (2.2)	11 (2.7)	21 (3.0)	17 (2.6)	11 (2.3)
Israel	45 (4.4)	44 (4.4)	44 (4.4)	47 (4.3)	25 (3.8)	29 (4.1)
Italy	10 (2.7)	10 (2.7)	14 (3.0)	13 (3.0)	11 (2.6)	10 (2.8)
Kazakhstan	37 (3.3)	31 (3.0)	35 (3.1)	42 (3.6)	36 (3.4)	39 (3.3)
Kuwait	15 (3.2)	12 (2.8)	11 (2.9)	16 (3.2)	16 (3.2)	11 (2.8)
Latvia	6 (1.9)	4 (1.6)	10 (2.2)	20 (3.3)	8 (2.2)	9 (2.2)
Lithuania	10 (2.6)	7 (2.2)	9 (2.4)	20 (3.4)	13 (2.6)	8 (2.2)
Macao SAR	21 (0.1)	14 (0.1)	17 (0.1)	20 (0.1)	11 (0.1)	11 (0.1)
Malta	19 (0.1)	15 (0.1)	15 (0.1)	26 (0.1)	21 (0.1)	30 (0.1)
Morocco	2 (0.9)	1 (0.7)	2 (0.9)	3 (1.0)	3 (1.0)	1 (0.6)
Netherlands	47 (4.5)	31 (4.5)	15 (2.5)	46 (4.4)	32 (3.9)	25 (3.8)
New Zealand	57 (3.0)	30 (2.6)	44 (3.1)	78 (2.8)	70 (2.7)	64 (2.8)
Northern Ireland	33 (4.5)	14 (3.0)	25 (4.1)	54 (5.1)	41 (4.9)	21 (3.6)
Norway (5)	25 (3.0)	8 (1.9)	29 (3.3)	33 (3.5)	22 (3.3)	31 (3.7)
Oman	14 (2.1)	13 (2.1)	14 (2.3)	17 (2.3)	18 (2.2)	18 (2.4)
Poland	5 (1.4)	5 (1.2)	9 (2.2)	10 (2.1)	8 (1.9)	2 (1.0)
Portugal	6 (1.7)	4 (1.3)	5 (1.3)	9 (2.2)	7 (1.8)	6 (1.6)
Qatar	28 (3.0)	22 (3.0)	22 (2.9)	31 (2.9)	26 (2.2)	24 (2.3)
Russian Federation	18 (2.6)	11 (2.3)	23 (2.6)	41 (3.2)	32 (3.3)	12 (2.2)
Saudi Arabia	17 (2.6)	19 (2.7)	17 (2.4)	20 (2.6)	18 (2.6)	15 (2.6)
Singapore	17 (1.8)	13 (1.4)	16 (1.7)	24 (2.2)	16 (1.9)	14 (1.9)
Slovak Republic	6 (1.4)	5 (1.4)	8 (1.8)	9 (1.6)	7 (1.6)	4 (1.3)
Slovenia	7 (1.9)	2 (0.9)	6 (2.2)	10 (2.4)	7 (2.2)	1 (0.8)
South Africa	r 4 (1.3)	r 4 (1.3)	r 2 (0.8)	r 4 (1.4)	r 3 (0.8)	r 3 (0.9)
Spain	13 (1.9)	8 (1.8)	12 (1.6)	15 (2.3)	11 (1.9)	11 (1.8)
Sweden	28 (4.0)	13 (3.3)	31 (3.7)	32 (3.6)	27 (3.8)	46 (4.2)
Trinidad and Tobago	3 (1.4)	3 (1.2)	3 (1.2)	6 (1.8)	6 (1.9)	4 (1.5)
United Arab Emirates	25 (1.9)	21 (1.9)	20 (1.8)	26 (1.9)	22 (1.6)	20 (1.4)
United States	46 (4.3)	30 (3.2)	28 (3.6)	40 (4.0)	26 (3.5)	37 (3.9)
International Avg.	19 (0.4)	13 (0.3)	17 (0.4)	25 (0.4)	19 (0.4)	17 (0.4)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

() 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 9.8: Computer Activities During Reading Lessons (Continued)

Country	Percent of Students Whose Teachers Do the Following Computer Activities in Reading Lessons at Least Weekly					
	Ask Students to Read Digital Texts	Teach Students Strategies for Reading Digital Texts	Teach Students to Be Critical When Reading on the Internet	Ask Students to Look Up Information (e.g., facts, definitions, etc.)	Ask Students to Research a Particular Topic or Problem	Ask Students to Write Stories or Other Texts
Benchmarking Participants						
Buenos Aires, Argentina	27 (3.5)	23 (3.4)	30 (3.6)	37 (3.3)	36 (3.3)	29 (3.4)
Ontario, Canada	39 (4.0)	23 (3.5)	30 (3.9)	51 (4.4)	43 (3.3)	33 (4.0)
Quebec, Canada	10 (2.4)	2 (1.1)	7 (2.5)	11 (2.6)	9 (2.7)	7 (2.1)
Denmark (3)	35 (3.7)	12 (2.4)	16 (2.8)	28 (3.9)	21 (3.7)	42 (3.6)
Norway (4)	27 (3.2)	16 (2.4)	27 (3.4)	33 (3.7)	20 (3.3)	29 (3.4)
Moscow City, Russian Fed.	24 (3.7)	15 (2.9)	33 (3.8)	57 (4.1)	39 (3.8)	17 (2.9)
Eng/Afr/Zulu - RSA (5)	r 4 (2.0)	r 1 (0.5)	r 2 (0.9)	r 3 (1.1)	r 2 (0.5)	r 2 (1.1)
Andalusia, Spain	14 (3.1)	9 (2.6)	14 (3.0)	17 (3.2)	12 (2.9)	13 (2.9)
Madrid, Spain	12 (2.6)	8 (2.1)	11 (2.5)	13 (2.5)	9 (2.1)	13 (2.4)
Abu Dhabi, UAE	19 (3.3)	18 (3.2)	15 (2.6)	18 (3.0)	15 (2.8)	15 (3.1)
Dubai, UAE	46 (1.7)	35 (2.6)	36 (2.2)	49 (2.1)	49 (2.2)	40 (1.9)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 9.9: Classroom Instruction Limited by Student Attributes

Exhibit 9.9 presents teachers' reports about the extent to which their fourth grade classroom instruction in reading was limited by students' preparedness and readiness to learn (i.e., lacking skills, sleep deprived, poor nutrition, absent, disruptive, uninterested, or with learning impairments). The results have been summarized on the *Classroom Instruction Limited by Student Attributes* scale. On average, across the PIRLS countries, about one third (34%) of the fourth grade students had classroom teachers who reported **Very Little** impact on their teaching due to students' lack of preparedness or readiness to learn. Most of the rest of the students (63%) had teachers who reported that these student attributes led to **Some** limitations in their teaching. Unfortunately, 4 percent of students were in classrooms where teachers reported instruction was limited **A Lot**. As would be anticipated, there was a direct relationship between the degree that teaching was limited and average reading achievement, with successively lower achievement for each category of increased impact on teaching (528, 504, and 473, respectively). On average, reading achievement was 55 points higher for students whose teachers reported that teaching was limited **Very Little** compared to students whose teachers reported their teaching was limited **A Lot**.

Exhibit 9.9: Classroom Instruction Limited by Student Attributes

Students Categorized by Teachers' Reports

Students were scored according to their teachers' responses about seven attributes of their students that could limit how they teach their class on the *Classroom Instruction Limited by Student Attributes* scale. Students with teachers who felt their teaching was limited **Very Little** had a score on the scale of at least 11.0, which corresponds to their teachers feeling "not at all" limited by four of the seven student attributes and to "some" extent by the other three, on average. Students with teachers who felt limited **A Lot** had a score no higher than 6.2, which corresponds to their teachers feeling limited "a lot" by four of the seven attributes and to "some" extent by the other three, on average. All other students had teachers who felt their teaching was limited to **Some** extent.

Country	Very Little		Some		A Lot		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Italy	63 (3.9)	550 (3.1)	37 (3.9)	546 (3.8)	0 (0.0)	~ ~	11.3 (0.12)
Netherlands	57 (4.2)	551 (2.2)	41 (4.2)	540 (2.8)	2 (0.7)	~ ~	11.0 (0.16)
Slovak Republic	57 (3.6)	548 (3.1)	42 (3.8)	521 (5.3)	1 (0.4)	~ ~	11.3 (0.13)
Czech Republic	56 (3.1)	549 (2.4)	44 (3.1)	536 (3.9)	0 (0.0)	~ ~	11.0 (0.09)
Kazakhstan	55 (3.0)	530 (3.7)	43 (3.2)	543 (4.6)	3 (1.1)	558 (9.1)	10.9 (0.15)
Belgium (Flemish)	53 (3.9)	535 (2.2)	47 (3.8)	514 (3.2)	1 (0.4)	~ ~	10.8 (0.13)
Finland	50 (3.6)	572 (2.3)	50 (3.6)	560 (2.5)	0 (0.1)	~ ~	10.9 (0.12)
Norway (5)	48 (4.4)	569 (2.7)	52 (4.4)	549 (2.8)	0 (0.0)	~ ~	10.6 (0.16)
Poland	47 (3.7)	573 (3.3)	52 (3.8)	557 (2.8)	1 (0.5)	~ ~	10.7 (0.13)
Ireland	47 (3.6)	579 (3.0)	52 (3.6)	557 (3.2)	1 (0.8)	~ ~	10.6 (0.14)
Northern Ireland	45 (4.5)	575 (4.1)	54 (4.6)	556 (3.3)	1 (1.0)	~ ~	10.7 (0.19)
Azerbaijan	44 (3.3)	475 (5.8)	55 (3.3)	471 (6.6)	0 (0.3)	~ ~	10.6 (0.10)
Spain	43 (3.1)	537 (2.0)	54 (3.0)	521 (2.6)	3 (0.8)	524 (5.9)	10.4 (0.11)
Macao SAR	43 (0.1)	554 (1.4)	55 (0.1)	540 (1.5)	2 (0.0)	~ ~	10.4 (0.00)
Germany	42 (3.3)	557 (3.0)	57 (3.4)	521 (5.3)	2 (1.0)	~ ~	10.2 (0.14)
Austria	41 (3.7)	551 (2.9)	57 (3.6)	535 (3.2)	2 (0.9)	~ ~	10.3 (0.16)
Sweden	40 (4.2)	562 (3.0)	59 (4.3)	551 (3.6)	1 (0.7)	~ ~	10.5 (0.15)
Singapore	38 (2.7)	610 (4.7)	59 (2.8)	555 (4.0)	3 (0.8)	563 (21.8)	10.2 (0.12)
Bulgaria	38 (4.0)	575 (5.7)	60 (4.0)	538 (5.2)	1 (0.9)	~ ~	10.4 (0.13)
England	38 (3.5)	572 (3.1)	61 (3.7)	550 (2.8)	1 (0.9)	~ ~	10.3 (0.12)
New Zealand	37 (2.8)	551 (3.1)	61 (2.7)	516 (3.4)	3 (0.9)	489 (23.3)	10.1 (0.09)
Hong Kong SAR	36 (4.6)	579 (5.3)	63 (4.7)	562 (3.2)	1 (0.8)	~ ~	10.2 (0.12)
Israel	35 (3.3)	556 (6.0)	50 (3.9)	525 (4.6)	14 (2.8)	486 (10.9)	9.5 (0.18)
Hungary	35 (4.1)	574 (4.9)	64 (4.2)	545 (4.0)	2 (1.1)	~ ~	10.1 (0.18)
Georgia	34 (3.6)	496 (5.0)	61 (3.7)	484 (3.7)	6 (1.7)	495 (12.3)	9.9 (0.15)
United Arab Emirates	34 (2.1)	498 (6.1)	63 (2.1)	435 (4.4)	3 (0.8)	382 (12.3)	9.9 (0.08)
Malta	33 (0.1)	469 (2.3)	57 (0.1)	444 (2.6)	10 (0.1)	450 (4.2)	9.6 (0.01)
Denmark	32 (3.4)	553 (3.4)	66 (3.6)	546 (2.7)	2 (1.0)	~ ~	10.1 (0.16)
Australia	31 (3.5)	571 (4.8)	65 (3.6)	533 (3.2)	4 (1.2)	531 (9.7)	9.9 (0.15)
Latvia	30 (3.5)	560 (3.2)	64 (3.6)	555 (2.4)	6 (1.6)	577 (4.9)	9.8 (0.14)
Portugal	28 (2.7)	538 (5.7)	68 (2.6)	524 (2.2)	4 (1.2)	528 (12.0)	9.8 (0.12)
France	27 (3.2)	529 (3.5)	66 (3.6)	505 (2.9)	6 (1.9)	506 (9.6)	9.4 (0.14)
Qatar	27 (2.1)	479 (5.9)	70 (2.3)	430 (2.9)	3 (0.7)	411 (17.8)	9.8 (0.07)
Bahrain	25 (3.8)	470 (7.2)	72 (4.1)	440 (3.7)	3 (1.4)	432 (21.9)	9.5 (0.10)
Belgium (French)	24 (3.5)	516 (4.6)	73 (3.5)	494 (3.3)	3 (0.8)	454 (9.2)	9.7 (0.11)
Saudi Arabia	24 (3.7)	465 (8.3)	76 (3.7)	420 (4.7)	0 (0.0)	~ ~	9.6 (0.13)
Chinese Taipei	24 (3.6)	558 (3.6)	76 (3.6)	559 (2.5)	1 (0.6)	~ ~	9.9 (0.10)
Lithuania	21 (3.1)	557 (4.8)	69 (3.8)	547 (3.5)	9 (2.2)	534 (12.2)	9.2 (0.13)
Oman	21 (2.4)	436 (7.0)	64 (3.1)	415 (4.4)	15 (2.4)	410 (7.9)	8.8 (0.13)
Trinidad and Tobago	20 (2.7)	524 (7.3)	76 (2.9)	469 (4.1)	3 (1.5)	475 (24.0)	9.6 (0.15)
Canada	20 (2.1)	561 (3.9)	76 (2.3)	540 (2.2)	4 (0.8)	515 (8.8)	9.3 (0.09)
Iran, Islamic Rep. of	19 (2.9)	441 (9.5)	75 (3.2)	423 (5.6)	6 (1.6)	442 (14.7)	9.1 (0.13)
Russian Federation	19 (2.5)	590 (6.2)	65 (3.0)	583 (2.8)	17 (2.5)	563 (5.9)	8.6 (0.15)
United States	19 (3.0)	581 (4.8)	76 (3.4)	545 (3.4)	5 (1.8)	506 (12.3)	9.3 (0.13)
Kuwait	17 (3.8)	414 (16.5)	80 (4.9)	388 (6.6)	3 (3.0)	440 (88.4)	9.4 (0.17)
Slovenia	15 (2.9)	543 (3.6)	73 (3.6)	542 (2.5)	12 (2.5)	545 (6.1)	8.8 (0.16)
Chile	13 (2.8)	537 (5.7)	79 (3.7)	494 (3.3)	8 (2.8)	461 (13.4)	8.7 (0.16)
South Africa	13 (2.4)	342 (17.4)	83 (2.9)	318 (5.8)	4 (1.4)	309 (16.5)	9.0 (0.10)
Morocco	12 (2.0)	419 (12.8)	82 (2.3)	350 (4.4)	6 (1.2)	332 (9.0)	8.8 (0.09)
Egypt	9 (2.1)	384 (16.0)	85 (2.4)	326 (6.3)	6 (1.6)	323 (26.8)	8.7 (0.12)
International Avg.	34 (0.5)	528 (0.9)	63 (0.5)	504 (0.5)	4 (0.2)	473 (4.1)	

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

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

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

Exhibit 9.9: Classroom Instruction Limited by Student Attributes (Continued)

Country	Very Little		Some		A Lot		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Benchmarking Participants							
Madrid, Spain	56 (4.6)	556 (2.6)	44 (4.6)	540 (2.6)	0 (0.0)	~ ~	10.8 (0.13)
Dubai, UAE	51 (1.9)	541 (3.1)	46 (1.9)	496 (3.6)	2 (0.7)	~ ~	10.8 (0.09)
Norway (4)	40 (4.1)	522 (2.7)	59 (4.1)	514 (2.9)	1 (0.5)	~ ~	10.4 (0.14)
Andalusía, Spain	39 (3.6)	540 (2.3)	59 (3.7)	515 (3.0)	2 (1.1)	~ ~	10.4 (0.13)
Denmark (3)	38 (3.9)	510 (4.4)	59 (4.1)	498 (3.7)	3 (1.3)	469 (14.4)	10.1 (0.14)
Abu Dhabi, UAE	27 (3.1)	460 (11.9)	71 (3.4)	407 (6.1)	2 (1.2)	~ ~	9.4 (0.13)
Buenos Aires, Argentina	23 (3.7)	506 (6.9)	57 (4.4)	473 (4.9)	20 (3.2)	467 (8.5)	8.7 (0.19)
Ontario, Canada	23 (4.1)	554 (7.2)	74 (4.4)	544 (3.4)	3 (1.4)	473 (16.3)	9.6 (0.17)
Quebec, Canada	19 (4.0)	573 (6.6)	73 (4.7)	541 (2.6)	8 (2.8)	535 (8.5)	9.2 (0.19)
Moscow City, Russian Fed.	18 (2.9)	619 (5.2)	73 (3.6)	612 (2.5)	9 (2.3)	596 (6.3)	8.8 (0.15)
Eng/Afr/Zulu - RSA (5)	10 (2.9)	431 (23.5)	86 (3.5)	413 (6.8)	4 (2.1)	424 (33.3)	9.2 (0.17)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

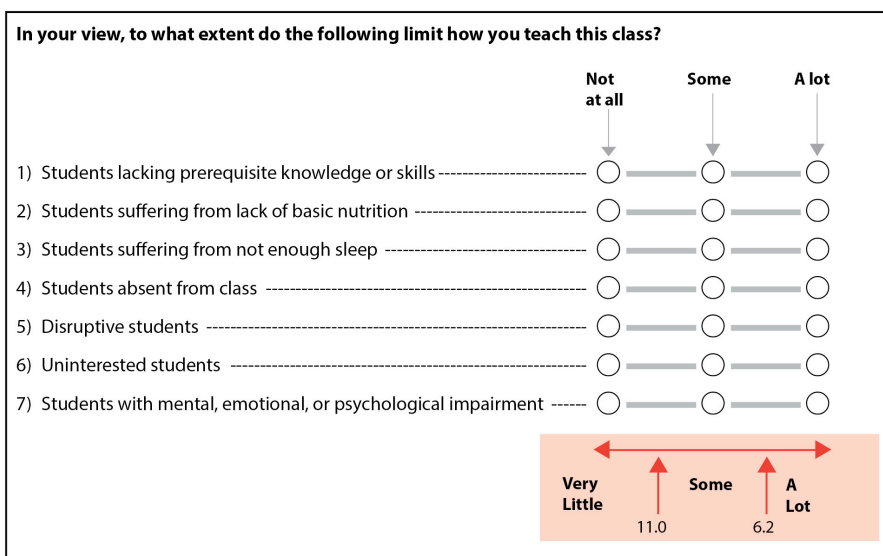


Exhibit 9.10: Frequency of Student Absences

Exhibit 9.10 contains students' reports about their absences from school. On average, many students (68%) reported that they were "never or almost never" absent. However, 17 percent reported monthly absences, 5 percent bi-weekly absences, and 10 percent weekly absences. Because coming to school is the foundation for having an opportunity to learn, it is not surprising that increases in frequency of being absent is highly related to decreases in average reading achievement, especially for the students absent as often as once every two weeks or more. Average reading achievement was 521 for students "never or almost never" absent, 509 for absent "once a month," 476 for absent "once every two weeks," and 459 for absent "once a week or more"—a 62-point difference between full attendance and regularly being absent.

Exhibit 9.10: Frequency of Student Absences

Students' Reports

Country	Never or Almost Never		Once a Month		Once Every Two Weeks		Once a Week or More	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Hong Kong SAR	89 (0.7)	573 (2.7)	8 (0.6)	558 (4.6)	1 (0.2)	~ ~	2 (0.3)	~ ~
Belgium (Flemish)	87 (0.7)	530 (1.8)	9 (0.5)	506 (5.0)	2 (0.2)	~ ~	2 (0.3)	~ ~
Portugal	86 (0.7)	531 (2.5)	7 (0.5)	523 (5.2)	2 (0.3)	~ ~	5 (0.4)	483 (6.1)
Spain	85 (0.5)	532 (1.6)	7 (0.4)	522 (3.7)	3 (0.2)	510 (5.7)	5 (0.3)	482 (7.3)
Chinese Taipei	83 (0.7)	567 (2.1)	10 (0.5)	549 (3.5)	2 (0.2)	~ ~	6 (0.5)	481 (5.2)
Lithuania	82 (0.7)	552 (2.5)	10 (0.7)	553 (5.6)	2 (0.2)	~ ~	6 (0.6)	495 (7.6)
Germany	82 (0.7)	548 (2.9)	10 (0.5)	534 (5.6)	3 (0.3)	516 (7.8)	5 (0.4)	482 (7.4)
France	82 (0.8)	517 (2.2)	10 (0.5)	505 (4.9)	3 (0.4)	479 (7.5)	5 (0.4)	461 (5.0)
Austria	82 (0.7)	545 (2.2)	11 (0.6)	541 (4.9)	2 (0.3)	~ ~	5 (0.4)	479 (5.6)
Russian Federation	82 (0.8)	584 (2.3)	11 (0.6)	580 (3.7)	3 (0.3)	564 (8.0)	5 (0.3)	531 (6.0)
Belgium (French)	82 (0.7)	503 (2.6)	9 (0.5)	490 (4.7)	3 (0.3)	466 (7.7)	7 (0.5)	457 (4.7)
Netherlands	82 (0.9)	549 (1.6)	11 (0.6)	542 (4.8)	2 (0.2)	~ ~	6 (0.5)	499 (7.0)
Macao SAR	82 (0.7)	551 (1.1)	13 (0.6)	536 (3.5)	2 (0.2)	~ ~	4 (0.3)	474 (6.6)
Singapore	79 (0.8)	588 (2.7)	12 (0.5)	560 (4.1)	2 (0.2)	~ ~	6 (0.5)	481 (5.6)
Malta	79 (0.7)	465 (1.7)	10 (0.5)	437 (5.4)	3 (0.3)	374 (13.0)	8 (0.5)	392 (5.9)
England	76 (0.7)	566 (1.8)	17 (0.5)	552 (3.4)	3 (0.2)	516 (7.8)	4 (0.3)	483 (7.5)
Norway (5)	76 (0.8)	562 (2.4)	17 (0.7)	552 (3.9)	3 (0.2)	561 (7.0)	4 (0.4)	528 (6.2)
Sweden	75 (1.0)	560 (2.4)	18 (0.8)	553 (3.6)	4 (0.4)	535 (6.8)	4 (0.4)	507 (7.9)
Northern Ireland	75 (1.0)	577 (2.4)	18 (0.8)	548 (3.5)	3 (0.4)	525 (8.3)	4 (0.4)	462 (8.7)
Ireland	71 (1.0)	577 (2.3)	21 (0.9)	556 (3.8)	3 (0.5)	522 (8.5)	5 (0.4)	489 (6.2)
Slovenia	71 (0.9)	548 (2.3)	17 (0.8)	548 (3.1)	5 (0.4)	524 (5.7)	8 (0.6)	496 (6.3)
United States	71 (0.9)	556 (3.1)	16 (0.6)	561 (3.8)	5 (0.4)	532 (6.6)	8 (0.6)	490 (5.8)
Latvia	71 (1.0)	562 (1.9)	17 (1.0)	555 (3.7)	5 (0.5)	555 (5.8)	7 (0.6)	529 (4.7)
Italy	70 (0.8)	555 (2.2)	16 (0.7)	548 (3.4)	5 (0.4)	526 (6.9)	9 (0.6)	509 (4.6)
Canada	69 (0.7)	550 (1.8)	18 (0.6)	546 (3.1)	5 (0.3)	530 (5.5)	7 (0.4)	486 (4.5)
Oman	69 (0.9)	434 (3.4)	13 (0.7)	406 (5.8)	5 (0.3)	363 (7.0)	13 (0.5)	380 (4.8)
Denmark	69 (0.9)	551 (2.1)	21 (0.8)	548 (4.0)	6 (0.4)	537 (6.1)	4 (0.4)	516 (7.7)
Morocco	69 (1.4)	372 (4.3)	14 (0.9)	340 (6.5)	5 (0.3)	321 (7.6)	12 (0.7)	325 (5.5)
Chile	66 (0.9)	499 (2.5)	11 (0.5)	507 (5.2)	7 (0.5)	493 (6.7)	16 (0.9)	468 (4.2)
Poland	66 (1.0)	574 (2.4)	19 (0.8)	560 (3.6)	6 (0.3)	541 (5.6)	9 (0.5)	520 (5.1)
Bulgaria	66 (1.4)	566 (3.4)	13 (0.7)	542 (6.3)	13 (0.7)	536 (8.0)	9 (0.8)	484 (7.3)
Australia	65 (1.0)	551 (2.5)	22 (0.8)	553 (3.1)	6 (0.3)	529 (6.8)	6 (0.5)	467 (6.2)
Israel	65 (1.0)	547 (2.6)	17 (0.7)	531 (4.7)	6 (0.4)	494 (10.9)	12 (0.6)	464 (4.8)
Iran, Islamic Rep. of	64 (1.5)	441 (3.8)	20 (1.1)	424 (8.8)	4 (0.4)	389 (11.3)	12 (0.7)	386 (7.0)
Kazakhstan	63 (1.2)	544 (2.6)	18 (0.9)	539 (3.2)	4 (0.3)	519 (5.7)	15 (0.7)	506 (4.0)
New Zealand	61 (0.9)	537 (2.2)	22 (0.9)	537 (3.7)	7 (0.4)	496 (5.1)	10 (0.6)	456 (5.6)
United Arab Emirates	60 (0.8)	474 (3.2)	16 (0.5)	453 (4.9)	7 (0.3)	391 (6.0)	17 (0.6)	398 (4.2)
Bahrain	59 (1.0)	464 (2.6)	16 (0.8)	450 (3.8)	6 (0.4)	410 (6.4)	19 (0.9)	402 (4.3)
Trinidad and Tobago	57 (1.2)	493 (3.7)	11 (0.6)	494 (5.4)	9 (0.6)	457 (5.7)	23 (1.0)	445 (4.6)
Qatar	57 (1.0)	469 (2.1)	16 (0.5)	442 (3.5)	8 (0.4)	393 (6.3)	19 (0.7)	392 (4.3)
Finland	56 (1.0)	575 (1.8)	36 (0.8)	562 (2.6)	5 (0.4)	547 (5.4)	3 (0.4)	503 (7.5)
Azerbaijan	55 (1.7)	483 (4.5)	24 (1.5)	478 (4.4)	6 (0.5)	441 (7.8)	15 (0.7)	441 (5.5)
Saudi Arabia	51 (1.4)	448 (4.3)	15 (0.8)	438 (6.9)	9 (0.6)	418 (8.4)	25 (1.1)	405 (5.2)
Czech Republic	51 (0.9)	552 (2.2)	33 (0.8)	546 (2.0)	7 (0.4)	532 (5.6)	9 (0.5)	495 (5.7)
South Africa	51 (1.2)	342 (5.2)	12 (0.7)	321 (6.1)	9 (0.4)	276 (5.8)	28 (0.9)	299 (4.7)
Hungary	50 (1.6)	569 (2.8)	35 (1.3)	554 (3.2)	6 (0.5)	518 (5.9)	8 (0.7)	489 (6.8)
Kuwait	50 (1.5)	415 (4.4)	18 (1.4)	388 (7.7)	9 (0.7)	361 (8.1)	23 (1.1)	374 (6.0)
Georgia	44 (1.3)	504 (3.2)	26 (1.1)	494 (3.3)	9 (0.5)	471 (6.0)	21 (0.8)	462 (4.3)
Slovak Republic	43 (1.3)	555 (3.2)	34 (1.0)	540 (3.0)	9 (0.5)	514 (8.6)	14 (0.7)	476 (6.6)
Egypt	41 (1.7)	348 (5.4)	22 (1.6)	330 (8.1)	10 (0.6)	325 (9.5)	27 (1.7)	314 (8.9)
International Avg.	68 (0.1)	521 (0.4)	17 (0.1)	509 (0.7)	5 (0.1)	476 (1.2)	10 (0.1)	459 (0.9)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent. A tilde (~) indicates insufficient data to report achievement.

Exhibit 9.10: Frequency of Student Absences (Continued)

Country	Never or Almost Never		Once a Month		Once Every Two Weeks		Once a Week or More	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants								
Madrid, Spain	86 (0.7)	552 (2.1)	7 (0.5)	545 (4.6)	3 (0.3)	527 (6.9)	4 (0.4)	506 (6.1)
Andalusia, Spain	85 (0.7)	529 (1.9)	6 (0.5)	512 (7.0)	2 (0.2)	~ ~	6 (0.5)	481 (6.1)
Quebec, Canada	80 (1.0)	551 (2.9)	13 (0.7)	543 (5.2)	3 (0.4)	537 (9.2)	4 (0.4)	504 (7.8)
Moscow City, Russian Fed.	80 (0.8)	613 (2.2)	13 (0.6)	613 (3.9)	3 (0.4)	621 (5.4)	3 (0.3)	566 (7.6)
Norway (4)	77 (0.7)	522 (2.2)	14 (0.7)	516 (3.7)	3 (0.3)	500 (5.8)	6 (0.4)	469 (5.3)
Denmark (3)	73 (0.9)	507 (3.3)	17 (0.9)	495 (4.2)	5 (0.4)	478 (6.6)	4 (0.4)	451 (7.9)
Buenos Aires, Argentina	67 (1.0)	490 (3.0)	10 (0.4)	481 (6.4)	7 (0.4)	473 (8.3)	16 (0.8)	448 (4.9)
Ontario, Canada	66 (1.4)	549 (2.9)	20 (1.2)	552 (5.3)	6 (0.5)	528 (9.2)	8 (0.6)	493 (6.8)
Dubai, UAE	64 (0.9)	532 (2.1)	17 (0.6)	521 (3.6)	6 (0.3)	477 (10.7)	14 (0.9)	452 (5.9)
Eng/Afr/Zulu - RSA (5)	60 (1.5)	427 (6.4)	12 (0.8)	403 (7.7)	6 (0.5)	367 (9.2)	21 (1.2)	372 (6.6)
Abu Dhabi, UAE	55 (1.3)	444 (4.9)	17 (0.8)	412 (7.7)	8 (0.6)	350 (8.7)	20 (0.9)	369 (5.5)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 9.11: Students Arrive at School Feeling Tired or Hungry

Exhibit 9.11 contains students' reports about arriving at school feeling tired or hungry. On average, across countries, only 18 percent of the students reported "never" arriving at school feeling tired. Half (50%) reported "sometimes" arriving feeling tired and about one-third (32%) reported that they felt tired "every day or almost every day," with the "sometimes" tired students having higher achievement (520 vs. 501). Interestingly, the "never" tired students had average achievement in between (509) the moderate and daily frequencies of being tired. Perhaps there are many reasons why students might be sometimes tired ranging from too many video games to demanding busing schedules or having to walk to school.

Unfortunately, only one-third of the students (33%) reported that they "never" arrived at school hungry. Forty-one percent reported arriving at school hungry "sometimes" and one-fourth (26%) arriving hungry "every day or almost every day." There was a direct relationship between the frequency of arriving at school hungry and average reading achievement. The "never" hungry students had an average of 526, the "sometimes" hungry students an average of 515, and the students hungry "every day" had an average of 494—32 points lower than "never" being hungry.

Exhibit 9.11: Students Arrive at School Feeling Tired or Hungry

Students' Reports

Country	Students Feel Tired						Students Feel Hungry					
	Never		Sometimes		Every Day or Almost Every Day		Never		Sometimes		Every Day or Almost Every Day	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Australia	13 (0.6)	539 (5.4)	56 (1.0)	553 (2.7)	31 (0.9)	534 (3.3)	28 (1.0)	563 (3.7)	45 (0.8)	550 (2.7)	27 (0.9)	522 (3.5)
Austria	10 (0.6)	533 (4.7)	51 (0.9)	547 (2.8)	39 (1.0)	536 (2.8)	31 (0.9)	556 (3.0)	44 (0.8)	542 (2.6)	25 (0.8)	523 (3.4)
Azerbaijan	36 (1.6)	489 (3.7)	44 (1.2)	477 (4.6)	20 (1.1)	445 (7.1)	37 (1.2)	489 (4.2)	39 (1.1)	478 (4.3)	24 (1.3)	460 (5.2)
Bahrain	22 (1.3)	456 (5.0)	41 (1.0)	455 (3.0)	37 (1.1)	436 (3.1)	25 (1.0)	475 (3.7)	36 (0.9)	454 (3.0)	39 (1.2)	430 (2.8)
Belgium (Flemish)	15 (0.7)	523 (3.7)	60 (1.0)	529 (2.0)	24 (0.8)	517 (3.0)	40 (1.1)	535 (2.2)	40 (0.8)	524 (2.3)	19 (0.7)	509 (3.4)
Belgium (French)	--	--	--	--	--	--	--	--	--	--	--	--
Bulgaria	17 (1.2)	535 (7.8)	51 (1.4)	563 (4.4)	33 (1.5)	545 (4.8)	38 (1.9)	568 (4.5)	36 (1.1)	556 (4.8)	26 (1.5)	531 (5.5)
Canada	11 (0.4)	538 (4.7)	50 (0.6)	552 (2.0)	40 (0.7)	535 (2.7)	26 (0.7)	558 (2.6)	44 (0.7)	547 (2.2)	31 (0.8)	529 (2.6)
Chile	20 (1.0)	488 (3.8)	46 (1.1)	506 (2.8)	34 (0.9)	485 (3.5)	24 (0.7)	514 (3.5)	43 (0.9)	497 (3.1)	33 (0.9)	484 (3.4)
Chinese Taipei	26 (0.8)	553 (3.1)	55 (0.9)	563 (2.4)	18 (0.6)	557 (2.7)	40 (0.8)	569 (2.6)	46 (0.8)	556 (2.4)	14 (0.7)	540 (4.4)
Czech Republic	10 (0.5)	543 (4.8)	47 (0.9)	552 (2.3)	43 (0.8)	534 (2.4)	39 (0.8)	560 (2.5)	38 (0.8)	545 (2.7)	23 (0.7)	518 (3.5)
Denmark	7 (0.6)	542 (6.0)	55 (1.1)	553 (2.3)	38 (1.3)	542 (3.1)	35 (1.0)	564 (2.8)	45 (0.9)	544 (2.6)	20 (0.8)	528 (3.8)
Egypt	29 (1.7)	337 (8.1)	54 (1.8)	340 (6.1)	17 (1.3)	307 (7.8)	23 (1.7)	342 (6.8)	36 (1.9)	345 (7.6)	41 (2.4)	321 (6.5)
England	11 (0.6)	554 (4.6)	53 (0.9)	570 (2.3)	36 (0.9)	546 (2.6)	31 (0.8)	579 (2.6)	44 (0.8)	562 (2.3)	25 (0.8)	534 (2.9)
Finland	6 (0.4)	567 (5.6)	63 (0.9)	573 (2.0)	31 (1.0)	552 (2.8)	23 (0.7)	581 (2.8)	55 (0.9)	571 (2.1)	22 (0.7)	541 (3.1)
France	15 (0.9)	497 (4.1)	52 (1.1)	515 (2.5)	33 (1.4)	513 (3.1)	28 (1.0)	516 (3.4)	40 (1.0)	518 (2.7)	32 (1.2)	500 (2.8)
Georgia	22 (1.3)	502 (4.6)	51 (1.3)	493 (3.0)	27 (1.2)	475 (4.5)	23 (1.3)	505 (4.8)	42 (1.4)	492 (3.3)	35 (1.3)	484 (4.0)
Germany	10 (0.6)	527 (6.9)	40 (1.1)	553 (3.5)	50 (1.1)	538 (2.9)	r 35 (1.2)	556 (3.2)	44 (1.0)	550 (2.8)	22 (0.8)	517 (5.1)
Hong Kong SAR	21 (0.9)	573 (4.1)	53 (0.9)	571 (2.8)	25 (0.9)	562 (4.0)	31 (1.0)	573 (3.3)	47 (1.1)	569 (3.1)	22 (0.9)	564 (4.0)
Hungary	9 (0.5)	548 (8.0)	48 (1.1)	558 (3.2)	43 (1.3)	552 (3.1)	37 (1.3)	563 (3.9)	44 (1.1)	555 (3.7)	19 (0.9)	539 (4.3)
Iran, Islamic Rep. of	39 (1.7)	421 (6.4)	42 (1.5)	444 (5.2)	19 (0.9)	413 (5.9)	35 (1.2)	440 (6.0)	42 (1.5)	432 (6.4)	23 (1.2)	412 (5.8)
Ireland	12 (0.8)	560 (5.5)	55 (1.1)	577 (2.4)	33 (1.2)	554 (3.2)	41 (1.2)	584 (2.7)	42 (1.0)	565 (3.3)	17 (0.7)	543 (4.2)
Israel	14 (0.7)	514 (4.3)	45 (0.8)	544 (2.9)	41 (1.0)	525 (3.3)	21 (0.8)	537 (4.8)	42 (0.8)	544 (3.0)	37 (0.9)	518 (3.2)
Italy	12 (0.6)	539 (4.7)	53 (1.0)	554 (2.3)	35 (0.9)	544 (2.9)	27 (0.9)	571 (2.5)	36 (0.9)	549 (2.7)	37 (1.2)	533 (2.9)
Kazakhstan	37 (1.3)	539 (2.8)	47 (1.2)	541 (2.8)	17 (0.7)	519 (3.8)	42 (1.2)	543 (2.9)	44 (1.1)	534 (2.7)	14 (0.6)	528 (3.8)
Kuwait	24 (1.4)	395 (5.2)	48 (1.6)	409 (4.2)	28 (1.2)	376 (7.6)	24 (1.5)	419 (6.4)	39 (2.5)	403 (4.5)	37 (2.7)	380 (5.4)
Latvia	9 (0.5)	560 (4.4)	54 (1.0)	562 (2.1)	36 (1.0)	551 (2.5)	25 (0.9)	569 (2.9)	50 (1.0)	562 (2.2)	26 (0.9)	542 (2.7)
Lithuania	21 (1.2)	550 (5.3)	55 (1.2)	556 (2.7)	24 (0.9)	534 (3.7)	49 (1.3)	560 (3.3)	38 (1.2)	546 (3.3)	13 (0.7)	522 (4.3)
Macao SAR	20 (0.6)	550 (2.4)	57 (0.7)	548 (1.5)	23 (0.6)	537 (2.3)	31 (0.7)	549 (2.3)	49 (0.7)	547 (1.4)	20 (0.6)	539 (2.5)
Malta	23 (0.7)	458 (3.3)	44 (0.8)	465 (2.2)	32 (0.8)	436 (3.1)	28 (0.7)	470 (3.0)	32 (0.8)	462 (2.5)	40 (0.7)	437 (2.8)
Morocco	38 (1.3)	357 (4.7)	43 (1.2)	377 (4.7)	19 (1.0)	332 (4.7)	27 (1.3)	367 (5.8)	41 (1.5)	367 (4.0)	32 (1.4)	351 (5.5)
Netherlands	11 (0.6)	541 (5.0)	63 (1.1)	548 (1.8)	27 (1.0)	540 (2.8)	40 (1.1)	556 (2.1)	44 (0.9)	542 (2.2)	17 (0.8)	528 (3.5)
New Zealand	8 (0.4)	501 (6.7)	49 (0.9)	540 (2.4)	43 (0.9)	518 (2.6)	28 (1.0)	545 (4.0)	38 (1.1)	535 (2.9)	33 (1.1)	503 (3.2)
Northern Ireland	9 (0.5)	555 (5.3)	51 (1.2)	578 (2.6)	40 (1.3)	553 (2.9)	32 (1.2)	584 (3.2)	43 (0.9)	571 (2.5)	25 (1.1)	533 (3.3)
Norway (5)	8 (0.5)	556 (4.6)	52 (1.0)	569 (2.6)	40 (1.1)	548 (2.5)	27 (0.9)	570 (2.7)	49 (0.9)	557 (2.8)	24 (1.0)	553 (3.5)
Oman	35 (1.0)	426 (3.6)	42 (0.9)	434 (4.1)	23 (0.9)	392 (4.4)	33 (1.2)	438 (3.5)	36 (1.0)	430 (4.5)	31 (1.1)	398 (4.2)
Poland	19 (0.9)	567 (2.9)	48 (0.9)	576 (2.7)	33 (1.1)	549 (3.2)	59 (1.1)	576 (2.4)	25 (0.9)	563 (3.4)	16 (0.7)	535 (4.5)
Portugal	33 (1.1)	522 (2.4)	45 (1.0)	536 (2.8)	22 (0.9)	520 (3.1)	57 (0.8)	535 (2.7)	28 (0.8)	525 (3.0)	14 (0.6)	511 (5.1)
Qatar	19 (0.5)	447 (3.1)	45 (0.8)	460 (2.2)	35 (0.7)	427 (3.1)	23 (0.6)	469 (3.7)	40 (0.5)	459 (2.6)	37 (0.6)	424 (2.5)
Russian Federation	26 (1.1)	578 (3.9)	52 (1.0)	586 (2.6)	23 (1.0)	574 (3.0)	46 (1.2)	584 (2.7)	37 (1.0)	585 (2.5)	17 (0.8)	570 (3.4)
Saudi Arabia	23 (1.0)	444 (5.3)	52 (1.3)	440 (4.5)	25 (1.0)	413 (5.6)	21 (1.0)	453 (5.1)	44 (1.5)	440 (4.6)	35 (1.3)	422 (5.5)
Singapore	12 (0.4)	576 (4.2)	50 (0.7)	582 (3.3)	39 (0.7)	570 (3.6)	34 (0.8)	597 (3.5)	42 (0.7)	577 (3.2)	24 (0.6)	548 (4.1)
Slovak Republic	9 (0.5)	525 (6.4)	49 (0.9)	541 (4.2)	42 (1.0)	532 (3.2)	32 (1.0)	548 (3.2)	42 (0.8)	536 (4.7)	26 (1.0)	522 (4.1)
Slovenia	10 (0.6)	537 (4.7)	52 (1.0)	551 (2.5)	38 (1.0)	532 (2.6)	34 (1.1)	556 (2.8)	42 (1.0)	545 (2.9)	24 (1.0)	523 (3.0)
South Africa	36 (1.0)	321 (3.5)	31 (0.9)	352 (5.6)	33 (0.8)	304 (6.4)	33 (1.1)	331 (4.9)	33 (0.8)	344 (4.6)	34 (0.9)	308 (4.9)
Spain	18 (0.6)	526 (2.3)	52 (0.7)	533 (1.6)	30 (0.7)	523 (2.7)	41 (0.8)	539 (1.8)	34 (0.7)	528 (2.0)	25 (0.7)	513 (3.1)
Sweden	7 (0.6)	555 (5.3)	55 (1.0)	561 (2.8)	37 (1.2)	548 (2.8)	36 (1.2)	573 (2.9)	45 (1.0)	553 (2.8)	19 (0.9)	534 (3.7)
Trinidad and Tobago	22 (1.0)	479 (4.4)	48 (1.3)	481 (3.7)	29 (1.2)	479 (4.7)	28 (1.1)	497 (4.5)	42 (1.1)	485 (3.5)	30 (1.1)	462 (3.7)
United Arab Emirates	24 (0.7)	460 (3.9)	46 (0.7)	462 (3.8)	31 (0.8)	435 (4.1)	25 (0.7)	479 (3.8)	41 (0.6)	461 (3.8)	34 (0.7)	428 (4.1)
United States	9 (0.6)	540 (5.8)	44 (1.0)	560 (3.5)	47 (1.0)	544 (3.4)	21 (0.9)	573 (3.8)	43 (0.8)	556 (3.5)	36 (0.9)	536 (3.6)
International Avg.	18 (0.1)	509 (0.7)	50 (0.2)	520 (0.5)	32 (0.1)	501 (0.6)	33 (0.2)	526 (0.5)	41 (0.2)	515 (0.5)	26 (0.2)	494 (0.6)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

A dash (-) indicates comparable data not available.

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

Exhibit 9.11: Students Arrive at School Feeling Tired or Hungry (Continued)

Country	Students Feel Tired						Students Feel Hungry					
	Never		Sometimes		Every Day or Almost Every Day		Never		Sometimes		Every Day or Almost Every Day	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Benchmarking Participants												
Buenos Aires, Argentina	--	--	--	--	--	--	--	--	--	--	--	--
Ontario, Canada	11 (0.8)	542 (7.1)	48 (1.1)	553 (3.6)	41 (1.3)	535 (4.0)	25 (1.3)	559 (4.2)	44 (1.4)	549 (4.1)	30 (1.7)	527 (4.0)
Quebec, Canada	11 (1.0)	545 (5.9)	56 (1.4)	551 (3.3)	33 (1.3)	543 (3.6)	22 (1.4)	558 (4.4)	41 (1.0)	551 (3.1)	37 (1.5)	539 (3.8)
Denmark (3)	10 (0.6)	511 (5.6)	53 (1.1)	508 (3.3)	38 (1.3)	489 (3.5)	34 (1.3)	519 (3.7)	45 (1.0)	503 (3.5)	21 (1.0)	474 (4.9)
Norway (4)	9 (0.7)	512 (4.8)	51 (1.1)	523 (2.4)	40 (1.1)	512 (2.6)	25 (1.2)	525 (2.8)	50 (1.2)	522 (2.4)	25 (0.9)	500 (2.8)
Moscow City, Russian Fed.	20 (0.9)	612 (3.0)	52 (0.9)	619 (2.4)	28 (1.0)	601 (2.8)	39 (1.0)	618 (2.5)	40 (0.9)	615 (2.8)	21 (0.8)	599 (2.9)
Eng/Afr/Zulu - RSA (5)	29 (1.2)	394 (4.5)	45 (1.1)	427 (7.1)	25 (1.0)	396 (8.3)	33 (1.2)	414 (7.2)	39 (1.1)	418 (6.3)	27 (1.0)	394 (7.2)
Andalusia, Spain	18 (0.9)	523 (3.5)	48 (1.0)	529 (2.1)	34 (1.1)	521 (2.9)	41 (1.1)	534 (2.5)	32 (1.0)	525 (2.5)	26 (1.0)	514 (2.8)
Madrid, Spain	15 (0.8)	546 (3.8)	51 (1.0)	554 (2.1)	33 (1.1)	543 (2.9)	45 (1.2)	557 (2.3)	36 (1.0)	549 (2.9)	20 (0.8)	533 (3.1)
Abu Dhabi, UAE	22 (1.0)	424 (5.0)	44 (1.1)	426 (5.8)	34 (1.2)	404 (5.9)	21 (0.9)	440 (6.8)	41 (1.1)	428 (5.9)	38 (1.3)	400 (5.9)
Dubai, UAE	22 (0.8)	518 (3.5)	48 (0.9)	526 (2.4)	30 (0.8)	501 (3.2)	29 (0.7)	534 (2.9)	42 (0.6)	525 (2.2)	29 (0.8)	489 (3.0)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

PIRLS
2016

CHAPTER 10: STUDENT ENGAGEMENT AND ATTITUDES

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016



IEA

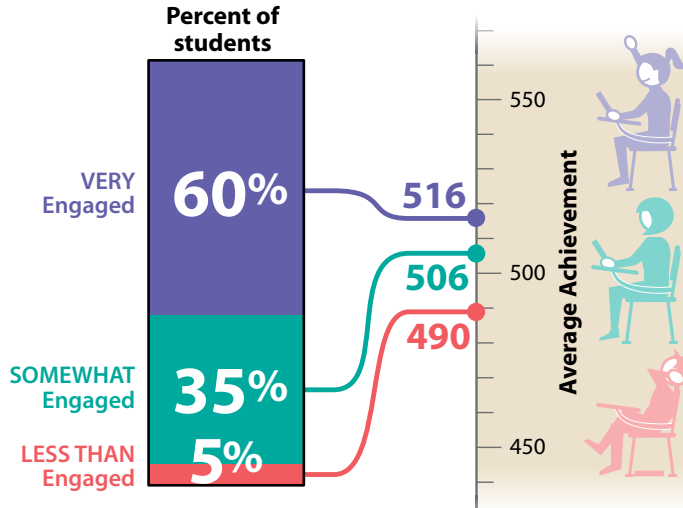
TIMSS & PIRLS
International Study Center
Lynch School of Education
BOSTON COLLEGE

Students' Attitudes Toward Reading

The fourth grade students were very positive about their instruction and reading.

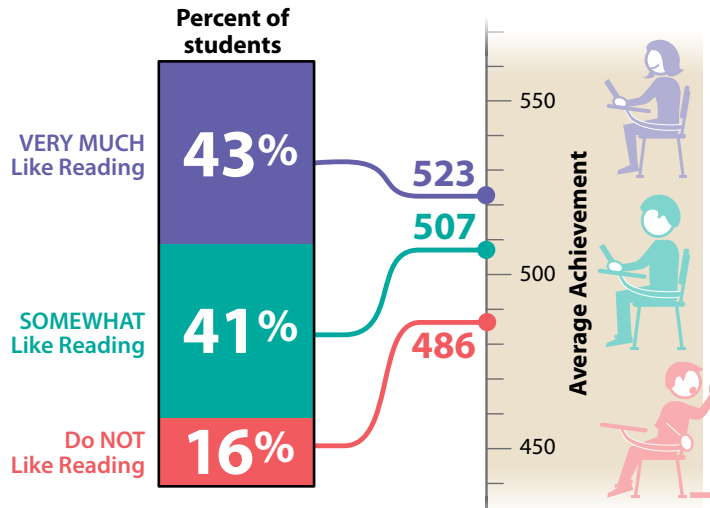
95%

Almost all students were positive about their instruction.



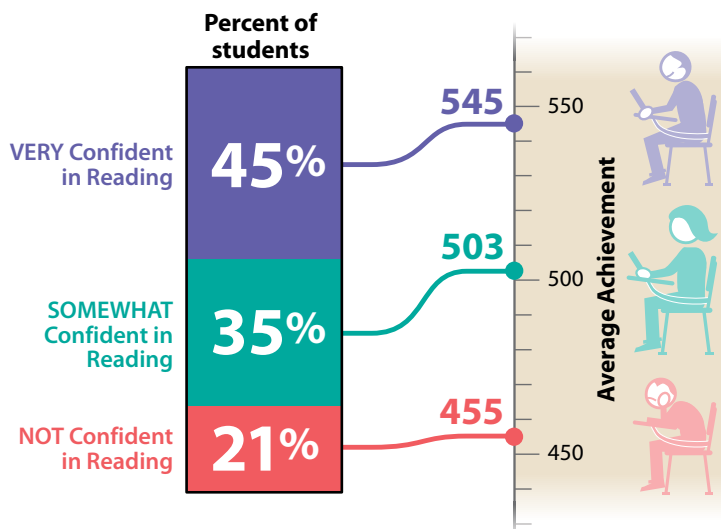
84%

Most students VERY MUCH liked or SOMEWHAT liked reading.



80%

Most students were VERY confident or SOMEWHAT confident in reading.



CHAPTER 10

Student Engagement and Attitudes

Exhibit 10.1: Students Engaged in Reading Lessons

Exhibit 10.1 presents the results for the *Students Engaged in Reading Lessons* scale. Internationally, on average, 60 percent of the fourth grade students reported being **Very Engaged** during their reading lessons, another 35 percent reported being **Somewhat Engaged**, and only 5 percent reported being **Less than Engaged**. There was a positive relationship between students' reports about being engaged and average reading achievement. **Very Engaged** students had higher achievement (516) than their counterparts that reported being only **Somewhat Engaged** (506), and students **Less than Engaged** had the lowest achievement (490).

Exhibit 10.1: Students Engaged in Reading Lessons

Students' Reports

Students were scored according to their degree of agreement with nine statements on the *Students Engaged in Reading Lessons* scale. Students **Very Engaged** in reading lessons had a score on the scale of at least 9.5, which corresponds to their “agreeing a lot” with five of the nine statements and “agreeing a little” with the other four, on average. Students who were **Less than Engaged** had a score no higher than 7.1, which corresponds to their “disagreeing a little” with five of the nine statements and “agreeing a little” with the other four, on average. All other students were **Somewhat Engaged** in reading lessons.

Country	Very Engaged		Somewhat Engaged		Less than Engaged		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Bulgaria	84 (1.1)	555 (3.9)	14 (0.9)	540 (8.5)	2 (0.3)	~ ~	11.3 (0.06)
Portugal	83 (0.8)	531 (2.4)	16 (0.8)	514 (3.4)	1 (0.2)	~ ~	11.1 (0.05)
Azerbaijan	83 (1.0)	482 (3.6)	15 (0.9)	450 (6.1)	2 (0.3)	~ ~	11.4 (0.06)
Iran, Islamic Rep. of	82 (1.3)	434 (4.3)	15 (1.1)	410 (9.1)	3 (0.3)	360 (12.9)	11.3 (0.08)
Georgia	80 (1.1)	496 (2.8)	19 (1.0)	469 (4.7)	1 (0.2)	~ ~	11.2 (0.06)
Kazakhstan	80 (1.0)	537 (2.5)	18 (0.9)	534 (3.9)	2 (0.3)	~ ~	11.2 (0.06)
Egypt	79 (1.6)	340 (5.6)	19 (1.4)	304 (9.9)	2 (0.4)	~ ~	10.9 (0.09)
Oman	75 (1.2)	430 (3.5)	22 (1.0)	395 (3.9)	3 (0.3)	348 (9.2)	10.8 (0.06)
Trinidad and Tobago	70 (1.6)	486 (3.7)	26 (1.4)	467 (4.8)	4 (0.4)	441 (9.9)	10.5 (0.08)
Kuwait	70 (1.4)	406 (4.0)	27 (1.3)	378 (6.3)	4 (0.4)	340 (10.2)	10.5 (0.07)
Spain	70 (1.1)	530 (1.4)	27 (1.0)	525 (3.1)	3 (0.2)	513 (6.4)	10.4 (0.05)
Morocco	69 (1.5)	366 (4.4)	29 (1.4)	345 (4.6)	2 (0.2)	~ ~	10.6 (0.07)
Bahrain	68 (1.1)	459 (2.6)	28 (1.0)	429 (3.3)	5 (0.4)	392 (9.3)	10.4 (0.07)
Malta	67 (0.7)	465 (1.9)	29 (0.8)	435 (3.5)	4 (0.3)	387 (9.9)	10.3 (0.03)
Hungary	67 (1.3)	557 (3.3)	29 (1.2)	551 (3.3)	4 (0.4)	533 (7.3)	10.3 (0.06)
Russian Federation	65 (1.1)	582 (2.5)	32 (1.0)	580 (2.8)	3 (0.3)	568 (6.8)	10.2 (0.05)
South Africa	64 (1.3)	337 (4.1)	29 (1.0)	301 (5.5)	7 (0.5)	268 (6.9)	10.3 (0.06)
Saudi Arabia	63 (1.8)	446 (4.1)	32 (1.5)	416 (5.9)	5 (0.6)	375 (10.1)	10.3 (0.09)
United Arab Emirates	62 (0.8)	467 (3.2)	33 (0.7)	437 (4.3)	5 (0.2)	372 (8.3)	10.2 (0.04)
United States	62 (1.2)	556 (3.0)	32 (1.1)	549 (4.1)	6 (0.4)	521 (6.6)	10.1 (0.05)
Lithuania	62 (1.3)	554 (2.6)	35 (1.3)	544 (3.5)	3 (0.4)	503 (12.3)	10.0 (0.05)
Ireland	62 (1.4)	569 (2.6)	34 (1.2)	566 (3.3)	4 (0.5)	553 (8.4)	10.0 (0.06)
Northern Ireland	61 (1.5)	567 (2.6)	34 (1.3)	566 (3.1)	4 (0.5)	539 (10.4)	10.0 (0.06)
Qatar	60 (0.8)	462 (2.2)	32 (0.7)	431 (2.7)	8 (0.4)	384 (6.7)	10.1 (0.04)
Italy	59 (1.0)	552 (2.5)	37 (0.9)	544 (2.8)	4 (0.4)	530 (5.2)	9.9 (0.04)
Canada	58 (0.8)	550 (2.2)	37 (0.7)	540 (2.5)	4 (0.3)	512 (5.1)	9.9 (0.03)
Chile	58 (1.4)	503 (2.7)	32 (1.1)	494 (3.6)	10 (0.6)	461 (6.0)	9.9 (0.06)
New Zealand	58 (1.0)	526 (2.3)	38 (0.8)	524 (3.1)	4 (0.4)	501 (8.2)	9.9 (0.04)
England	57 (1.3)	562 (2.2)	38 (1.1)	558 (2.3)	5 (0.4)	530 (6.7)	9.8 (0.05)
Australia	56 (1.2)	547 (2.7)	39 (1.1)	544 (3.3)	5 (0.3)	529 (5.8)	9.8 (0.04)
Austria	56 (1.2)	542 (2.5)	37 (1.0)	542 (2.9)	6 (0.5)	529 (6.0)	9.8 (0.05)
Israel	55 (1.6)	527 (3.1)	36 (1.3)	538 (3.7)	9 (0.9)	529 (7.6)	9.8 (0.08)
Latvia	53 (1.3)	558 (2.3)	42 (1.2)	560 (2.2)	4 (0.5)	542 (6.6)	9.7 (0.05)
Norway (5)	53 (1.5)	563 (2.5)	42 (1.3)	556 (2.9)	4 (0.5)	548 (6.3)	9.7 (0.05)
Germany	52 (1.4)	552 (2.5)	42 (1.2)	539 (3.6)	7 (0.6)	504 (8.8)	9.6 (0.06)
Belgium (French)	51 (1.4)	497 (3.3)	42 (1.0)	501 (2.8)	7 (0.9)	483 (5.7)	9.6 (0.06)
Slovak Republic	51 (1.3)	531 (4.6)	43 (1.2)	540 (3.2)	6 (0.5)	532 (5.1)	9.6 (0.05)
Belgium (Flemish)	49 (1.2)	527 (2.5)	47 (1.1)	525 (2.2)	4 (0.3)	505 (6.5)	9.5 (0.05)
Sweden	49 (1.2)	559 (3.1)	46 (1.1)	555 (2.9)	4 (0.5)	537 (5.1)	9.5 (0.05)
Slovenia	49 (1.1)	540 (2.9)	46 (1.0)	546 (2.3)	5 (0.6)	539 (7.6)	9.6 (0.05)
Poland	49 (1.3)	562 (2.3)	45 (1.1)	570 (3.0)	6 (0.5)	552 (5.9)	9.5 (0.05)
France	48 (1.5)	510 (2.4)	47 (1.4)	515 (2.8)	5 (0.5)	500 (8.1)	9.5 (0.06)
Czech Republic	48 (1.0)	540 (2.8)	46 (1.0)	550 (2.1)	6 (0.4)	527 (5.2)	9.5 (0.04)
Chinese Taipei	48 (1.5)	564 (2.1)	43 (1.1)	558 (2.8)	9 (0.7)	542 (4.4)	9.5 (0.06)
Macao SAR	44 (0.8)	551 (1.6)	47 (0.8)	544 (1.3)	9 (0.5)	529 (4.5)	9.3 (0.03)
Singapore	43 (0.8)	579 (3.6)	50 (0.7)	578 (3.2)	8 (0.5)	555 (5.3)	9.2 (0.04)
Denmark	41 (1.5)	560 (2.6)	51 (1.2)	543 (2.3)	8 (0.7)	523 (5.5)	9.2 (0.05)
Finland	39 (1.2)	569 (2.6)	54 (1.1)	568 (1.9)	7 (0.5)	539 (5.3)	9.1 (0.04)
Netherlands	37 (1.3)	549 (2.2)	56 (1.2)	545 (2.0)	7 (0.6)	528 (5.0)	9.0 (0.05)
Hong Kong SAR	34 (1.2)	574 (3.6)	52 (1.1)	572 (2.6)	14 (1.1)	548 (7.0)	8.9 (0.06)
International Avg.	60 (0.2)	516 (0.4)	35 (0.2)	506 (0.6)	5 (0.1)	490 (1.1)	

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 10.1: Students Engaged in Reading Lessons (Continued)

Country	Very Engaged		Somewhat Engaged		Less than Engaged		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Benchmarking Participants							
Andalusia, Spain	77 (1.2)	526 (2.1)	21 (1.1)	524 (3.6)	2 (0.3)	~ ~	10.8 (0.06)
Madrid, Spain	69 (1.4)	549 (2.1)	27 (1.1)	550 (3.1)	4 (0.5)	540 (6.3)	10.4 (0.07)
Dubai, UAE	66 (1.0)	526 (2.2)	31 (0.9)	505 (2.9)	3 (0.2)	432 (8.7)	10.4 (0.04)
Eng/Afr/Zulu - RSA (5)	64 (1.6)	412 (5.0)	31 (1.4)	405 (10.2)	5 (0.5)	374 (12.3)	10.2 (0.08)
Buenos Aires, Argentina	61 (1.2)	486 (3.4)	33 (1.1)	482 (4.1)	5 (0.5)	468 (7.1)	10.0 (0.06)
Norway (4)	59 (1.5)	521 (2.6)	37 (1.2)	514 (2.5)	4 (0.5)	496 (7.0)	9.9 (0.06)
Abu Dhabi, UAE	58 (1.6)	433 (4.9)	36 (1.4)	403 (6.5)	6 (0.5)	353 (10.1)	10.0 (0.07)
Ontario, Canada	57 (1.3)	552 (3.6)	38 (1.3)	540 (4.0)	5 (0.6)	506 (7.8)	9.8 (0.05)
Moscow City, Russian Fed.	56 (1.1)	613 (2.4)	40 (0.9)	613 (2.6)	4 (0.4)	598 (6.6)	9.7 (0.04)
Quebec, Canada	55 (1.7)	551 (3.3)	41 (1.6)	545 (3.5)	4 (0.5)	530 (7.8)	9.8 (0.06)
Denmark (3)	46 (1.5)	504 (3.5)	48 (1.3)	501 (3.2)	6 (0.5)	478 (8.3)	9.4 (0.05)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

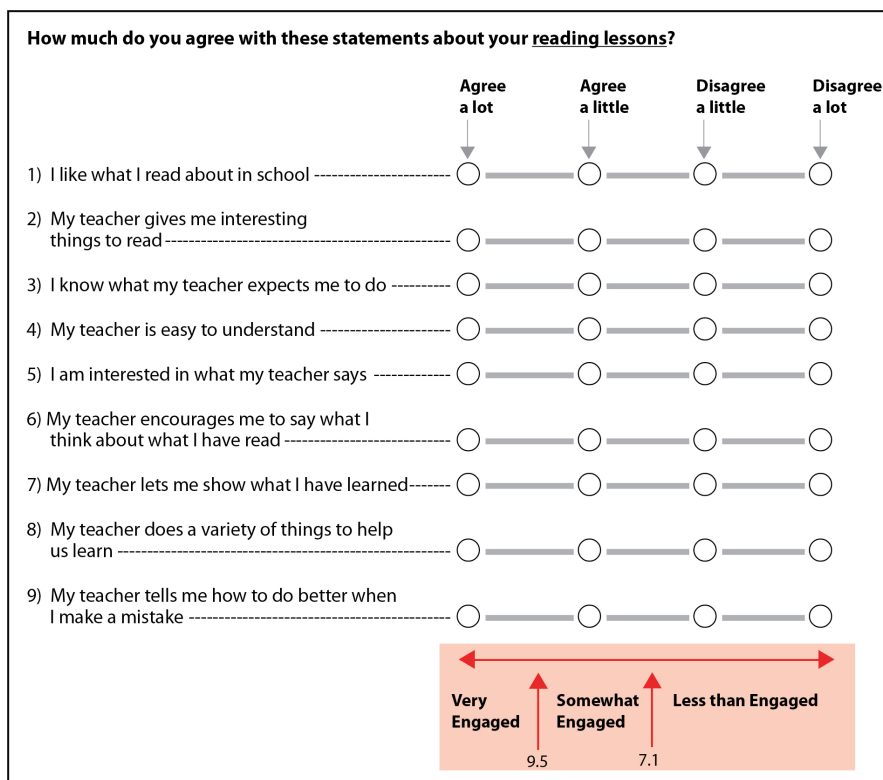


Exhibit 10.2: Students Like Reading

Considerable research indicates that positive attitudes toward reading and high achievement are related, and in a bidirectional way. That is, because better readers enjoy reading more than poorer readers, they may read more often than poorer readers, and thereby develop more advanced comprehension skills and strategies. Exhibit 10.2 presents the results for PIRLS 2016 *Students Like Reading* scale. On average, 43 percent of the fourth grade students reported that they liked to read **Very Much** and another 41 percent reported that they liked it **Somewhat**, although 16 percent reported they **Do Not Like** reading. On average and in almost every country, students who liked reading **Very Much** had higher average reading achievement (523) than those who only **Somewhat** liked reading (507); and in particular, those students who reported they **Do Not Like** reading had the lowest average reading achievement (486). Students who **Very Much Like** to read had a 37-point advantage compared to students who **Do Not Like** reading.

Exhibit 10.2: Students Like Reading

Students' Reports

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 on the scale of at least 10.3, which corresponds to their “agreeing a lot” with four of the eight statements and “agreeing a little” with the other four, as well as doing both reading activities outside of school “every day or almost everyday,” on average. Students who **Do Not Like Reading** had a score no higher than 8.3, which corresponds to their “disagreeing a little” with four of the eight statements and “agreeing a little” with the other four, as well as doing both reading activities only “once or twice a month,” on average. All other students **Somewhat Like Reading**.

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	
Portugal	72 (1.1)	530 (2.4)	23 (1.0)	526 (3.2)	5 (0.4)	513 (5.3)	11.4 (0.05)
Kazakhstan	71 (1.2)	536 (2.7)	25 (1.0)	535 (3.0)	3 (0.4)	536 (7.8)	11.4 (0.06)
Iran, Islamic Rep. of	70 (1.8)	441 (4.5)	26 (1.4)	405 (7.5)	4 (0.7)	344 (30.4)	11.2 (0.08)
Oman	65 (1.0)	437 (3.3)	29 (0.8)	391 (4.2)	5 (0.4)	359 (7.7)	11.2 (0.05)
Azerbaijan	64 (1.3)	485 (3.6)	32 (1.2)	456 (5.7)	4 (0.4)	443 (8.7)	10.9 (0.05)
Georgia	64 (1.3)	496 (2.9)	31 (1.0)	483 (3.5)	5 (0.6)	460 (8.9)	10.9 (0.05)
Saudi Arabia	57 (1.5)	446 (3.9)	36 (1.2)	417 (6.2)	7 (0.6)	399 (9.0)	10.7 (0.07)
Kuwait	57 (1.5)	411 (4.1)	36 (1.3)	382 (5.2)	7 (0.7)	352 (11.1)	10.6 (0.06)
Morocco	56 (1.6)	380 (4.1)	39 (1.5)	333 (5.0)	5 (0.5)	306 (8.1)	10.8 (0.06)
Spain	56 (0.8)	534 (1.5)	34 (0.7)	523 (3.5)	10 (0.5)	512 (3.7)	10.7 (0.04)
Egypt	56 (2.0)	361 (5.8)	35 (1.5)	308 (6.4)	9 (1.2)	245 (14.3)	10.6 (0.09)
South Africa	55 (1.2)	340 (3.7)	36 (0.9)	302 (5.6)	9 (0.6)	282 (9.1)	10.6 (0.06)
Bulgaria	55 (1.9)	558 (4.7)	33 (1.2)	557 (4.6)	12 (1.3)	511 (11.8)	10.6 (0.10)
Bahrain	54 (1.2)	463 (3.1)	36 (1.1)	429 (3.0)	10 (0.6)	426 (5.5)	10.6 (0.05)
United Arab Emirates	54 (0.7)	471 (3.2)	37 (0.6)	433 (4.2)	9 (0.3)	409 (6.3)	10.6 (0.03)
Malta	51 (0.8)	470 (2.4)	37 (0.7)	442 (2.4)	12 (0.4)	418 (4.7)	10.4 (0.03)
Trinidad and Tobago	50 (1.3)	492 (3.7)	40 (1.1)	467 (4.1)	11 (0.8)	459 (8.6)	10.4 (0.06)
Qatar	48 (0.9)	463 (2.3)	39 (0.8)	432 (2.8)	12 (0.5)	412 (5.3)	10.3 (0.03)
Russian Federation	46 (1.4)	582 (2.9)	44 (1.1)	581 (2.5)	10 (0.7)	572 (3.4)	10.2 (0.06)
Ireland	46 (1.1)	580 (3.0)	40 (1.0)	565 (2.9)	15 (0.8)	534 (4.6)	10.0 (0.04)
New Zealand	44 (1.0)	535 (2.6)	42 (0.7)	520 (2.9)	14 (0.7)	508 (4.2)	10.1 (0.04)
Israel	43 (1.3)	531 (3.5)	36 (0.8)	527 (3.7)	21 (1.1)	538 (3.9)	9.9 (0.07)
Australia	43 (1.1)	558 (3.3)	41 (0.8)	543 (3.0)	16 (0.7)	517 (3.0)	10.0 (0.05)
Lithuania	42 (1.2)	551 (2.9)	46 (1.0)	550 (3.1)	13 (0.7)	535 (4.2)	10.0 (0.05)
Italy	41 (1.1)	554 (2.5)	44 (1.0)	546 (2.7)	16 (0.8)	539 (3.7)	9.9 (0.04)
France	40 (1.0)	519 (3.0)	46 (1.0)	510 (3.0)	14 (0.9)	497 (3.4)	10.0 (0.04)
Northern Ireland	39 (1.3)	580 (2.9)	42 (1.0)	567 (2.7)	19 (0.9)	531 (3.8)	9.7 (0.05)
Chinese Taipei	37 (1.0)	571 (2.5)	44 (0.8)	558 (2.2)	19 (0.7)	538 (2.9)	9.8 (0.05)
Chile	37 (1.1)	500 (3.3)	39 (0.8)	495 (3.1)	24 (1.0)	486 (3.3)	9.7 (0.06)
Austria	37 (1.1)	550 (3.1)	45 (0.8)	541 (2.6)	18 (0.8)	524 (3.4)	9.8 (0.05)
Canada	37 (0.7)	555 (2.2)	45 (0.6)	543 (2.1)	18 (0.5)	525 (2.9)	9.7 (0.03)
United States	36 (1.2)	557 (3.8)	42 (0.9)	553 (3.4)	22 (0.9)	538 (3.8)	9.7 (0.05)
Hong Kong SAR	36 (1.0)	583 (3.1)	44 (0.9)	567 (3.3)	21 (1.2)	549 (3.7)	9.7 (0.05)
England	35 (1.0)	575 (2.5)	45 (0.9)	559 (2.2)	20 (0.9)	530 (3.3)	9.7 (0.04)
Hungary	35 (1.4)	570 (3.7)	46 (1.0)	552 (3.5)	19 (1.2)	530 (3.7)	9.7 (0.05)
Latvia	33 (1.2)	563 (2.8)	47 (1.2)	559 (2.0)	21 (1.0)	548 (2.9)	9.6 (0.05)
Belgium (French)	33 (1.1)	504 (3.4)	44 (0.9)	500 (2.8)	23 (1.2)	484 (3.3)	9.6 (0.06)
Poland	32 (1.1)	570 (3.2)	45 (1.0)	567 (2.8)	23 (1.0)	553 (2.7)	9.6 (0.05)
Germany	32 (1.3)	563 (2.9)	43 (1.0)	548 (2.7)	25 (1.2)	510 (5.0)	9.4 (0.06)
Singapore	31 (0.8)	598 (3.6)	50 (0.6)	574 (3.3)	19 (0.6)	548 (3.7)	9.6 (0.03)
Macao SAR	31 (0.6)	564 (2.0)	50 (0.6)	543 (1.5)	19 (0.5)	522 (2.6)	9.5 (0.02)
Slovak Republic	30 (1.1)	546 (4.0)	47 (0.8)	538 (3.6)	23 (1.0)	513 (5.4)	9.5 (0.05)
Czech Republic	30 (0.8)	549 (3.2)	50 (0.8)	548 (2.2)	20 (0.8)	524 (2.7)	9.5 (0.04)
Slovenia	29 (1.1)	551 (3.2)	53 (1.2)	545 (2.7)	18 (1.1)	523 (3.2)	9.5 (0.04)
Finland	28 (0.9)	584 (2.3)	49 (0.8)	568 (2.3)	23 (0.7)	540 (2.5)	9.4 (0.04)
Belgium (Flemish)	24 (1.0)	536 (3.0)	45 (0.8)	529 (2.0)	31 (1.1)	513 (2.6)	9.1 (0.04)
Netherlands	24 (0.9)	560 (2.4)	46 (0.9)	550 (2.0)	31 (1.1)	527 (2.5)	9.1 (0.05)
Norway (5)	22 (0.9)	575 (3.2)	51 (1.0)	565 (2.4)	27 (1.2)	536 (2.8)	9.1 (0.04)
Denmark	20 (0.8)	569 (2.9)	53 (1.0)	551 (2.4)	27 (1.2)	528 (3.2)	9.1 (0.04)
Sweden	18 (1.0)	572 (4.3)	50 (1.0)	563 (2.5)	31 (1.1)	535 (3.2)	8.9 (0.05)
International Avg.	43 (0.2)	523 (0.5)	41 (0.1)	507 (0.5)	16 (0.1)	486 (1.0)	

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all 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.

Exhibit 10.2: Students Like Reading (Continued)

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	
Benchmarking Participants							
Andalusia, Spain	63 (1.2)	530 (2.1)	28 (0.9)	520 (3.1)	9 (0.8)	507 (5.7)	11.0 (0.07)
Madrid, Spain	57 (1.4)	553 (2.1)	33 (1.1)	546 (2.6)	10 (0.8)	536 (4.6)	10.7 (0.06)
Dubai, UAE	54 (1.0)	527 (2.2)	37 (0.9)	507 (2.4)	8 (0.4)	485 (5.3)	10.6 (0.04)
Eng/Afr/Zulu - RSA (5)	53 (1.4)	413 (5.4)	38 (1.0)	400 (7.7)	9 (0.6)	409 (11.4)	10.5 (0.06)
Abu Dhabi, UAE	50 (1.3)	439 (4.2)	40 (1.0)	396 (6.0)	10 (0.6)	378 (9.4)	10.4 (0.06)
Buenos Aires, Argentina	44 (1.4)	476 (3.6)	36 (1.0)	490 (3.5)	19 (1.1)	489 (5.0)	10.1 (0.07)
Moscow City, Russian Fed.	39 (1.3)	619 (2.4)	48 (1.1)	611 (2.6)	12 (0.7)	596 (3.8)	10.0 (0.05)
Quebec, Canada	36 (1.2)	557 (3.8)	48 (1.2)	547 (3.0)	16 (0.8)	531 (3.9)	9.8 (0.05)
Ontario, Canada	35 (1.0)	559 (4.3)	44 (1.0)	542 (3.6)	21 (0.9)	527 (4.6)	9.6 (0.04)
Norway (4)	26 (1.0)	527 (3.2)	52 (1.1)	521 (2.3)	23 (1.0)	500 (3.6)	9.3 (0.04)
Denmark (3)	21 (0.9)	522 (4.5)	52 (1.1)	503 (2.9)	27 (1.2)	483 (4.2)	9.1 (0.04)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

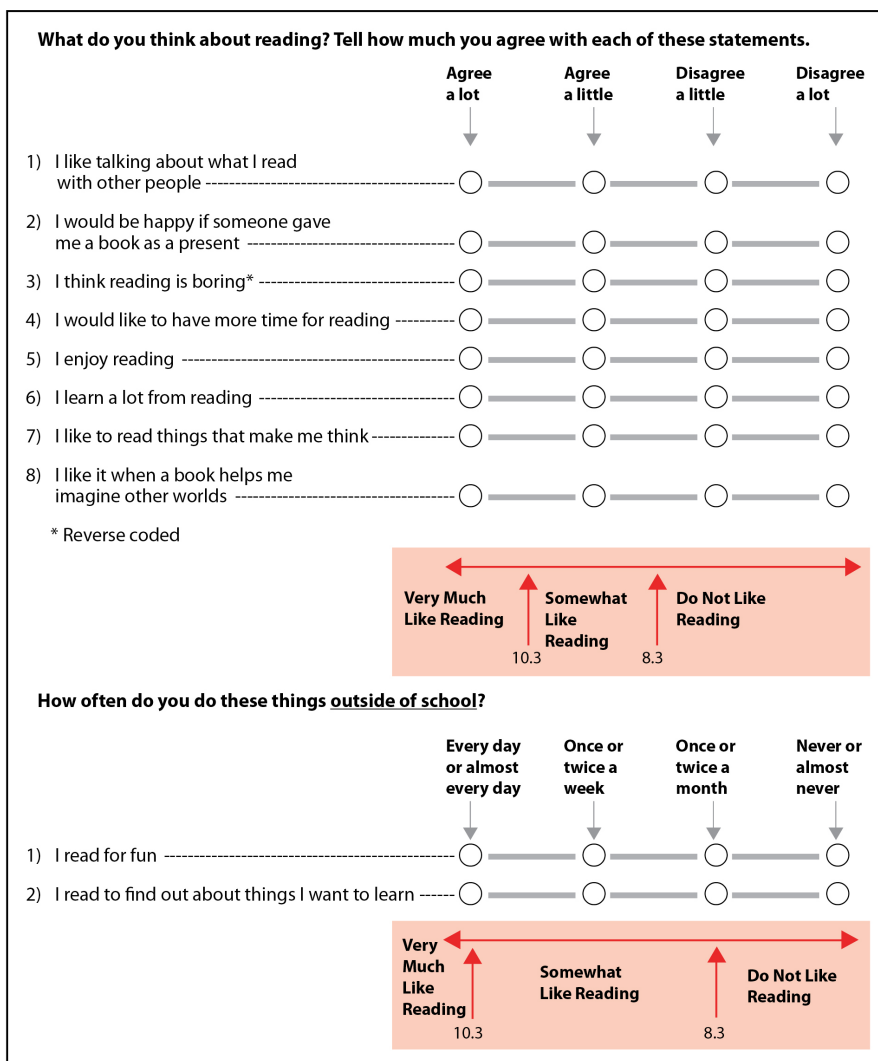


Exhibit 10.3: Students Confident in Reading

Exhibit 10.3 presents the results for the PIRLS 2016 *Students Confident in Reading* scale. Internationally, on average, 45 percent of the fourth grade students reported being **Very Confident** in their reading, 35 percent reported being **Somewhat Confident**, and 21 percent reported they were **Not Confident**.

There was a large difference in average reading achievement—90 points—between the students that expressed a high degree of confidence and those who were not confident. The results on the *Students Confident in Reading* scale show some of the largest achievement differences in PIRLS 2016 between groups of students. The **Very Confident** students had higher average achievement than the **Somewhat Confident** students (545 vs. 503 for a difference of 42 points) and, similarly, the **Somewhat Confident** students had higher average achievement than the **Not Confident** students (503 vs. 455 for a difference of 48 points).

Exhibit 10.3: Students Confident in Reading

Students' Reports

Students were scored according to their degree of agreement with six statements on the *Students Confident in Reading* scale. Students **Very Confident** in reading had a score on the scale of at least 10.3, which corresponds to their "agreeing a lot" with three of the six statements and "agreeing a little" with the other three, on average. Students who were **Not Confident** had a score no higher than 8.2, which corresponds to their "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.

Country	Very Confident		Somewhat Confident		Not Confident		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Sweden	65 (0.8)	575 (2.3)	28 (0.8)	532 (3.2)	8 (0.5)	488 (5.2)	10.8 (0.04)
Finland	60 (0.9)	586 (1.9)	31 (0.9)	549 (2.2)	10 (0.5)	503 (4.5)	10.6 (0.04)
Poland	59 (0.8)	587 (2.3)	29 (0.9)	551 (3.1)	12 (0.6)	490 (4.1)	10.7 (0.04)
Bulgaria	58 (1.6)	579 (3.8)	28 (1.0)	536 (4.9)	14 (1.1)	477 (7.9)	10.4 (0.08)
Austria	56 (1.0)	562 (2.1)	29 (0.9)	526 (3.1)	14 (0.7)	493 (3.5)	10.5 (0.04)
Ireland	55 (1.0)	593 (2.6)	31 (0.8)	550 (2.7)	14 (0.8)	505 (4.2)	10.4 (0.04)
Germany	55 (1.0)	569 (2.4)	30 (0.9)	529 (3.6)	15 (0.7)	487 (4.7)	10.5 (0.04)
Israel	55 (1.1)	567 (2.6)	28 (0.7)	511 (3.1)	18 (0.8)	454 (4.7)	10.3 (0.05)
Kazakhstan	55 (1.4)	549 (2.5)	27 (1.0)	534 (3.0)	18 (0.9)	503 (3.8)	10.5 (0.07)
England	53 (0.9)	591 (1.9)	31 (0.8)	541 (2.6)	16 (0.5)	488 (3.1)	10.3 (0.03)
Norway (5)	53 (0.9)	584 (2.2)	33 (0.8)	545 (2.7)	14 (0.8)	505 (3.6)	10.4 (0.04)
Iran, Islamic Rep. of	51 (1.6)	470 (5.2)	30 (1.3)	407 (6.0)	19 (0.8)	351 (6.1)	10.3 (0.06)
Canada	51 (0.6)	574 (1.6)	32 (0.5)	530 (2.4)	17 (0.6)	482 (3.2)	10.2 (0.03)
Denmark	51 (0.8)	577 (2.3)	36 (0.8)	532 (2.7)	14 (0.6)	486 (4.4)	10.3 (0.04)
Northern Ireland	50 (1.1)	598 (2.2)	33 (1.0)	553 (3.0)	17 (0.7)	493 (4.1)	10.2 (0.04)
United States	50 (1.3)	583 (2.6)	32 (0.9)	540 (3.4)	19 (0.9)	496 (4.1)	10.2 (0.05)
Netherlands	49 (1.1)	565 (1.9)	30 (0.8)	536 (2.2)	21 (0.9)	511 (2.8)	10.0 (0.05)
Australia	49 (1.0)	585 (2.4)	34 (0.8)	526 (2.9)	16 (0.7)	465 (3.7)	10.2 (0.04)
Singapore	48 (0.9)	612 (2.6)	36 (0.6)	562 (3.1)	16 (0.7)	503 (4.8)	10.1 (0.04)
Hungary	48 (1.2)	586 (3.0)	33 (0.9)	542 (3.5)	19 (0.9)	495 (3.9)	10.1 (0.05)
Belgium (Flemish)	46 (1.0)	544 (2.3)	34 (0.8)	519 (2.5)	19 (0.7)	493 (2.6)	10.0 (0.04)
Lithuania	46 (1.1)	578 (2.6)	35 (1.0)	538 (3.6)	19 (0.8)	496 (3.8)	10.0 (0.04)
Italy	46 (1.0)	567 (2.2)	38 (1.0)	545 (2.7)	16 (0.5)	505 (4.3)	10.1 (0.04)
Trinidad and Tobago	46 (1.3)	529 (2.7)	31 (0.9)	465 (3.6)	23 (0.9)	400 (4.1)	10.0 (0.05)
Slovenia	46 (1.0)	571 (2.3)	37 (0.9)	538 (2.3)	17 (0.7)	481 (4.5)	10.1 (0.04)
Qatar	45 (0.8)	494 (2.1)	32 (0.7)	434 (2.6)	23 (0.7)	371 (3.6)	10.0 (0.03)
Czech Republic	45 (0.8)	569 (2.2)	39 (0.7)	537 (2.3)	16 (0.6)	490 (4.2)	9.9 (0.03)
France	44 (1.1)	539 (2.6)	39 (1.1)	506 (2.6)	17 (0.7)	455 (3.7)	10.0 (0.04)
Slovak Republic	44 (1.0)	567 (2.8)	34 (0.8)	533 (3.2)	22 (0.9)	475 (6.1)	9.9 (0.04)
Bahrain	44 (0.9)	494 (2.3)	33 (0.9)	436 (3.3)	23 (0.8)	381 (3.7)	9.9 (0.04)
Russian Federation	43 (1.0)	609 (2.3)	38 (0.9)	575 (2.4)	19 (0.9)	532 (3.4)	9.9 (0.04)
Belgium (French)	41 (0.9)	528 (2.8)	37 (0.8)	493 (2.8)	22 (0.7)	450 (3.4)	9.8 (0.04)
Georgia	41 (1.3)	523 (3.2)	31 (1.0)	489 (3.0)	27 (1.1)	448 (4.3)	9.7 (0.05)
Oman	41 (1.2)	468 (3.7)	34 (0.9)	413 (3.7)	24 (0.8)	352 (3.7)	9.8 (0.05)
Kuwait	41 (1.6)	437 (4.6)	39 (1.5)	386 (4.8)	20 (0.9)	334 (7.7)	9.8 (0.05)
United Arab Emirates	41 (0.8)	511 (3.6)	36 (0.6)	439 (3.1)	23 (0.7)	372 (3.6)	9.8 (0.03)
Malta	41 (0.8)	495 (2.1)	37 (0.8)	447 (2.3)	22 (0.6)	387 (4.2)	9.7 (0.03)
Spain	40 (0.7)	554 (1.8)	40 (0.6)	525 (2.1)	20 (0.6)	483 (2.7)	9.7 (0.03)
Portugal	38 (1.3)	555 (2.7)	40 (1.0)	526 (2.7)	22 (0.9)	483 (3.0)	9.7 (0.04)
Chile	37 (0.9)	532 (2.8)	36 (0.8)	494 (3.3)	27 (0.8)	451 (3.0)	9.6 (0.04)
Hong Kong SAR	36 (1.2)	596 (2.5)	38 (0.9)	568 (3.4)	26 (1.1)	534 (3.2)	9.6 (0.05)
Azerbaijan	36 (1.0)	508 (3.4)	34 (1.1)	475 (3.4)	31 (1.3)	439 (5.9)	9.5 (0.04)
Chinese Taipei	35 (1.2)	589 (2.3)	40 (0.9)	557 (2.0)	24 (0.9)	519 (2.7)	9.5 (0.05)
New Zealand	35 (0.8)	577 (2.5)	41 (0.8)	520 (2.7)	24 (0.7)	457 (3.8)	9.6 (0.03)
Egypt	33 (1.9)	390 (6.1)	36 (1.6)	333 (5.7)	31 (1.8)	268 (7.2)	9.4 (0.09)
Morocco	31 (1.1)	416 (3.9)	42 (1.0)	358 (4.0)	27 (1.1)	296 (5.6)	9.4 (0.05)
Latvia	30 (1.0)	588 (2.4)	42 (1.1)	562 (2.1)	28 (1.1)	520 (3.0)	9.3 (0.04)
Saudi Arabia	29 (1.5)	473 (4.2)	43 (1.2)	439 (5.0)	28 (1.4)	385 (6.0)	9.3 (0.05)
Macao SAR	21 (0.7)	582 (2.6)	41 (0.8)	551 (1.5)	38 (0.7)	519 (1.6)	8.9 (0.03)
South Africa	20 (1.0)	398 (7.3)	33 (0.7)	326 (4.5)	47 (1.0)	288 (4.0)	8.8 (0.04)
International Avg.	45 (0.2)	545 (0.4)	35 (0.1)	503 (0.5)	21 (0.1)	455 (0.6)	

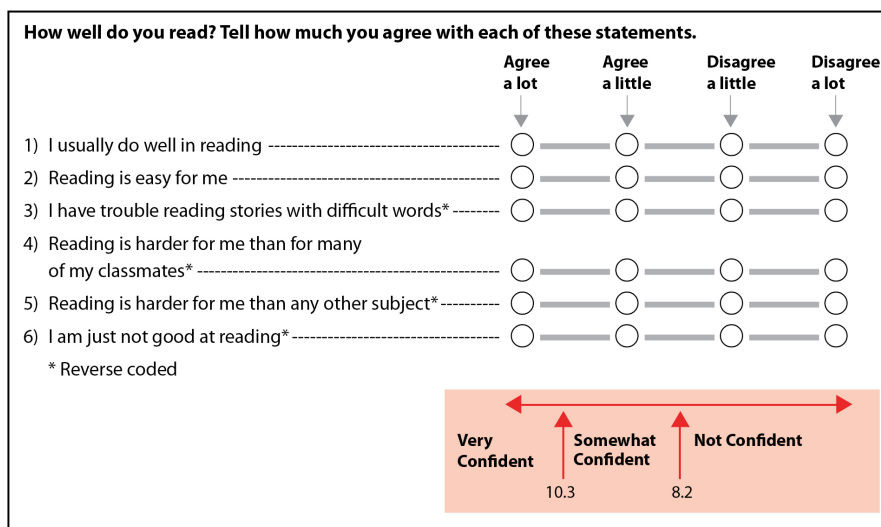
This PIRLS questionnaire scale was established in 2016 based on the combined response distribution of all countries that participated in PIRLS 2016. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of 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.

Exhibit 10.3: Students Confident in Reading (Continued)

Country	Very Confident		Somewhat Confident		Not Confident		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Benchmarking Participants							
Ontario, Canada	52 (1.2)	575 (3.0)	31 (1.1)	529 (4.4)	17 (1.3)	485 (5.3)	10.2 (0.06)
Norway (4)	51 (1.0)	546 (2.2)	34 (0.8)	503 (2.7)	15 (0.6)	462 (3.2)	10.3 (0.04)
Dubai, UAE	50 (0.6)	557 (2.0)	33 (0.7)	500 (2.8)	17 (0.6)	434 (3.5)	10.2 (0.03)
Denmark (3)	48 (0.9)	537 (3.1)	37 (1.0)	486 (3.6)	15 (0.7)	428 (4.7)	10.1 (0.03)
Moscow City, Russian Fed.	48 (1.1)	634 (2.2)	38 (1.0)	605 (2.5)	14 (0.7)	560 (3.2)	10.1 (0.04)
Quebec, Canada	45 (1.4)	575 (2.9)	36 (1.3)	541 (3.5)	19 (1.1)	499 (4.4)	10.0 (0.06)
Madrid, Spain	44 (1.0)	571 (2.1)	40 (0.9)	542 (2.2)	16 (0.8)	507 (3.0)	9.9 (0.04)
Andalusia, Spain	43 (1.2)	552 (2.1)	37 (1.1)	521 (2.1)	19 (1.0)	475 (3.8)	9.8 (0.05)
Buenos Aires, Argentina	41 (1.0)	521 (3.3)	39 (0.9)	480 (3.0)	20 (0.9)	427 (4.5)	9.8 (0.04)
Abu Dhabi, UAE	35 (1.3)	486 (5.2)	38 (1.0)	409 (5.1)	27 (1.2)	345 (4.9)	9.6 (0.06)
Eng/Afr/Zulu - RSA (5)	29 (1.5)	470 (7.3)	35 (1.0)	407 (6.2)	36 (1.4)	360 (5.3)	9.3 (0.06)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016



PIRLS
2016

APPENDICES

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

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Appendix A.1: Countries Participating in PIRLS 2016 and in Earlier PIRLS Assessments

Country	2016	2011	2006	2001
Australia	●	●		
Austria	●	●	●	
Azerbaijan	●	●		
Bahrain	●			
Belgium (Flemish)	●		●	
Belgium (French)	●	●	●	
Bulgaria	●	●	●	●
Canada	●	●		
Chile	●			
Chinese Taipei	●	●	●	
Czech Republic	●	●		●
Denmark	●	●	●	
Egypt	●			
England	●	●	●	●
Finland	●	●		
France	●	●	●	●
Georgia	●	●	●	
Germany	●	●	●	●
Hong Kong SAR	●	●	●	●
Hungary	●	●	●	●
Iran, Islamic Rep. of	●	●	●	●
Ireland	●	●		
Israel	●	●	○	○
Italy	●	●	●	●
Kazakhstan	●			
Kuwait	●	○	○	○
Latvia	●		●	●
Lithuania	●	●	●	●
Macao SAR	●			
Malta	●	●		
Morocco	●	●	○	○
Netherlands	●	●	●	●
New Zealand	●	●	●	●
Northern Ireland	●	●		
Norway (5)	●			
Oman	●	●		
Poland	●	○	○	
Portugal	●	●		
Qatar	●	●	○	
Russian Federation	●	●	●	●
Saudi Arabia	●	●		
Singapore	●	●	●	●
Slovak Republic	●	●	●	●
Slovenia	●	●	●	●
South Africa	●	●	○	
Spain	●	●	●	
Sweden	●	●	●	●
Trinidad and Tobago	●	●	●	
United Arab Emirates	●	●		
United States	●	●	●	●

SOURCE: IEA's Progress in International Reading Literacy Study—PIRLS 2016

- Indicates participation in that testing cycle.
- Indicates participation but data not comparable for measuring trends to 2016, primarily due to countries improving translations or increasing population coverage.

Appendix A.1: Countries Participating in PIRLS 2016 and in Earlier PIRLS Assessments (Continued)

Country	2016	2011	2006	2001
Benchmarking Participants				
Buenos Aires, Argentina	●			
Ontario, Canada	●			●
Quebec, Canada	●	●	●	●
Denmark (3)	●			
Norway (4)	●	●	●	●
Moscow City, Russian Fed.	●			
Eng/Afr/Zulu - RSA (5)	●	○	●	
Andalusia, Spain	●			
Madrid, Spain	●			
Abu Dhabi, UAE	●	●		
Dubai, UAE	●	●		

● Indicates participation in that testing cycle.

○ Indicates participation but data not comparable for measuring trends to 2016, primarily due to countries improving translations or increasing population coverage.

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Appendix B.1: Distribution of Assessment Items by Reading Purposes, Comprehension Processes, and Item Format

PIRLS Assessment Items	Multiple-Choice Items		Constructed Response Items		Total Items		Percentage of Score Points
	Items	Points	Items	Points	Items	Points	
Reading Purpose							
Literary Experience	46	46	44	67	90	113	51%
Acquire and Use Information	40	40	45	70	85	110	49%
Comprehension Process							
Focus on and Retrieve Explicitly Stated Information	25	25	25	32	50	57	26%
Make Straightforward Inferences	35	35	18	24	53	59	26%
Interpret and Integrate Ideas and Information	11	11	36	68	47	79	35%
Evaluate and Critique Content and Textual Elements	15	15	10	13	25	28	13%
Total							
Items	86	86	89	137	175	223	100%
Percentage of Score Points	39%		61%				

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

PIRLS Literacy Items	Multiple-Choice Items		Constructed Response Items		Total Items		Percentage of Score Points
	Items	Points	Items	Points	Items	Points	
Reading Purpose							
Literary Experience	47	47	46	60	93	107	50%
Acquire and Use Information	44	45	46	60	90	105	50%
Comprehension Process							
Focus on and Retrieve Explicitly Stated Information	30	30	52	61	82	91	43%
Make Straightforward Inferences	35	35	17	19	52	54	25%
Interpret and Integrate Ideas and Information	9	10	22	39	31	49	23%
Evaluate and Critique Content and Textual Elements	17	17	1	1	18	18	8%
Total							
Items	91	92	92	120	183	212	100%
Percentage of Score Points	43%		57%				

Because of rounding some results may appear inconsistent.

Appendix C.1: Coverage of PIRLS 2016 Target Population

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-level Exclusions	Within-sample Exclusions	Overall Exclusions
Australia	100%		2.3%	2.4%	4.8%
² Austria	100%		1.2%	4.4%	5.6%
Azerbaijan	100%		2.1%	0.0%	2.1%
Bahrain	100%		0.4%	2.3%	2.7%
Belgium (Flemish)	100%		0.7%	0.9%	1.6%
² Belgium (French)	100%		4.9%	1.1%	6.0%
Bulgaria	100%		1.2%	3.1%	4.3%
^{1 2} Canada	97%	Students from the provinces of Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Ontario, Quebec, and Saskatchewan	2.8%	4.7%	7.5%
Chile	100%		1.7%	2.3%	4.0%
Chinese Taipei	100%		0.0%	0.9%	0.9%
Czech Republic	100%		2.7%	0.7%	3.4%
² Denmark	100%		1.9%	7.9%	9.8%
Egypt	100%		1.2%	0.0%	1.2%
England	100%		1.6%	2.1%	3.7%
Finland	100%		1.3%	1.2%	2.4%
France	100%		4.7%	0.6%	5.4%
¹ Georgia	96%	Students taught in Georgian and Azerbaijani	0.8%	3.0%	3.8%
Germany	100%		1.4%	2.8%	4.2%
² Hong Kong SAR	100%		7.3%	2.8%	10.1%
Hungary	100%		2.6%	1.9%	4.5%
Iran, Islamic Rep. of	100%		3.9%	0.1%	4.1%
Ireland	100%		2.3%	0.8%	3.1%
³ Israel	100%		21.0%	3.9%	24.9%
Italy	100%		0.8%	4.1%	4.9%
Kazakhstan	100%		4.1%	0.8%	4.9%
Kuwait	100%		2.5%	1.4%	4.0%
² Latvia	100%		4.3%	3.5%	7.9%
Lithuania	100%		2.1%	2.1%	4.2%
Macao SAR	100%		1.4%	2.2%	3.6%
² Malta	100%		1.5%	6.4%	7.9%
Morocco	100%		1.7%	0.0%	1.7%
Netherlands	100%		2.4%	0.7%	3.1%
New Zealand	100%		1.3%	2.4%	3.7%
Northern Ireland	100%		2.6%	0.4%	3.0%
Norway (5)	100%		2.0%	3.3%	5.3%
Oman	100%		0.1%	0.5%	0.6%
Poland	100%		1.4%	2.5%	3.9%
² Portugal	100%		1.0%	6.5%	7.5%
Qatar	100%		2.0%	1.9%	3.9%
Russian Federation	100%		2.0%	2.1%	4.1%
Saudi Arabia	100%		1.9%	0.4%	2.3%
³ Singapore	100%		10.6%	0.5%	11.1%
Slovak Republic	100%		3.1%	1.7%	4.8%
Slovenia	100%		1.5%	0.8%	2.4%
South Africa	100%		2.4%	0.2%	2.5%
Spain	100%		1.6%	3.2%	4.8%
Sweden	100%		1.3%	3.9%	5.2%
Trinidad and Tobago	100%		0.3%	1.0%	1.3%
United Arab Emirates	100%		2.0%	1.3%	3.3%
United States	100%		0.0%	4.8%	4.8%

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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%).

Appendix C.1: Coverage of PIRLS 2016 Target Population (Continued)

Country	International Target Population		Exclusions from National Target Population		
	Coverage	Notes on Coverage	School-level Exclusions	Within-sample Exclusions	Overall Exclusions
Benchmarking Participants					
Buenos Aires, Argentina	100%		1.5%	1.2%	2.8%
Ontario, Canada	100%		2.3%	1.8%	4.1%
Quebec, Canada	100%		3.5%	1.6%	5.1%
² Denmark (3)	100%		1.9%	7.5%	9.3%
Norway (4)	100%		2.0%	3.0%	5.1%
Moscow City, Russian Fed.	100%		0.8%	2.6%	3.3%
Eng/Afr/Zulu - RSA (5)	100%		0.9%	0.2%	1.1%
Andalusia, Spain	100%		1.0%	3.2%	4.2%
² Madrid, Spain	100%		3.1%	3.4%	6.5%
Abu Dhabi, UAE	100%		2.2%	1.7%	3.9%
Dubai, UAE	100%		1.6%	1.5%	3.2%

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Appendix C.2: School Sample Sizes

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
Australia	286	286	281	5	286
Austria	152	150	150	0	150
Azerbaijan	170	170	170	0	170
Bahrain	184	183	182	0	182
Belgium (Flemish)	160	157	124	24	148
Belgium (French)	158	158	152	6	158
Bulgaria	154	153	153	0	153
Canada	1020	998	872	54	926
Chile	154	154	139	15	154
Chinese Taipei	150	150	150	0	150
Czech Republic	157	157	157	0	157
Denmark	198	191	170	15	185
Egypt	160	160	160	0	160
England	171	170	168	2	170
Finland	159	152	149	2	151
France	166	163	161	2	163
Georgia	201	201	198	2	200
Germany	210	209	204	4	208
Hong Kong SAR	152	151	114	24	138
Hungary	154	149	146	3	149
Iran, Islamic Rep. of	274	271	271	0	271
Ireland	150	148	148	0	148
Israel	160	160	157	2	159
Italy	150	150	134	15	149
Kazakhstan	174	172	171	1	172
Kuwait	187	181	177	0	177
Latvia	156	154	145	5	150
Lithuania	196	195	195	0	195
Macao SAR	57	57	57	0	57
Malta	97	95	95	0	95
Morocco	361	360	360	0	360
Netherlands	150	148	101	31	132
New Zealand	198	198	167	21	188
Northern Ireland	154	153	130	4	134
Norway (5)	153	152	145	5	150
Oman	308	307	305	1	306
Poland	150	149	141	7	148
Portugal	222	221	211	7	218
Qatar	218	216	216	0	216
Russian Federation	206	206	206	0	206
Saudi Arabia	208	202	185	17	202
Singapore	177	177	177	0	177
Slovak Republic	221	220	208	12	220
Slovenia	172	170	160	0	160
South Africa	304	302	282	11	293
Spain	630	629	625	4	629
Sweden	158	154	153	1	154
Trinidad and Tobago	152	151	151	0	151
United Arab Emirates	482	475	467	1	468
United States	176	172	131	27	158

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Benchmarking Participants

Buenos Aires, Argentina	150	150	131	19	150
Ontario, Canada	198	196	186	2	188
Quebec, Canada	176	174	89	38	127
Denmark (3)	198	191	170	16	186
Norway (4)	155	155	147	7	154
Moscow City, Russian Fed.	150	150	150	0	150
Eng/Afr/Zulu - RSA (5)	152	139	117	8	125
Andalusia, Spain	150	150	148	2	150
Madrid, Spain	168	168	168	0	168
Abu Dhabi, UAE	153	151	151	0	151
Dubai, UAE	178	175	174	0	174

Appendix C.3: Student Sample Sizes

Country	Within-school Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Australia	95%	7,064	168	155	6,741	400	6,341
Austria	98%	4,709	20	222	4,467	107	4,360
Azerbaijan	96%	6,361	113	0	6,248	254	5,994
Bahrain	98%	5,771	56	148	5,567	87	5,480
Belgium (Flemish)	98%	5,378	39	28	5,311	113	5,198
Belgium (French)	97%	4,841	8	64	4,769	146	4,623
Bulgaria	95%	4,677	75	108	4,494	213	4,281
Canada	96%	20,072	265	736	19,071	826	18,245
Chile	96%	4,648	73	85	4,490	196	4,294
Chinese Taipei	98%	4,471	39	38	4,394	68	4,326
Czech Republic	95%	5,939	78	35	5,826	289	5,537
Denmark	94%	4,091	68	278	3,745	237	3,508
Egypt	97%	7,321	150	0	7,171	214	6,957
England	96%	5,568	149	113	5,306	211	5,095
Finland	96%	5,178	52	42	5,084	188	4,896
France	96%	5,050	56	33	4,961	194	4,767
Georgia	97%	6,123	59	131	5,933	192	5,741
Germany	96%	4,279	58	102	4,119	160	3,959
Hong Kong SAR	87%	4,024	21	96	3,907	558	3,349
Hungary	97%	4,852	21	57	4,774	151	4,623
Iran, Islamic Rep. of (Combined)	99%	8,999	106	10	8,883	117	8,766
Literacy	99%	4,498	53	4	4,441	60	4,381
PIRLS	99%	4,501	53	6	4,442	57	4,385
Ireland	96%	4,881	30	44	4,807	200	4,607
Israel	95%	4,368	13	107	4,248	207	4,041
Italy	96%	4,309	22	166	4,121	181	3,940
Kazakhstan	99%	5,035	51	0	4,984	59	4,925
Kuwait	93%	5,082	66	14	5,002	393	4,609
Latvia	94%	4,636	21	134	4,481	324	4,157
Lithuania	95%	4,670	35	79	4,556	239	4,317
Macao SAR	98%	4,254	10	93	4,151	92	4,059
Malta	96%	4,022	6	223	3,793	146	3,647
Morocco (Combined)	99%	11,370	194	0	11,176	234	10,942
Literacy	99%	5,680	94	0	5,586	133	5,453
PIRLS	99%	5,690	100	0	5,590	101	5,489
Netherlands	96%	4,446	42	15	4,389	183	4,206
New Zealand	96%	6,128	77	119	5,932	286	5,646
Northern Ireland	96%	3,920	27	20	3,873	180	3,693
Norway (5)	96%	4,595	49	142	4,404	172	4,232
Oman	99%	9,619	146	67	9,406	172	9,234
Poland	91%	5,069	43	125	4,901	488	4,413
Portugal	94%	5,305	58	293	4,954	312	4,642
Qatar	97%	9,730	182	205	9,343	266	9,077
Russian Federation	98%	4,740	4	63	4,673	96	4,577
Saudi Arabia	96%	5,044	37	23	4,984	243	4,741
Singapore	97%	6,719	29	0	6,690	202	6,488
Slovak Republic	97%	5,869	207	41	5,621	170	5,451
Slovenia	96%	4,721	10	35	4,676	177	4,499
South Africa	96%	13,669	348	26	13,295	485	12,810
Spain	97%	15,634	55	520	15,059	464	14,595
Sweden	95%	4,988	38	189	4,761	236	4,525
Trinidad and Tobago	96%	4,506	108	50	4,348	171	4,177
United Arab Emirates	96%	17,381	89	232	17,060	589	16,471
United States	94%	5,056	159	175	4,722	297	4,425

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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.”

Appendix C.3: Student Sample Sizes (Continued)

Country	Within-school Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Benchmarking Participants							
Buenos Aires, Argentina	92%	4,843	46	43	4,754	372	4,382
Ontario, Canada	96%	4,572	50	71	4,451	181	4,270
Quebec, Canada	96%	3,396	17	59	3,320	141	3,179
Denmark (3)	95%	4,120	60	261	3,799	199	3,600
Norway (4)	96%	4,725	46	138	4,541	187	4,354
Moscow City, Russian Fed.	97%	4,494	14	49	4,431	142	4,289
Eng/Afr/Zulu - RSA (5)	96%	5,692	197	16	5,479	197	5,282
Andalusia, Spain	96%	4,470	22	132	4,316	147	4,169
Madrid, Spain	97%	4,050	16	127	3,907	113	3,794
Abu Dhabi, UAE	96%	4,408	20	27	4,361	173	4,188
Dubai, UAE	96%	8,356	50	148	8,158	299	7,859

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Appendix C.4: Participation Rates (Weighted)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Australia	97%	100%	100%	95%	92%	94%
Austria	100%	100%	100%	98%	98%	98%
Azerbaijan	100%	100%	100%	96%	96%	96%
Bahrain	99%	99%	100%	98%	98%	98%
Belgium (Flemish)	79%	94%	100%	98%	77%	92%
Belgium (French)	96%	100%	100%	97%	93%	97%
Bulgaria	100%	100%	100%	95%	95%	95%
Canada	81%	90%	100%	96%	77%	86%
Chile	92%	100%	100%	96%	88%	96%
Chinese Taipei	100%	100%	100%	98%	98%	98%
Czech Republic	100%	100%	100%	95%	95%	95%
Denmark	87%	96%	100%	94%	82%	90%
Egypt	100%	100%	100%	97%	97%	97%
England	99%	100%	100%	96%	95%	96%
Finland	98%	99%	100%	96%	95%	96%
France	99%	100%	100%	96%	95%	96%
Georgia	98%	99%	100%	97%	95%	96%
Germany	97%	100%	100%	96%	93%	95%
† Hong Kong SAR	74%	91%	100%	87%	64%	79%
Hungary	98%	100%	100%	97%	95%	97%
Iran, Islamic Rep. of (Combined)	100%	100%	100%	99%	99%	99%
Literacy	100%	100%	100%	99%	99%	99%
PIRLS	100%	100%	100%	99%	99%	99%
Ireland	100%	100%	100%	96%	96%	96%
Israel	98%	99%	100%	95%	93%	94%
Italy	89%	99%	100%	96%	85%	95%
Kazakhstan	100%	100%	100%	99%	99%	99%
Kuwait	98%	98%	100%	93%	91%	91%
Latvia	95%	97%	100%	94%	89%	91%
Lithuania	100%	100%	100%	95%	95%	95%
Macao SAR	100%	100%	100%	98%	98%	98%
Malta	100%	100%	100%	96%	96%	96%
Morocco (Combined)	100%	100%	100%	99%	99%	99%
Literacy	100%	100%	100%	99%	99%	99%
PIRLS	100%	100%	100%	99%	99%	99%
† Netherlands	69%	90%	100%	96%	66%	86%
New Zealand	85%	97%	100%	96%	81%	92%
Northern Ireland	84%	88%	100%	96%	81%	84%
Norway (5)	95%	99%	100%	96%	91%	95%
Oman	99%	100%	100%	99%	98%	98%
Poland	95%	99%	100%	91%	86%	90%
Portugal	97%	99%	100%	94%	91%	93%
Qatar	100%	100%	100%	97%	97%	97%
Russian Federation	100%	100%	100%	98%	98%	98%
Saudi Arabia	92%	100%	100%	96%	88%	96%
Singapore	100%	100%	100%	97%	97%	97%
Slovak Republic	94%	100%	100%	97%	92%	97%
Slovenia	94%	94%	100%	96%	90%	90%
South Africa	92%	97%	100%	96%	88%	94%
Spain	99%	100%	100%	97%	95%	97%
Sweden	99%	100%	100%	95%	94%	95%
Trinidad and Tobago	100%	100%	100%	96%	96%	96%
United Arab Emirates	98%	99%	100%	96%	95%	95%
† United States	75%	92%	100%	94%	71%	86%

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

PIRLS guidelines for sampling participation: The minimum acceptable participation rates were 85 percent of both schools and students, or a combined rate (the product of school 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.

Appendix C.4: Participation Rates (Weighted) (Continued)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Benchmarking Participants						
Buenos Aires, Argentina	88%	100%	100%	92%	81%	92%
Ontario, Canada	96%	97%	100%	96%	92%	93%
≡ Quebec, Canada	39%	67%	99%	96%	37%	64%
Denmark (3)	88%	97%	100%	95%	83%	92%
Norway (4)	95%	99%	100%	96%	91%	95%
Moscow City, Russian Fed.	100%	100%	100%	97%	97%	97%
Eng/Afr/Zulu - RSA (5)	84%	89%	100%	96%	81%	86%
Andalusia, Spain	99%	100%	100%	96%	96%	96%
Madrid, Spain	100%	100%	100%	97%	97%	97%
Abu Dhabi, UAE	100%	100%	100%	96%	96%	96%
Dubai, UAE	99%	99%	100%	96%	95%	95%

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Appendix C.5: Trends in Student Populations

Country	Years of Formal Schooling*				Average Age at Time of Testing				Overall Exclusion Rates				Overall Participation Rates (After Replacement)			
	2016	2011	2006	2001	2016	2011	2006	2001	2016	2011	2006	2001	2016	2011	2006	2001
Australia	4	4			10.0	10.0			4.8%	4.4%			94%	93%		
Austria	4	4	4		10.3	10.3	10.3		5.6%	5.1%	5.1%		98%	98%	97%	
Azerbaijan	4	4			10.1	10.2			2.1%	7.2%			96%	100%		
Belgium (Flemish)	4	4	4		10.1		10.0		1.6%		7.1%		92%		91%	
Belgium (French)	4	4	4		10.0	10.1	9.9		6.0%	5.6%	3.9%		97%	82%	95%	
Bulgaria	4	4	4	4	10.8	10.7	10.9	10.9	4.3%	2.5%	6.4%	2.7%	95%	95%	94%	93%
Canada	4	4			9.9	9.9			7.5%	9.9%			86%	94%		
Chinese Taipei	4	4	4		10.1	10.2	10.1		0.9%	1.4%	2.9%		98%	99%	99%	
Czech Republic	4	4		4	10.3	10.4		10.5	3.4%	5.1%		5.0%	95%	94%		90%
Denmark	4	4	4		10.8	10.9	10.9		9.8%	7.3%	6.2%		90%	95%	96%	
England	5	5	5	5	10.3	10.3	10.3	10.2	3.7%	2.4%	2.4%	5.7%	96%	82%	92%	82%
Finland	4	4			10.8	10.8			2.4%	3.1%			96%	95%		
France	4	4	4	4	9.8	10.0	10.0	10.1	5.4%	5.2%	3.8%	5.3%	96%	97%	95%	94%
Georgia	4	4	4		9.7	10.0	10.1		3.8%	4.9%	7.3%		96%	96%	98%	
Germany	4	4	4	4	10.3	10.4	10.5	10.5	4.2%	1.9%	0.7%	1.8%	95%	95%	92%	86%
Hong Kong SAR	4	4	4	4	9.9	10.1	10.0	10.2	10.1%	11.8%	3.9%	2.8%	79%	83%	97%	97%
Hungary	4	4	4	4	10.6	10.7	10.7	10.7	4.5%	4.2%	3.7%	2.1%	97%	96%	97%	95%
Iran, Islamic Rep. of	4	4	4	4	10.2	10.2	10.2	10.4	4.1%	4.5%	3.8%	0.5%	99%	99%	99%	98%
Ireland	4	4			10.5	10.3			3.1%	2.5%			96%	95%		
Israel	4	4			10.0	10.1			24.9%	24.6%			94%	93%		
Italy	4	4	4	4	9.7	9.7	9.7	9.9	4.9%	3.7%	5.3%	2.9%	95%	95%	97%	98%
Latvia	4	4	4	4	10.9			11.0	7.9%		4.7%	4.6%	91%		92%	89%
Lithuania	4	4	4	4	10.8	10.7	10.7	10.9	4.2%	5.6%	5.1%	3.8%	95%	94%	92%	83%
Malta	5	5			9.7	9.8			7.9%	4.1%			96%	94%		
Morocco	4	4			10.2	10.5			1.7%	2.0%			99%	95%		
Netherlands	4	4	4	4	10.1	10.2	10.3	10.3	3.1%	3.7%	3.6%	3.7%	86%	89%	90%	87%
New Zealand	4.5 - 5.5	4.5 - 5.5	4.5 - 5.5	4.5 - 5.5	10.1	10.1	10.0	10.1	3.7%	3.3%	5.3%	3.2%	92%	93%	95%	96%
Northern Ireland	4	4			10.4	10.4			3.0%	3.5%			84%	79%		
Norway (4)	4	4	4	4	9.8	9.7	9.8	10.0	5.1%	4.2%	3.8%	2.8%	95%	71%	71%	82%
Oman	4	4			9.7	9.9			0.6%	1.5%			98%	96%		
Portugal	4	4			9.8	10.0			7.5%	2.5%			93%	93%		
Qatar	4	4			10.0	10.0			3.9%	6.2%			97%	99%		
Russian Federation	4	4	3 or 4	3 or 4	10.8	10.8	10.8	10.3	4.1%	5.3%	5.9%	6.6%	98%	98%	97%	97%
Saudi Arabia	4	4			9.9	10.0			2.3%	1.6%			96%	98%		
Singapore	4	4	4	4	10.4	10.4	10.4	10.1	11.1%	6.3%	0.9%	0.1%	97%	96%	95%	98%
Slovak Republic	4	4	4	4	10.4	10.4	10.4	10.3	4.8%	4.6%	3.6%	2.0%	97%	96%	94%	96%
Slovenia	4	4	3 or 4	3	9.9	9.9	9.9	9.8	2.4%	2.6%	0.8%	0.3%	90%	94%	93%	94%
South Africa	4	4			10.6	10.5			2.5%	3.0%			94%	95%		
Spain	4	4	4		9.9	9.9	9.9		4.8%	5.4%	5.3%		97%	96%	97%	
Sweden	4	4	4	4	10.7	10.7	10.9	10.8	5.2%	4.1%	3.9%	5.0%	95%	91%	96%	92%
Trinidad and Tobago	5	5	5		10.2	10.3	10.1		1.3%	0.9%	0.7%		96%	95%	94%	
United Arab Emirates	4	4			9.8	9.8			3.3%	3.3%			95%	97%		
United States	4	4	4	4	10.1	10.2	10.1	10.2	4.8%	7.2%	5.9%	5.3%	86%	81%	82%	83%

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Benchmarking Participants

Ontario, Canada	4	4	4	4	9.8	9.9	9.8	9.9	4.1%	7.9%	8.3%	6.6%	93%	95%	87%	92%
Quebec, Canada	4	4	4	4	10.1	10.1	10.1	10.2	5.1%	3.7%	3.6%	3.3%	64%	92%	81%	89%
Eng/Afr/Zulu - RSA (5)	5		5		11.6		11.7		1.1%		4.3%		86%		88%	
Andalusia, Spain	4	4			9.8	9.9			4.2%	5.1%			96%	96%		
Abu Dhabi, UAE	4	4			9.7	9.7			3.9%	2.7%			96%	96%		
Dubai, UAE	4	4			9.9	9.9			3.2%	5.1%			95%	94%		

* Represents years of schooling counting from the first year of ISCED Level 1.

An empty cell indicates a country did not participate in that year's assessment or did not have comparable data.

Trend results for Azerbaijan do not include students taught in Russian. Trend results for Lithuania do not include students taught in Polish or Russian.

Austria's increased exclusions in 2016 resulted from more non-native language speakers, probably due to the refugee crisis in Europe.

Canada's decreased exclusions in 2016 resulted from provinces formerly reported as exclusions to be considered not covered by the target population.

Georgian schools in South Ossetia and Abkhazia were excluded in 2011 and 2016 due to lack of access and absence of official statistics. Abkhazia refugee schools in other territories of Georgia were included in the sample frame.

Hong Kong SAR's increased exclusions in 2011 and 2016 resulted from excluding international schools and schools organized by the English Schools Foundation. These schools do not follow Hong Kong's central curriculum and medium of instruction.

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).

Republic of South Africa (RSA) tested 5th grade students receiving instruction in English (Eng), Afrikaans (Afr) and Zulu. Exclusion and participation rates from 2006 are for the entire country of South Africa.

Appendix D.1: Percentage of Students with Achievement Too Low for Estimation*

Country	Combined PIRLS and PIRLS Literacy Percent of Students with Achievement Too Low For Estimation	PIRLS Percent of Students with Achievement Too Low for Estimation	PIRLS Literacy Percent of Students with Achievement Too Low for Estimation	PIRLS Average Percent Correct	PIRLS Literacy Average Percent Correct
Australia	1 (0.2)	1 (0.2)	--	64 (0.6)	--
Austria	0 (0.1)	0 (0.1)	--	63 (0.6)	--
Azerbaijan	3 (0.5)	3 (0.5)	--	47 (0.8)	--
Bahrain	5 (0.4)	5 (0.4)	--	42 (0.4)	--
Belgium (Flemish)	0 (0.1)	0 (0.1)	--	59 (0.5)	--
Belgium (French)	1 (0.2)	1 (0.2)	--	52 (0.5)	--
Bulgaria	1 (0.2)	1 (0.2)	--	66 (1.0)	--
Canada	1 (0.2)	1 (0.2)	--	64 (0.4)	--
Chile	2 (0.3)	2 (0.3)	--	51 (0.6)	--
Chinese Taipei	0 (0.1)	0 (0.1)	--	68 (0.5)	--
Czech Republic	1 (0.2)	1 (0.2)	--	64 (0.5)	--
Denmark	1 (0.2)	1 (0.2)	--	65 (0.5)	--
Egypt	10 (0.9)	--	10 (0.9)	--	45 (1.1)
England	1 (0.1)	1 (0.1)	--	67 (0.4)	--
Finland	0 (0.1)	0 (0.1)	--	69 (0.4)	--
France	1 (0.1)	1 (0.1)	--	55 (0.5)	--
Georgia	2 (0.2)	2 (0.2)	--	50 (0.6)	--
Germany	1 (0.4)	1 (0.4)	--	62 (0.7)	--
Hong Kong SAR	0 (0.1)	0 (0.1)	--	70 (0.6)	--
Hungary	0 (0.1)	0 (0.1)	--	66 (0.7)	--
Iran, Islamic Rep. of	5 (0.6)	8 (0.8)	3 (0.7)	38 (0.6)	64 (1.0)
Ireland	1 (0.3)	1 (0.3)	--	69 (0.6)	--
Israel	2 (0.2)	2 (0.2)	--	61 (0.6)	--
Italy	0 (0.1)	0 (0.1)	--	65 (0.5)	--
Kazakhstan	0 (0.1)	0 (0.1)	--	62 (0.6)	--
Kuwait	3 (0.4)	--	3 (0.4)	--	57 (0.9)
Latvia	0 (0.1)	0 (0.1)	--	67 (0.4)	--
Lithuania	0 (0.1)	0 (0.1)	--	65 (0.6)	--
Macao SAR	0 (0.1)	0 (0.1)	--	64 (0.2)	--
Malta	5 (0.3)	5 (0.3)	--	42 (0.3)	--
Morocco	10 (0.7)	16 (1.1)	4 (0.4)	25 (0.5)	51 (0.8)
Netherlands	0 (0.1)	0 (0.1)	--	64 (0.4)	--
New Zealand	2 (0.3)	2 (0.3)	--	59 (0.5)	--
Northern Ireland	1 (0.1)	1 (0.1)	--	69 (0.5)	--
Norway (5)	0 (0.1)	0 (0.1)	--	68 (0.5)	--
Oman	8 (0.4)	8 (0.4)	--	37 (0.6)	--
Poland	0 (0.1)	0 (0.1)	--	69 (0.5)	--
Portugal	0 (0.1)	0 (0.1)	--	59 (0.6)	--
Qatar	7 (0.3)	7 (0.3)	--	42 (0.3)	--
Russian Federation	0 (0.0)	0 (0.0)	--	73 (0.5)	--
Saudi Arabia	7 (0.5)	7 (0.5)	--	38 (0.8)	--
Singapore	1 (0.1)	1 (0.1)	--	71 (0.7)	--
Slovak Republic	1 (0.3)	1 (0.3)	--	62 (0.7)	--
Slovenia	1 (0.1)	1 (0.1)	--	63 (0.5)	--
South Africa	8 (0.6)	--	8 (0.6)	--	41 (0.9)
Spain	0 (0.1)	0 (0.1)	--	60 (0.4)	--
Sweden	0 (0.1)	0 (0.1)	--	66 (0.6)	--
Trinidad and Tobago	4 (0.3)	4 (0.3)	--	48 (0.7)	--
United Arab Emirates	6 (0.3)	6 (0.3)	--	43 (0.7)	--
United States	1 (0.1)	1 (0.1)	--	65 (0.7)	--

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

* Students were considered to have achievement too low for estimation if their performance on the assessment was no better than could be achieved by simply guessing on the multiple choice assessment items. However, such students were assigned scale scores (plausible values) by the achievement scaling procedure, despite concerns about their reliability.

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

A dash (-) indicates comparable data not available.

Appendix D.1: Percentage of Students with Achievement Too Low for Estimation*
(Continued)

Country	Combined PIRLS and PIRLS Literacy Percent of Students with Achievement Too Low For Estimation	PIRLS Percent of Students with Achievement Too Low for Estimation	PIRLS Literacy Percent of Students with Achievement Too Low for Estimation	PIRLS Average Percent Correct	PIRLS Literacy Average Percent Correct
Benchmarking Participants					
Buenos Aires, Argentina	3 (0.4)	3 (0.4)	--	48 (0.7)	--
Ontario, Canada	1 (0.2)	1 (0.2)	--	64 (0.8)	--
Quebec, Canada	0 (0.1)	0 (0.1)	--	65 (0.7)	--
Denmark (3)	0 (0.1)	--	0 (0.1)	--	80 (0.4)
Norway (4)	1 (0.2)	1 (0.2)	--	57 (0.4)	--
Moscow City, Russian Fed.	0 (0.0)	0 (0.0)	--	80 (0.4)	--
Eng/Afr/Zulu - RSA (5)	9 (0.8)	9 (0.8)	--	34 (1.2)	--
Andalusia, Spain	0 (0.2)	0 (0.2)	--	59 (0.5)	--
Madrid, Spain	0 (0.1)	0 (0.1)	--	65 (0.5)	--
Abu Dhabi, UAE	10 (0.7)	10 (0.7)	--	36 (0.9)	--
Dubai, UAE	2 (0.2)	2 (0.2)	--	57 (0.4)	--

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Appendix E.1: Average Percent Correct in the Reading Purposes and Comprehension Processes

Country	Overall Reading	Reading Purposes		Comprehension Processes	
		Literary	Informational	Retrieving and Straightforward Inferencing	Interpreting, Integrating, and Evaluating
Australia	64 (0.6)	67 (0.6)	61 (0.6)	72 (0.5)	56 (0.6)
Austria	63 (0.6)	66 (0.6)	59 (0.6)	74 (0.6)	50 (0.6)
Azerbaijan	47 (0.8)	47 (0.8)	46 (0.9)	58 (0.9)	34 (0.8)
Bahrain	42 (0.4)	42 (0.6)	41 (0.3)	51 (0.4)	31 (0.5)
Belgium (Flemish)	59 (0.5)	61 (0.5)	56 (0.5)	69 (0.4)	47 (0.5)
Belgium (French)	52 (0.5)	56 (0.5)	48 (0.6)	63 (0.6)	39 (0.6)
Bulgaria	66 (1.0)	68 (1.0)	64 (1.0)	74 (0.9)	56 (1.1)
Canada	64 (0.4)	68 (0.4)	61 (0.4)	73 (0.4)	55 (0.5)
Chile	51 (0.6)	56 (0.6)	47 (0.6)	62 (0.5)	40 (0.7)
Chinese Taipei	68 (0.5)	68 (0.5)	68 (0.5)	77 (0.4)	58 (0.6)
Czech Republic	64 (0.5)	67 (0.5)	60 (0.5)	75 (0.5)	52 (0.6)
Denmark	65 (0.5)	68 (0.5)	61 (0.5)	74 (0.5)	54 (0.6)
England	67 (0.4)	70 (0.5)	64 (0.5)	75 (0.4)	59 (0.5)
Finland	69 (0.4)	71 (0.5)	67 (0.5)	79 (0.4)	59 (0.5)
France	55 (0.5)	58 (0.6)	52 (0.5)	68 (0.5)	41 (0.6)
Georgia	50 (0.6)	53 (0.6)	47 (0.7)	60 (0.6)	40 (0.7)
Germany	62 (0.7)	66 (0.7)	59 (0.7)	73 (0.7)	50 (0.7)
Hong Kong SAR	70 (0.6)	71 (0.7)	69 (0.7)	79 (0.5)	61 (0.8)
Hungary	66 (0.7)	69 (0.7)	63 (0.8)	74 (0.6)	57 (0.8)
Iran, Islamic Rep. of	38 (0.6)	42 (0.7)	35 (0.6)	48 (0.7)	28 (0.6)
Ireland	69 (0.6)	72 (0.6)	66 (0.6)	77 (0.5)	60 (0.7)
Israel	61 (0.6)	64 (0.6)	58 (0.6)	70 (0.5)	51 (0.7)
Italy	65 (0.5)	67 (0.5)	62 (0.5)	74 (0.5)	55 (0.5)
Kazakhstan	62 (0.6)	63 (0.6)	62 (0.7)	70 (0.6)	53 (0.7)
Latvia	67 (0.4)	69 (0.4)	66 (0.4)	76 (0.4)	59 (0.5)
Lithuania	65 (0.6)	67 (0.6)	63 (0.7)	74 (0.5)	54 (0.7)
Macao SAR	64 (0.2)	65 (0.3)	64 (0.3)	75 (0.2)	53 (0.3)
Malta	42 (0.3)	45 (0.3)	39 (0.3)	52 (0.3)	31 (0.3)
Morocco	25 (0.5)	26 (0.5)	24 (0.6)	35 (0.7)	15 (0.4)
Netherlands	64 (0.4)	67 (0.4)	61 (0.4)	74 (0.4)	53 (0.5)
New Zealand	59 (0.5)	62 (0.5)	56 (0.6)	68 (0.5)	49 (0.5)
Northern Ireland	69 (0.5)	72 (0.5)	65 (0.5)	76 (0.4)	60 (0.6)
Norway (5)	68 (0.5)	70 (0.5)	65 (0.6)	77 (0.5)	58 (0.7)
Oman	37 (0.6)	37 (0.6)	36 (0.7)	46 (0.7)	26 (0.7)
Poland	69 (0.5)	72 (0.5)	66 (0.6)	76 (0.4)	61 (0.6)
Portugal	59 (0.6)	62 (0.6)	56 (0.6)	70 (0.5)	48 (0.7)
Qatar	42 (0.3)	42 (0.3)	41 (0.3)	51 (0.3)	32 (0.3)
Russian Federation	73 (0.5)	74 (0.5)	71 (0.5)	81 (0.4)	64 (0.6)
Saudi Arabia	38 (0.8)	40 (0.8)	36 (0.9)	47 (0.8)	29 (0.8)
Singapore	71 (0.7)	73 (0.7)	70 (0.8)	79 (0.6)	63 (0.8)
Slovak Republic	62 (0.7)	66 (0.7)	58 (0.7)	72 (0.6)	51 (0.7)
Slovenia	63 (0.5)	66 (0.5)	61 (0.6)	73 (0.5)	52 (0.5)
Spain	60 (0.4)	63 (0.5)	56 (0.4)	69 (0.4)	49 (0.5)
Sweden	66 (0.6)	69 (0.6)	64 (0.6)	76 (0.5)	56 (0.7)
Trinidad and Tobago	48 (0.7)	50 (0.8)	47 (0.7)	59 (0.7)	37 (0.7)
United Arab Emirates	43 (0.7)	43 (0.7)	43 (0.7)	52 (0.7)	33 (0.7)
United States	65 (0.7)	69 (0.7)	61 (0.8)	73 (0.7)	57 (0.8)
International Avg.	59 (0.1)	61 (0.1)	56 (0.1)	68 (0.1)	48 (0.1)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

Appendix E.1: Average Percent Correct in the Reading Purposes and Comprehension Processes (Continued)

Country	Overall Reading	Reading Purposes		Comprehension Processes	
		Literary	Informational	Retrieving and Straightforward Inferencing	Interpreting, Integrating, and Evaluating
Benchmarking Participants					
Buenos Aires, Argentina	48 (0.7)	51 (0.7)	45 (0.7)	59 (0.7)	36 (0.7)
Ontario, Canada	64 (0.8)	67 (0.8)	60 (0.9)	72 (0.7)	55 (0.8)
Quebec, Canada	65 (0.7)	68 (0.6)	62 (0.7)	75 (0.6)	54 (0.8)
Norway (4)	57 (0.4)	60 (0.5)	54 (0.5)	68 (0.4)	45 (0.5)
Moscow City, Russian Fed.	80 (0.4)	82 (0.4)	78 (0.5)	86 (0.3)	73 (0.5)
Eng/Afr/Zulu - RSA (5)	34 (1.2)	35 (1.2)	32 (1.2)	43 (1.3)	24 (1.1)
Andalusia, Spain	59 (0.5)	62 (0.5)	56 (0.6)	68 (0.5)	48 (0.5)
Madrid, Spain	65 (0.5)	68 (0.5)	62 (0.5)	74 (0.4)	55 (0.6)
Abu Dhabi, UAE	36 (0.9)	36 (0.9)	36 (0.9)	45 (0.9)	26 (0.9)
Dubai, UAE	57 (0.4)	58 (0.4)	57 (0.4)	66 (0.4)	48 (0.4)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Appendix E.2: Average Percent Correct in the Reading Purposes and Comprehension Processes – PIRLS Literacy

Country	Overall Reading	Reading Purposes		Comprehension Processes	
		Literary	Informational	Retrieving and Straightforward Inferencing	Interpreting, Integrating, and Evaluating
Egypt	42 (1.0)	42 (1.0)	42 (1.0)	47 (1.1)	30 (0.9)
Iran, Islamic Rep. of	59 (0.9)	59 (0.9)	60 (1.0)	66 (1.0)	45 (0.8)
Kuwait	53 (0.8)	52 (0.8)	54 (0.9)	60 (0.8)	38 (0.9)
Morocco	47 (0.8)	47 (0.8)	48 (0.8)	55 (0.8)	32 (0.7)
South Africa	38 (0.8)	39 (0.8)	37 (0.8)	44 (0.8)	25 (0.7)
International Avg.	48 (0.4)	48 (0.4)	48 (0.4)	54 (0.4)	34 (0.4)
Benchmarking Participants					
Denmark (3)	74 (0.4)	74 (0.4)	74 (0.4)	80 (0.4)	61 (0.5)

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

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Appendix F.1: Percentiles of Reading Achievement

Country	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
Australia	394 (6.3)	432 (5.5)	494 (3.9)	552 (3.1)	603 (2.7)	644 (2.7)	668 (2.7)
Austria	427 (4.4)	454 (4.8)	500 (2.9)	545 (2.4)	586 (2.2)	620 (2.4)	640 (3.6)
Azerbaijan	312 (10.1)	353 (9.1)	422 (5.4)	483 (4.2)	533 (2.9)	572 (2.6)	594 (3.7)
Bahrain	274 (6.5)	313 (3.8)	381 (3.6)	453 (2.5)	515 (2.7)	567 (3.1)	596 (3.9)
Belgium (Flemish)	420 (3.8)	446 (3.6)	486 (2.6)	527 (2.2)	567 (2.3)	601 (2.0)	620 (2.6)
Belgium (French)	378 (4.9)	408 (4.7)	454 (3.1)	500 (2.7)	544 (2.5)	584 (3.6)	606 (2.8)
Bulgaria	398 (11.0)	440 (7.5)	501 (6.5)	559 (4.8)	611 (3.5)	653 (3.5)	678 (4.1)
Canada	407 (4.0)	444 (3.9)	497 (2.7)	549 (2.2)	596 (2.0)	634 (2.0)	657 (2.8)
Chile	356 (5.1)	388 (4.0)	442 (3.5)	499 (3.0)	550 (3.1)	591 (3.1)	614 (3.2)
Chinese Taipei	445 (5.1)	475 (3.7)	521 (2.9)	563 (1.7)	603 (2.3)	637 (2.6)	657 (2.7)
Czech Republic	424 (7.0)	456 (4.6)	503 (2.8)	548 (1.8)	590 (2.3)	625 (2.4)	645 (3.6)
Denmark	425 (6.3)	457 (4.2)	507 (3.0)	553 (2.6)	594 (2.5)	628 (2.9)	650 (3.9)
Egypt	112 (9.2)	161 (8.6)	246 (7.9)	340 (6.4)	420 (6.0)	483 (6.7)	520 (7.1)
England	421 (6.4)	455 (3.3)	508 (3.1)	564 (2.1)	613 (2.2)	655 (2.9)	680 (3.3)
Finland	449 (6.9)	481 (4.6)	526 (2.7)	571 (2.3)	612 (2.0)	647 (2.5)	667 (2.4)
France	389 (5.2)	420 (3.7)	468 (2.8)	516 (2.6)	559 (2.2)	595 (3.7)	617 (4.0)
Georgia	347 (7.0)	383 (5.3)	440 (3.4)	495 (3.3)	543 (3.0)	584 (3.8)	606 (3.9)
Germany	395 (11.5)	435 (6.7)	493 (4.2)	544 (2.8)	591 (2.8)	629 (3.1)	652 (4.3)
Hong Kong SAR	457 (9.3)	487 (4.4)	531 (2.6)	573 (3.2)	612 (3.0)	645 (3.0)	663 (4.2)
Hungary	421 (5.5)	452 (5.8)	506 (4.6)	560 (3.6)	606 (3.6)	645 (3.1)	668 (4.0)
Iran, Islamic Rep. of	226 (12.7)	278 (9.7)	361 (5.9)	442 (4.4)	505 (2.8)	553 (2.7)	581 (4.2)
Ireland	435 (9.5)	472 (5.2)	522 (3.5)	572 (2.7)	617 (3.0)	656 (3.2)	678 (3.5)
Israel	365 (6.6)	407 (3.7)	475 (4.5)	542 (2.2)	593 (2.9)	635 (3.4)	660 (4.7)
Italy	432 (6.2)	461 (5.4)	508 (3.2)	553 (2.6)	592 (2.4)	627 (2.8)	647 (3.1)
Kazakhstan	429 (4.3)	455 (4.2)	496 (3.5)	538 (3.0)	578 (3.2)	615 (3.6)	635 (4.0)
Kuwait	207 (9.9)	250 (7.4)	326 (5.5)	401 (4.7)	466 (4.4)	522 (5.8)	556 (7.4)
Latvia	451 (5.0)	475 (3.6)	518 (2.4)	561 (2.3)	601 (2.3)	636 (3.8)	656 (2.3)
Lithuania	424 (6.6)	459 (5.5)	506 (3.9)	553 (3.1)	595 (4.0)	632 (2.9)	654 (4.0)
Macao SAR	429 (5.0)	459 (2.6)	506 (1.4)	551 (1.4)	590 (1.4)	625 (1.7)	646 (3.6)
Malta	289 (6.8)	328 (5.5)	394 (2.5)	462 (2.3)	517 (2.2)	560 (2.3)	583 (2.4)
Morocco	180 (6.3)	217 (4.9)	282 (5.3)	359 (5.5)	436 (3.6)	496 (3.6)	529 (3.9)
Netherlands	441 (5.4)	466 (3.4)	508 (2.5)	548 (2.4)	586 (2.1)	619 (2.2)	639 (2.9)
New Zealand	356 (6.8)	400 (5.3)	469 (3.4)	532 (2.3)	586 (3.1)	630 (3.0)	656 (3.0)
Northern Ireland	420 (7.1)	460 (5.4)	516 (2.8)	571 (2.4)	619 (3.1)	662 (2.2)	687 (3.0)
Norway (5)	446 (6.1)	474 (4.4)	518 (2.9)	562 (2.5)	603 (2.9)	640 (3.1)	661 (3.2)
Oman	234 (4.5)	275 (3.4)	348 (4.2)	426 (3.9)	494 (4.0)	549 (4.2)	580 (5.7)
Poland	436 (5.2)	470 (4.6)	521 (3.3)	569 (2.7)	615 (2.4)	652 (2.3)	675 (4.5)
Portugal	417 (4.3)	442 (4.0)	485 (3.3)	530 (2.1)	572 (2.9)	611 (3.3)	633 (5.5)
Qatar	249 (5.1)	291 (3.9)	367 (3.4)	452 (2.5)	523 (1.7)	577 (2.4)	608 (3.6)
Russian Federation	465 (5.2)	495 (4.1)	540 (2.8)	584 (2.5)	626 (2.7)	663 (2.6)	684 (3.3)
Saudi Arabia	263 (8.6)	298 (6.0)	363 (6.0)	436 (4.5)	500 (4.3)	553 (6.6)	582 (5.7)
Singapore	432 (7.8)	469 (6.2)	528 (4.4)	583 (2.9)	633 (3.5)	673 (4.2)	695 (3.9)
Slovak Republic	381 (15.5)	430 (8.6)	493 (3.8)	545 (2.6)	589 (2.7)	626 (2.9)	647 (2.2)
Slovenia	413 (6.3)	444 (3.7)	498 (3.8)	549 (2.3)	592 (2.2)	629 (2.8)	651 (3.6)
South Africa	147 (4.9)	182 (4.7)	246 (3.9)	320 (4.2)	390 (5.0)	456 (7.9)	498 (9.5)
Spain	413 (5.1)	442 (3.9)	486 (2.2)	532 (1.8)	573 (1.4)	607 (2.1)	628 (2.2)
Sweden	434 (5.7)	465 (4.0)	515 (3.1)	561 (2.8)	601 (3.2)	635 (3.5)	656 (3.5)
Trinidad and Tobago	310 (8.3)	351 (5.6)	420 (4.7)	487 (5.4)	547 (3.5)	594 (2.5)	619 (4.8)
United Arab Emirates	260 (4.8)	299 (4.1)	373 (4.2)	455 (4.2)	533 (3.6)	590 (2.5)	622 (2.6)
United States	410 (5.9)	446 (6.3)	501 (4.1)	555 (3.2)	604 (3.3)	645 (4.0)	666 (4.4)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Note: 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.

Appendix F.1: Percentiles of Reading Achievement (Continued)

Country	5th Percentile	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	95th Percentile
Benchmarking Participants							
Buenos Aires, Argentina	335 (7.3)	369 (5.9)	425 (4.1)	486 (3.7)	539 (3.1)	582 (4.3)	605 (3.1)
Ontario, Canada	406 (7.0)	441 (7.2)	495 (4.8)	550 (3.1)	598 (4.0)	636 (5.0)	660 (5.1)
Quebec, Canada	437 (7.5)	463 (6.4)	506 (4.3)	550 (3.1)	591 (3.2)	629 (4.7)	650 (5.2)
Denmark (3)	347 (6.5)	390 (5.7)	450 (3.4)	507 (3.1)	558 (3.6)	603 (4.5)	630 (7.3)
Norway (4)	393 (6.0)	423 (3.2)	472 (2.8)	522 (2.4)	566 (2.5)	603 (3.0)	623 (3.8)
Moscow City, Russian Fed.	507 (3.1)	532 (2.9)	573 (2.7)	615 (2.4)	654 (2.6)	689 (2.4)	709 (4.2)
Eng/Afr/Zulu - RSA (5)	240 (7.0)	274 (6.4)	333 (6.3)	403 (7.1)	478 (8.2)	544 (9.0)	578 (8.6)
Andalusia, Spain	413 (5.0)	438 (3.9)	482 (3.3)	529 (2.2)	569 (2.0)	604 (2.4)	624 (2.5)
Madrid, Spain	446 (4.5)	472 (3.4)	510 (2.4)	552 (2.4)	590 (2.1)	623 (2.6)	642 (3.6)
Abu Dhabi, UAE	233 (8.1)	270 (7.0)	333 (7.3)	415 (7.1)	495 (5.9)	557 (5.8)	591 (6.4)
Dubai, UAE	332 (5.2)	380 (4.4)	456 (2.7)	527 (3.0)	584 (2.3)	630 (2.5)	656 (3.2)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Appendix F.2: Standard Deviations of Reading Achievement

Country	Overall		Girls		Boys	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Australia	544 (2.5)	84 (1.6)	555 (2.6)	79 (1.8)	534 (3.0)	86 (1.9)
Austria	541 (2.4)	65 (1.4)	544 (2.7)	64 (1.4)	538 (2.7)	67 (1.8)
Azerbaijan	472 (4.2)	86 (2.8)	479 (4.3)	84 (3.2)	466 (4.5)	86 (2.9)
Bahrain	446 (2.3)	98 (1.5)	468 (2.8)	86 (1.5)	424 (3.5)	105 (2.3)
Belgium (Flemish)	525 (1.9)	61 (0.9)	530 (2.1)	59 (1.2)	520 (2.3)	61 (1.1)
Belgium (French)	497 (2.6)	69 (1.3)	503 (2.5)	67 (1.5)	492 (3.4)	70 (1.8)
Bulgaria	552 (4.2)	85 (2.7)	559 (4.9)	84 (3.2)	544 (4.3)	85 (2.9)
Canada	543 (1.8)	76 (1.3)	549 (2.2)	75 (1.9)	537 (2.1)	76 (1.3)
Chile	494 (2.5)	79 (1.3)	501 (2.9)	76 (1.6)	487 (3.2)	80 (1.7)
Chinese Taipei	559 (2.0)	64 (1.0)	563 (2.2)	62 (1.6)	555 (2.3)	66 (1.4)
Czech Republic	543 (2.1)	68 (2.0)	549 (2.2)	65 (2.0)	538 (2.6)	71 (2.2)
Denmark	547 (2.1)	68 (1.5)	554 (2.6)	68 (1.8)	541 (2.7)	67 (1.6)
Egypt	330 (5.6)	124 (2.8)	349 (5.6)	115 (2.8)	312 (6.6)	129 (3.4)
England	559 (1.9)	79 (1.2)	566 (2.2)	78 (1.8)	551 (2.4)	80 (1.3)
Finland	566 (1.8)	67 (1.6)	577 (1.9)	64 (1.6)	555 (2.3)	68 (2.1)
France	511 (2.2)	69 (1.4)	515 (2.6)	67 (1.6)	507 (2.5)	71 (1.8)
Georgia	488 (2.8)	79 (1.6)	498 (2.7)	75 (1.7)	479 (3.6)	81 (2.2)
Germany	537 (3.2)	78 (3.2)	543 (3.2)	76 (3.1)	532 (3.7)	79 (4.1)
Hong Kong SAR	569 (2.7)	64 (1.5)	573 (2.9)	61 (1.6)	564 (3.1)	66 (2.1)
Hungary	554 (2.9)	75 (1.6)	561 (3.4)	75 (2.1)	548 (3.1)	74 (2.2)
Iran, Islamic Rep. of	428 (4.0)	108 (2.8)	452 (4.5)	98 (3.4)	407 (5.1)	111 (3.4)
Ireland	567 (2.5)	74 (1.5)	572 (2.9)	73 (1.8)	561 (3.3)	74 (2.3)
Israel	530 (2.5)	90 (1.8)	537 (2.9)	85 (2.3)	524 (3.4)	93 (2.4)
Italy	548 (2.2)	65 (1.4)	552 (2.7)	63 (1.6)	544 (2.4)	67 (1.8)
Kazakhstan	536 (2.5)	63 (1.4)	542 (2.8)	62 (1.6)	531 (2.5)	63 (1.6)
Kuwait	393 (4.1)	105 (2.5)	410 (4.8)	96 (2.8)	376 (6.4)	112 (3.6)
Latvia	558 (1.7)	62 (1.3)	566 (2.1)	61 (1.5)	549 (2.0)	63 (1.6)
Lithuania	548 (2.6)	69 (1.7)	558 (2.7)	68 (1.8)	538 (3.3)	69 (2.2)
Macao SAR	546 (1.0)	66 (1.0)	546 (1.6)	66 (1.4)	545 (1.7)	66 (1.3)
Malta	452 (1.8)	90 (1.5)	463 (2.6)	86 (1.7)	442 (2.2)	92 (2.1)
Morocco	358 (3.9)	107 (1.7)	372 (4.0)	105 (2.3)	344 (4.4)	107 (1.9)
Netherlands	545 (1.7)	60 (1.2)	550 (1.7)	58 (1.2)	540 (2.3)	62 (1.9)
New Zealand	523 (2.2)	91 (1.8)	533 (2.4)	88 (2.1)	512 (3.0)	92 (2.3)
Northern Ireland	565 (2.2)	80 (1.3)	574 (2.8)	77 (1.8)	555 (2.8)	83 (2.0)
Norway (5)	559 (2.3)	65 (1.3)	570 (2.6)	63 (1.7)	548 (2.6)	66 (1.7)
Oman	418 (3.3)	106 (1.7)	442 (3.2)	95 (1.9)	395 (3.9)	111 (2.0)
Poland	565 (2.1)	72 (1.1)	574 (2.5)	69 (1.7)	556 (2.6)	74 (1.6)
Portugal	528 (2.3)	65 (1.4)	529 (2.7)	65 (1.6)	527 (2.5)	65 (1.6)
Qatar	442 (1.8)	110 (1.3)	460 (1.9)	102 (1.8)	424 (3.4)	115 (2.4)
Russian Federation	581 (2.2)	66 (1.3)	588 (2.2)	65 (1.4)	574 (2.6)	67 (1.7)
Saudi Arabia	430 (4.2)	98 (2.4)	464 (5.4)	88 (3.2)	399 (5.8)	95 (2.5)
Singapore	576 (3.2)	80 (2.1)	585 (3.5)	77 (2.1)	568 (3.4)	82 (2.6)
Slovak Republic	535 (3.1)	81 (3.6)	539 (3.7)	80 (4.2)	530 (3.1)	82 (3.5)
Slovenia	542 (2.0)	72 (1.1)	552 (2.3)	69 (1.7)	533 (2.6)	74 (1.5)
South Africa	320 (4.4)	106 (2.6)	347 (4.0)	99 (2.6)	295 (5.1)	107 (3.1)
Spain	528 (1.7)	65 (1.4)	532 (1.4)	63 (1.0)	524 (2.7)	67 (2.2)
Sweden	555 (2.4)	67 (1.2)	563 (2.7)	65 (1.6)	548 (2.6)	68 (1.5)
Trinidad and Tobago	479 (3.3)	94 (1.9)	490 (3.8)	88 (2.4)	468 (4.4)	98 (2.7)
United Arab Emirates	450 (3.2)	111 (1.6)	465 (4.2)	102 (2.4)	436 (4.5)	116 (1.9)
United States	549 (3.1)	78 (1.3)	553 (3.2)	77 (1.5)	545 (3.6)	78 (1.7)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

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

**Appendix F.2: Standard Deviations of Reading Achievement
(Continued)**

Country	Overall		Girls		Boys	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Benchmarking Participants						
Buenos Aires, Argentina	480 (3.1)	83 (1.8)	485 (3.7)	82 (2.4)	475 (3.4)	82 (1.9)
Ontario, Canada	544 (3.2)	77 (1.5)	550 (3.6)	76 (2.2)	538 (3.8)	77 (1.9)
Quebec, Canada	547 (2.8)	65 (2.0)	552 (3.3)	65 (2.4)	542 (3.1)	65 (2.0)
Denmark (3)	501 (2.7)	85 (1.7)	511 (3.3)	83 (2.3)	491 (3.0)	85 (2.3)
Norway (4)	517 (2.0)	70 (1.0)	526 (2.4)	66 (1.2)	508 (2.1)	73 (1.6)
Moscow City, Russian Fed.	612 (2.2)	62 (1.1)	620 (2.3)	61 (1.2)	604 (2.6)	62 (1.6)
Eng/Afr/Zulu - RSA (5)	406 (6.0)	103 (2.7)	421 (6.0)	97 (3.0)	391 (6.5)	106 (2.9)
Andalusia, Spain	525 (2.1)	64 (1.4)	526 (2.8)	64 (1.9)	523 (2.2)	64 (1.6)
Madrid, Spain	549 (2.0)	60 (1.0)	553 (2.4)	59 (1.7)	545 (2.6)	60 (1.3)
Abu Dhabi, UAE	414 (4.7)	109 (2.4)	435 (7.3)	103 (3.8)	396 (6.4)	111 (2.5)
Dubai, UAE	515 (1.9)	98 (1.4)	522 (3.6)	96 (2.3)	509 (2.8)	99 (2.4)

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

APPENDIX G

Organizations and Individuals Responsible for PIRLS 2016

Introduction

PIRLS (Progress in International Reading Literacy Study) is a collaborative effort involving hundreds of individuals around the world. This appendix acknowledges the individuals and organizations who contributed to the assessment. Given that work on PIRLS 2016 has spanned approximately five years and has involved so many people and organizations, this list may not include all who contributed. Any omission is inadvertent. PIRLS 2016 also acknowledges the students, parents, teachers, and school principals who contributed their time and effort to the study. It would not be possible without them.

Management and Coordination

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

PIRLS was conducted by IEA's TIMSS & PIRLS International Study Center at Boston College, which has responsibility for the overall direction and management of the TIMSS and PIRLS projects, including design, development, and implementation. Headed by Executive Directors Drs. Ina V.S. Mullis and Michael O. Martin, the study center is located in the Lynch School of Education. In carrying out the project, the TIMSS & PIRLS International Study Center worked closely with IEA Amsterdam, which managed country participation, was responsible for verification of all translations produced by the participating countries, and coordinated the school visits by International Quality Control Monitors. Staff at IEA Hamburg worked closely with participating countries to organize sampling and data collection 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 Australian Council for Educational Research (ACER) participated in developing

the ePIRLS tasks and items, and ACER and the National Foundation for Educational Research in England (NFER) participated in developing the PIRLS 2016 passages and items; and Educational Testing Service in Princeton, New Jersey consulted on psychometric methodology, provided software for scaling the achievement data, and replicated the achievement scaling for quality assurance.

The Project Management Team, comprising the study directors and representatives from the TIMSS & PIRLS International Study Center, IEA Amsterdam and IEA Hamburg, Statistics Canada, and ETS 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 yearly 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 provide feedback and contributions throughout the development of the PIRLS assessment. 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 involved. Continuing the tradition of exemplary work established in previous cycles of PIRLS, the PIRLS 2016 NRCs performed their many tasks with dedication, competence, energy, and goodwill.

Funding

Funding for PIRLS 2016 was provided primarily by the participating countries. The National Center for Education Statistics of the U.S. Department of Education was a major funding partner, providing funding under contract number ED08C00117. The content of this publication does not necessarily reflect the views or policies of the U.S. Department of Education nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government. Boston College also is gratefully acknowledged for its generous financial support and stimulating educational environment.

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APPENDIX H

Restricted Use Passages, Questions, and Scoring Guides

PIRLS

- *Macy and the Red Hen*
- *The Green Sea Turtle's Journey of a Lifetime*

PIRLS and PIRLS Literacy

- *Flowers on the Roof*

PIRLS Literacy

- *The Pearl*
- *African Rhinos and Oxpecker Birds*

PIRLS 2016 INTERNATIONAL RESULTS
IN READING

PIRLS
Literacy
2016

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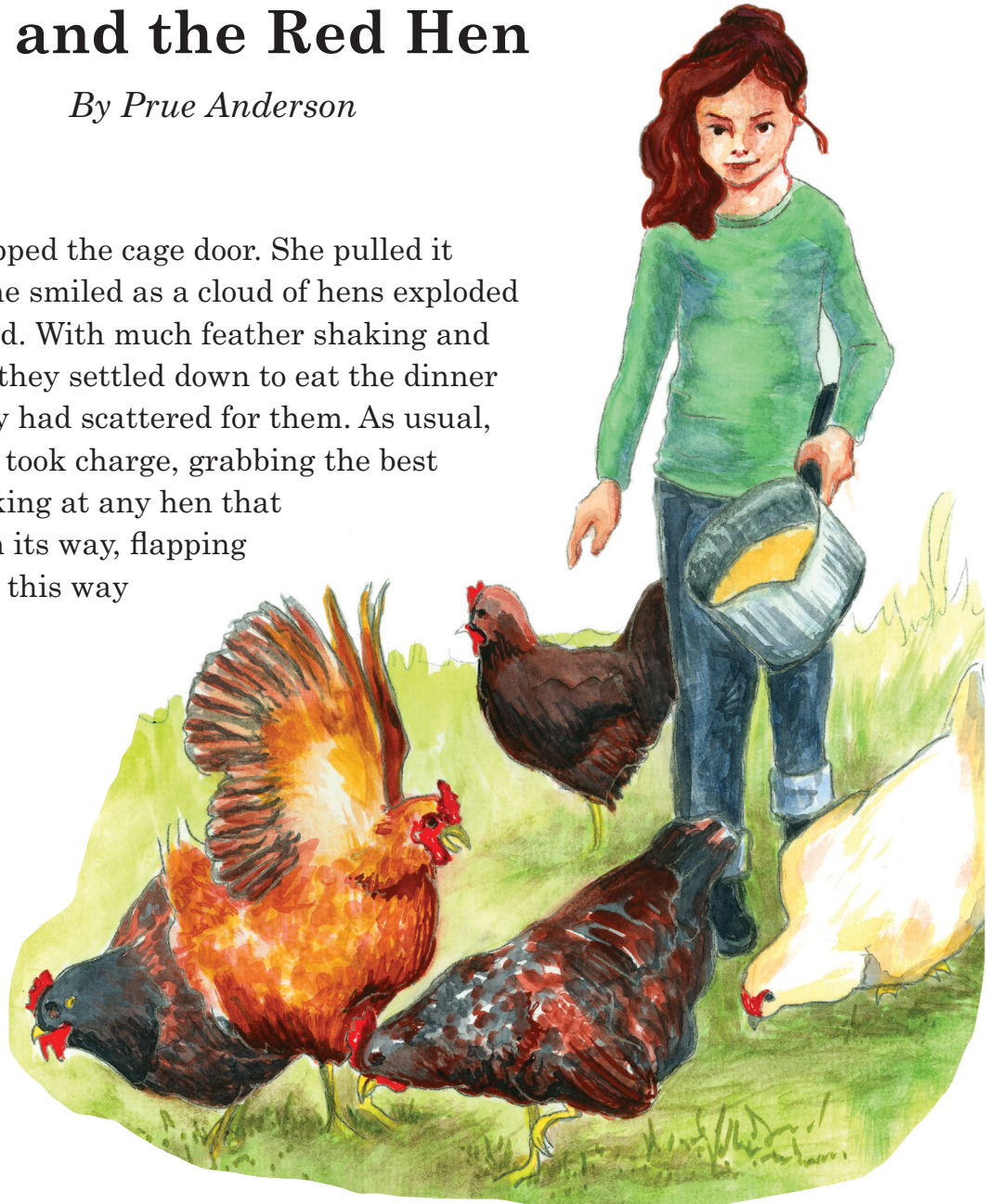
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Macy and the Red Hen

By Prue Anderson

Macy unclipped the cage door. She pulled it open and she smiled as a cloud of hens exploded into the yard. With much feather shaking and squawking they settled down to eat the dinner scraps Macy had scattered for them. As usual, the red hen took charge, grabbing the best scraps, pecking at any hen that dared get in its way, flapping and fussing this way and that.



“Why do the other hens let the red hen boss them like that?” Macy had asked her mother.

“Hens have a pecking order,” her mother explained. “The bravest and strongest hen is in charge. She can peck all the other hens, but no one can peck her. The next hen in the pecking order can peck everyone except the top hen and so it goes all the way down, so you feel really sorry for the poor hen at the bottom. Hens like a bossy leader.”

But Macy had a different view. Every night she had to lock the hens back in their cage so that foxes and owls did not get them. This was her job. Everyone in her large family had jobs. By the time it was getting dark, all the hens were happy to go back into their cage. That is, all except the red hen. She would pretend to walk towards the cage door, and at the last minute would suddenly rush to the side and wait for Macy to chase her.



Another trick was to sit in the middle of the yard. As soon as Macy got close enough to bend down and pick her up, the hen would flap her wings really hard so Macy could not grab her, then she would run off again. Eventually, after the red hen had decided that Macy had chased her enough, she would calmly walk into the cage by herself, her little red eyes gleaming in triumph as Macy slammed the cage door behind her.

Macy had tried to lure the red hen by putting her favorite food inside the cage at night, but the hen would not be bribed. Macy had tried banging pot lids together to frighten the red hen, but she scared the other hens so much they did not lay any eggs for two days.



Macy went to find her father. “I need to teach that red hen a lesson,” she said. “I’m going to leave her out all night to fight the foxes and the owls. That will teach her to go in her cage when I say.”

“Macy,” said Dad, as he turned to look at her. “A hen cannot fight an owl or a fox and we need our hens. We need all the eggs we can get.”

He smiled. “Besides, it would not solve your problem, because the next hen in the pecking order would just take the red hen’s place.” He turned back to his work.

Macy stomped to the kitchen. “Mum, I don’t like my job, I need a different job.”

“Well that’s easy,” said Mum. “You can cook dinner.” Macy looked at the huge pile of food on the bench that had to be cleaned and chopped and stirred to feed all of her family.

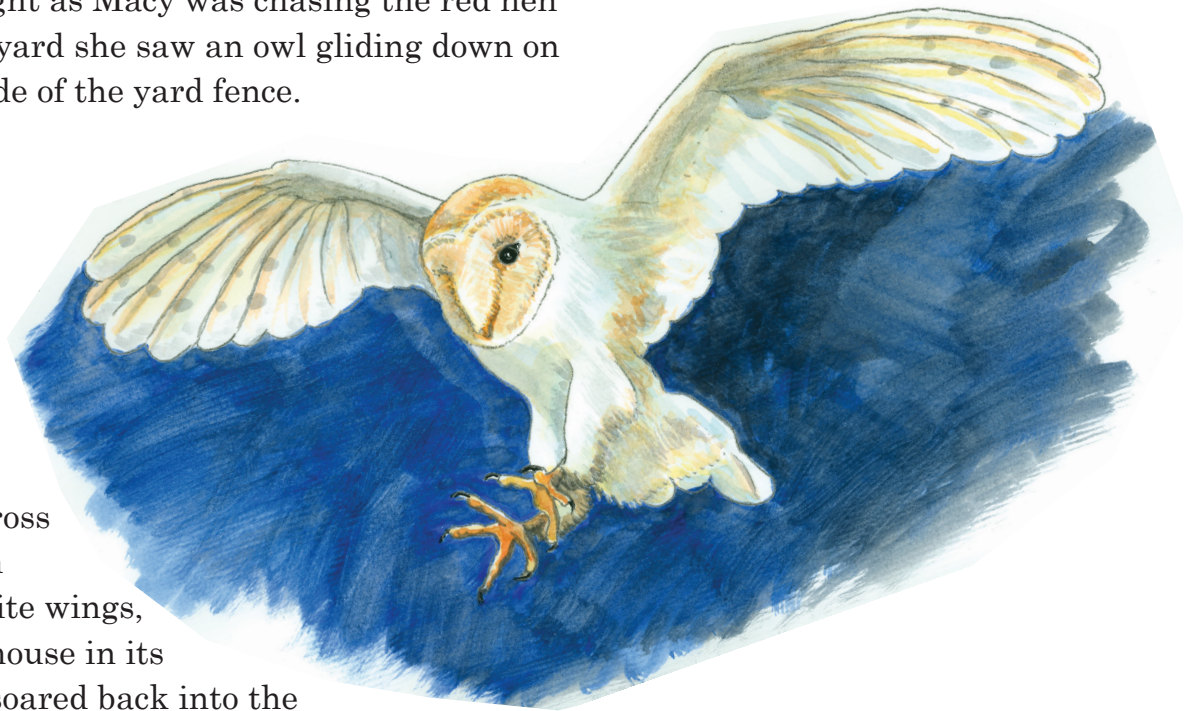
“You can wash the dishes.” Macy looked at the stack of dirty pots and pans from last night still piled up on the sink.

“You can look after the baby.” Macy looked at her little sister happily squashing banana into her face, her hair, and her clothes.

Macy retreated out the kitchen door. “I would like your job,” her mother called after her.



That night as Macy was chasing the red hen around the yard she saw an owl gliding down on the other side of the yard fence.



The owl swooped across the grass on its huge white wings, grabbed a mouse in its claws, and soared back into the shadows. This gave Macy an idea. The next day Macy got wire and some white cloth and made two big wings on the end of a long pole. She explained her plan to her brother Sam.

That night when Macy was chasing the red hen as usual, Sam stepped into the yard with the pole that Macy had made. He made the wings swoop down towards the red hen. The hen stopped running and fluffed up her feathers, squawked furiously and beat her wings, ready to face her attacker, but the white wings kept coming closer and closer. The red hen's squawking faded away. She crouched down low on the ground, her beak pointing up ready to peck if she got the chance. Suddenly, Macy stepped in.



Macy shouted at the white wings. She hit the wings with her hands and pushed the wings away. Her brother lifted the wings upwards. Down they came again and Macy fought them off. The red hen's beady little eyes watched it all as she crouched at Macy's feet. Finally, the terrifying wings gave up and flew away.

Macy bent down and put out her hands. The red hen rushed into them and gently laid her beak on Macy's arm. Macy could feel the hen's little heart pounding in her feathery chest as she carried her back to the cage. She cuddled the hen until its heart slowed down then gently put it in the cage and smiled at Sam.

"Now you are the top of the pecking order," laughed Sam.

Questions Macy and the Red Hen

1. What is Macy doing at the start of the story?

- (A) catching a hen
- ★ (B) feeding the hens
- (C) looking for eggs
- (D) collecting feathers

2. How does the author show you what the red hen is like?

- (A) by describing what the red hen looks like
- (B) by describing the red hen's favorite food
- (C) by describing where the red hen lives
- ★ (D) by describing how the red hen behaves

3. Why does Macy's mother feel sorry for the hen at the bottom of the pecking order?



★ **Correct Answer**

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4. Why does the red hen play tricks on Macy?



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5. Why does Macy slam the cage door?

- ★ (A) Macy is angry.
- (B) The door is hard to close.
- (C) A fox is coming.
- (D) The red hen is escaping.

6. Macy wants the red hen to go into the cage.

What are two things Macy does that **do not** work?



1.



2.

2

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★ Correct Answer

7. Why does Dad object to Macy's idea?
- (A) The red hen might hurt itself.
 - (B) The red hen would stop laying eggs.
 - ★ (C) Dad thinks the red hen would be killed.
 - (D) Dad wants to teach the hen a lesson.

8. Dad says the next hen in the pecking order would just take the red hen's place.

What does he mean?



9. Why does Mum say, "I would like your job"?
- (A) Mum feels sorry for Macy.
 - (B) Macy should do more jobs around the house.
 - (C) Mum really likes looking after hens.
 - ★ (D) Macy should understand Mum has harder jobs.

★ Correct Answer

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10. How does Macy get her idea?

- (A) Macy's brother, Sam, tells her the plan.
- ★ (B) Macy sees an owl catch a mouse.
- (C) Macy's Dad tells her about owls.
- (D) Macy sees wire and some white cloth.

11. Why does Macy make white wings on a pole?

- (A) to look like hen's feathers
- (B) to make a decision
- ★ (C) to look like an owl
- (D) to impress Sam

12. Macy "hit the wings with her hands and pushed the wings away."

What does Macy want the hen to think?

- ★ (A) that Macy is saving the hen
- (B) that Macy is angry with the hen
- (C) that Macy is terrified of the owl
- (D) that Macy is playing with the owl

★ **Correct Answer**

13. You learn what Macy is like from the things she does.

Describe what Macy is like and give two examples from the story that show this.



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14. Why is Macy at the top of the pecking order at the end of the story?

Use the information from the story to explain your answer.



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15. What do you think the red hen will do next time Macy puts the hens in their cage?



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16. Why would “Macy Finds a Way” be good as a different title for this story?

Give one reason.



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Macy and the Red Hen, Item 3

3. Why does Macy's mother feel sorry for the hen at the bottom of the pecking order?

Process: Make Straightforward Inferences

1 – Acceptable Response

The response indicates that all the other hens peck it, or it cannot peck anyone, or that it gets the worst conditions.

Examples:

- All the other hens can peck it.
- It cannot peck any other hens.
- He gets bossed around.
- The leader of the hens keeps bossing her around.
- Because it gets the worst scraps for dinner.

0 – Unacceptable Response

The response indicates misunderstanding of the pecking order or is vague, unrelated to the text, or repeats words in the question.

Examples:

- It might be sick.
- All the other hens sit on top of it.
- Because it is a long way to go to be the boss.
- Because hens like a bossy leader.

Macy and the Red Hen, Item 4

4. Why does the red hen play tricks on Macy?

Process: Interpret and Integrate Ideas and Information

1 – Acceptable Response

The response indicates that the red hen is top of the pecking order, or the boss, or thinks she is better.

Examples:

- *The hen is top of the pecking order.*
- *The hen is bossy.*
- *It does not want to do what Macy says because it is the boss.*
- *Just to show she is better than Macy.*
- *The red hen thinks she's the best.*
- *The red hen thinks because it is the bravest and strongest it can play tricks.*

0 – Unacceptable Response

The response indicates misunderstanding of the red hen's intentions. It may be vague, unrelated to the text, or repeat words in the question.

Examples:

- *The hen does not like being in the cage.*
- *The hen wants to stay out all night.*
- *The hen is naughty.*
- *It does not like Macy.*
- *It does not want to go back in the cage.*
- *It does not want to do what Macy says.*
- *The hen wants Macy to chase it.*

Macy and the Red Hen, Item 6

6. Macy wants the red hen to go into the cage.

What are two things Macy does that do not work?

Process: Focus on and Retrieve Explicitly Stated Information

2 – Complete Comprehension

The response includes two of the following:

- Picking up the hen.
- Putting food inside the cage/luring the hen with food.
- Banging lids together/making noise (to scare the hen).
- Chasing the hen.

1 – Partial Comprehension

The response indicates one of the above.

0 – No Comprehension

The response indicates a successful strategy or is incorrect. It may be vague, unrelated to the text, or repeat words in the question.

Examples:

- Macy makes an owl and scares the red hen.
- Macy leaves the hen out all night.
- Sam helps Macy.
- She scares the hen.
- Uses the wings.
- Leaves it out at night.

Macy and the Red Hen, Item 8

8. Dad says the next hen in the pecking order would just take the red hen's place.

What does he mean?

Process: Evaluate and Critique Content and Textual Elements

1 – Acceptable Response

The response shows understanding that (even if the red hen is killed) the pattern will continue; Macy's problems will not be solved; the next hen will cause the same trouble/problem; or will behave/be annoying in the same way as the red hen.

Examples:

- *The cycle would continue and there is no point letting the fox get the hen.*
- *It means that even when the red hen is killed, the next hen in the pecking order will carry on doing the same thing.*
- *There will just be another hen to annoy Macy.*
- *He means the red hen would die and the next hen in the pecking order would still be like the red hen.*
- *The next hen in the pecking order would take the red hen's place and do the same.*
- *He means that the next hen will do exactly the same thing that the red hen did.*
- *Macy's problems would not be solved.*

0 – Unacceptable Response

The response may or may not refer to another hen replacing the red hen as the leader, but it **does not** show understanding that the pattern or problem will continue.

Examples:

- *The second hen will be the top hen.*
- *Another hen will take over as boss.*
- *It means the next hen in the pecking order will be in charge.*
- *If the red hen goes, it will be replaced by a new leader.*
- *The hen that is second bravest and strongest would take its place.*
- *It means the red hen will be killed.*
- *That this won't change anything (too vague)*
- *Dad is going to put another hen in charge.*

Macy and the Red Hen, Item 13

13. You learn what Macy is like from the things she does.

Describe what Macy is like and give two examples from the story that show this.

Process: Interpret and Integrate Ideas and Information

3 – Extensive Comprehension

The response shows understanding of what Macy is like by giving at least one trait, feeling, or attitude that is supported with two different, appropriate examples OR two traits/feelings/attitudes with an example for each. Possible attributes and actions are listed below, but Macy is a complex character and other responses may be acceptable if appropriately supported.

Examples:

- *Macy is determined because she does not give up when the red hen is naughty and she continues to try different ways to get the hen in the cage.*
- *Macy has a bad temper because she slams the hen's cage shut and she stomps angrily into the kitchen.*
- *She is clever because she comes up with the idea of wings and she tries putting the hen's favorite food in the cage to lure her in the cage.*
- *She is responsible because she makes sure the hens are safe and creative because she comes up with the plan to use the owl.*
- *Macy is smart because she got the hen in the cage. Macy does not give up because she tried 4 or 5 times.*

Possible attributes and actions

- Smart, clever, inventive: thinks of creative solutions to her problem.
- Determined, intolerant of failure: does not give up until she is successful; gets annoyed by hen's behavior.
- Conscientious: carries out her responsibilities each day.
- Curious, questioning: asks questions to understand the problem.

2 – Satisfactory Comprehension

The response shows understanding of what Macy is like by linking a trait/feeling/attitude with one appropriate example.

Example:

- *She is moody and angry at the hen. She wants the hen to do what it is told.*

1 – Minimal Comprehension

The response lists one or more of Macy's traits/feelings/attitudes: (e.g., determined, clever) with only a vague example or without an example. The response does not include contradictory traits or behaviors.

Examples:

- *She is clever and smart.*
- *She thinks of lots of good ideas.*
- *She keeps on trying and trying.*
- *She gets angry or frustrated.*

0 – Unsatisfactory Comprehension

The response does not describe a trait/feeling/attitude, it may list unrelated traits, be vague, unrelated to the text, or repeat words in the question.

Examples:

- *She is nice/kind/helpful/good. (too generic)*
- *She does lots of good things.*
- *She is caring, smart, pretty, kind, loving. (unrelated traits)*
- *She is angry and smiley. (contradictory)*
- *She is angry and happy. (contradictory)*
- *She likes what she does. (incorrect)*

Macy and the Red Hen, Item 14

14. Why is Macy at the top of the pecking order at the end of the story?

Use the information from the story to explain your answer.

Process: Interpret and Integrate Ideas and Information

1 – Acceptable Response

The response refers to Macy's clever plan, the hen being saved/scared, or Macy scaring away the owl.

Examples:

- *She tricked the hen then the hen thought Macy was better.*
- *Macy pretended to save the hen.*
- *The red hen thinks Macy saved it.*
- *The hen thinks Macy is brave.*
- *She saved the red hen from the owl.*
- *She scared away the owl.*
- *She scared the red hen.*

0 – Unacceptable Response

The response is vague, unrelated to the text, or repeats words in the question. It may provide a literal definition of the pecking order.

Examples:

- *Macy is in charge.*
- *Macy is bossy.*
- *Because Sam said it.*

Macy and the Red Hen, Item 15

15. What do you think the red hen will do next time Macy puts the hens in their cage?

Process: Interpret and Integrate Ideas and Information

1 – Acceptable Response

The response indicates that the hen will behave.

Examples:

- *She will just sit down until Macy comes and picks her up.*
- *She will go in the cage and not make it difficult.*
- *She will follow the others into the cage.*
- *She will remember what she did and stay there.*
- *It will go in the cage with the others.*
- *It will go in straight away.*
- *It will be obedient.*

0 – Unacceptable Response

The response is vague, unrelated to the text, or repeats words in the question.

Examples:

- *She might do the same thing.*
- *Run away.*
- *The hen would get angry.*
- *She won't fall for Macy's trick.*
- *She wants Macy to chase her.*

Macy and the Red Hen, Item 16

16. Why would “Macy Finds a Way” be good as a different title for this story? Give one reason.

Process: Evaluate and Critique Content and Textual Elements

1 – Acceptable Response

The response indicates that Macy was able to solve her problem.

Examples:

- *She did find a way to make the hen do what she wanted.*
- *She tricked the red hen into doing what Macy wanted.*
- *She finds a way to teach the hen a lesson.*
- *She finds a way to get the hen in the cage.*
- *Because she finds a way for the hen to listen to her.*
- *She finds a way to get the hen in the cage without putting up a fight.*

0 – Unacceptable Response

The response is vague, unrelated to the text, or repeats words in the question.

Examples:

- *She did find a way.*
- *Because it is about her doing it.*
- *Macy found a way in the story.*
- *She wants to be friends with the hen.*

The Green Sea Turtle's Journey of a Lifetime

From *Turtle Travels*
By Gary Miller



Out From the Sand

It's a starry night in August. A nest of eggs lies buried in the sand more than two feet below the surface of a Costa Rican beach. The nest holds more than 100 green sea turtle eggs, each about the size of a golf ball.

One of the baby sea turtles begins to stir and hatch from her egg. The hatchling tears at the shell of her egg with the sharp point on her beak. Still buried beneath the sand, the baby sea turtle breaks free. Soon, the whole nest is alive with motion.

The baby turtle uses her flippers to climb up and up. It can take more than a day to reach the surface of the sand.

Into the Water

When the hatchling reaches the surface of the sand, she is drawn to the moonlight reflecting off the ocean. Luckily, there are no lights shining from a nearby street or house. These lights can confuse a baby turtle. They can make it go the wrong way, away from the sea.

The hatchling's journey to the water is a race for survival. She is no bigger than a walnut. Crabs and birds, such as night herons, snatch up some of the other baby turtles on the beach. This baby turtle makes it to the water.

The frothy surf pushes the baby turtle back. She fights to swim against the breaking waves. The hatchling continues to swim through the first day and night, and she does not slow down for two days.

Out to the Open Sea

The baby turtle's journey through the open sea is often called the "lost years." Scientists know little about this phase of a green sea turtle's life. She may move with the currents, floating with mats of seaweed.

The hatchling may snack on shrimp, small jellyfish, and snails that drift in and around the seaweed. Unfortunately, the sea also contains plastic and trash that people throw away. Eating them could be deadly for the turtle.



The sea has many other dangers, too. Predators such as sharks swim below the small turtle and large birds fly above. Fortunately, she gets some protection from the coloring of her shell. The bottom is almost white, so sharks swimming below may not spot her in the sunlight. The top of her shell is dark, so from above the turtle blends into the dark water.

Growing Up Green

After several years, she has become a juvenile. She is no longer a hatchling, but she is not yet an adult. Her shell has become about the size of a dinner plate. It is now time to leave the open sea for the warm coastal waters of Florida, USA.

With her larger shell she is safer than she was as a hatchling. Although she sometimes slurps up a jellyfish, now she mostly eats algae and sea grass.

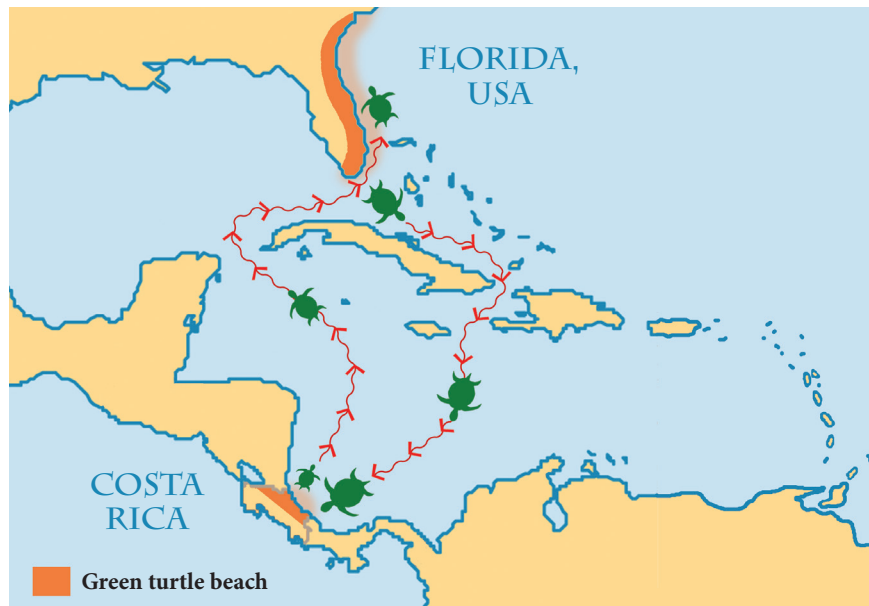
Years pass as she slowly grows. She moves farther off shore to feeding grounds where she becomes an adult.

At night, she rests in the water under rocks and ledges, holding her breath for up to five hours. Each day, she returns to the same patch of sea grass called turtle grass. Like a lawn mower, the turtle keeps this sea grass pasture cut short. Eating sea grass and algae turns her body fat a green color. In fact, this is how green sea turtles get their name!



Back to the Sand

When the turtle is about 26 years old, her adult shell is over 3 feet long and she weighs around 300 pounds. Now she sets out on a new adventure. She begins her long trek back to the beach where she was born. She is going to lay her own eggs.



The sea turtle may have to travel over 600 miles, but she is well equipped for the journey. Her flippers are like wings. She flies through the water.

Scientists are still learning how a sea turtle can find its way through the ocean. They think the turtles may sense changes in Earth's magnetic field. That may help the turtles create a kind of mental map. Their memory of chemicals or odors in the water also may help them find their way.

Once she returns to her birthplace, she finds a mate. A few weeks later, she waits until it is dark, and then climbs onto the beach.



The Next Generation

Out of the water, she struggles to move on land. She crawls to a place where high tides will not wash away her eggs. Using her front flippers, she digs a wide pit. This will become her nest. With her rear flippers, she scoops out a smaller hole inside the pit.

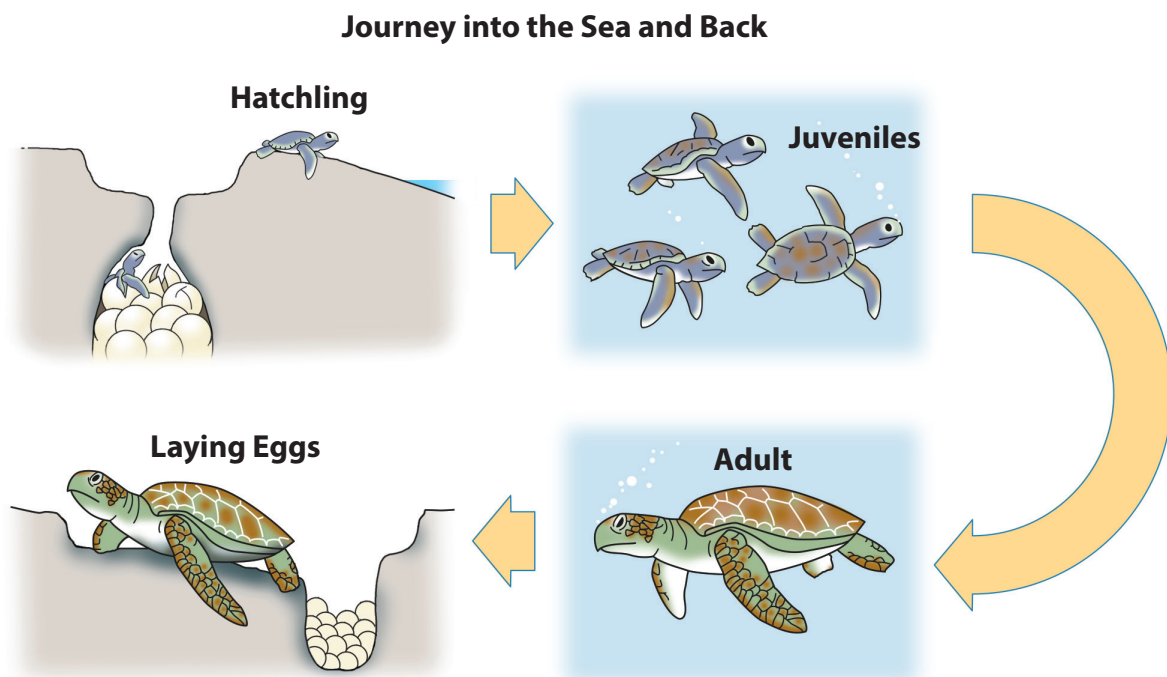
After two hours of hard work, she is ready to lay more than 100 leathery white eggs inside the smaller, deeper hole. She packs sand over them. Then she tosses sand over the whole nest.

During the following two months, she will dig and lay eggs in three more nests. After two months, the new hatchlings break out of their shells to begin their own journeys.

Turtles Live On

After laying all of her eggs, this adult sea turtle once again sets out for her feeding grounds off the coast of Florida. Every few years she and other adult turtles will return to this beach to lay more eggs.

Every green sea turtle does this throughout its entire life, which could last up to 80 years. Over this time, thousands of baby green sea turtles will be born and set out into the open sea.



Questions The Green Sea Turtle's
Journey of a Lifetime

1. What is the first section "Out From the Sand" about?

- (A) what different sea turtles look like
- (B) how sea turtles learn to swim
- (C) what sea turtles like to eat
- (D) how sea turtles' eggs hatch

2. "One of the baby sea turtles begins to stir and hatch from her egg."

Write the first two things the hatchling does next.

 1. _____

 2. _____

3. When the hatchling reaches the surface of the sand,
what helps her go the right way?

 _____

What can confuse the hatchlings?

 _____

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★ **Correct Answer**

4. Why is the hatchling's journey to the water a "race for survival"?

Use the text to explain your answer.



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5. What is the first thing the hatchling does when she finally gets past the breaking waves?

- (A) searches for the other hatchlings
- ★ (B) keeps swimming far out to sea
- (C) rests in the seaweed
- (D) finds food to eat

6. According to the article, what is one way people have made the sea more dangerous for turtles?



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★ Correct Answer

7. The color of a hatchling's shell protects it from predators.

Give a way it is protected from birds.



Give a way it is protected from sharks.



8. When does a sea turtle hold its breath for up to 5 hours?



9. What does the article tell you about the feeding habits of an adult green sea turtle?

- (A) It looks for food under rocks and ledges.
- (B) It swims long distances to find food.
- ★ (C) It goes to the same place every day to eat.
- (D) It uses odors in the water to help it find food.

★ Correct Answer

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10. Why does a sea turtle's body fat become green?



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11. What information does the article provide about the sea turtle's size and food at each stage of its life?

Complete the table below.

Three have been done for you.



Stage of life	Size	Food
egg		The egg has its own food.
hatchling		
juvenile	dinner plate	
adult		algae and sea grass

3
2
1
0
8
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12. How old is a female green sea turtle when she first sets out to lay her eggs?

- (A) about 3 years
- (B) about 10 years
- ★ (C) about 26 years
- (D) about 80 years

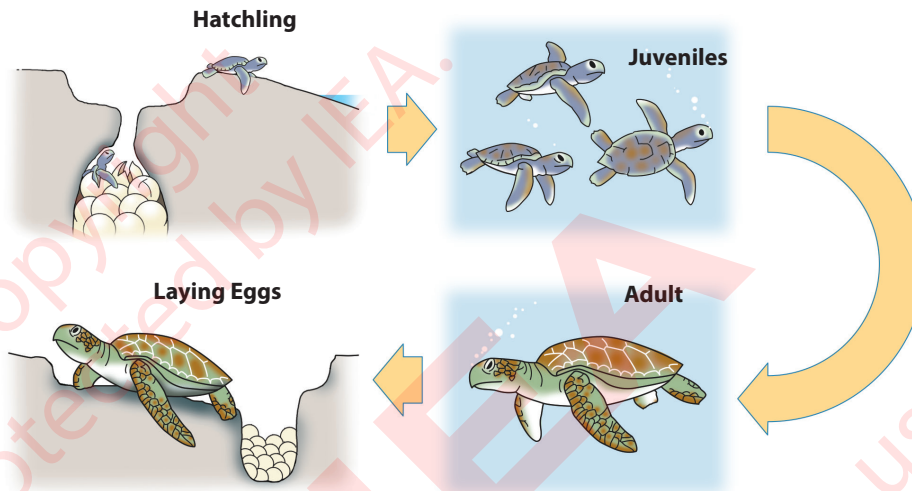
13. Which activity in an adult female green sea turtle's life is not fully understood by scientists?

- (A) how she can swim over 600 miles
- (B) how she makes a nest for her eggs
- (C) how she avoids being eaten by predators
- ★ (D) how she finds the right beach to lay her eggs

★ Correct Answer

14. A diagram from the article is shown below.

What does this diagram help you to understand?



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15. How does the writer show you that the green sea turtle is special?

- (A) by asking you to help to save it
- ★ (B) by telling you the amazing things it does
- (C) by describing how beautiful it looks
- (D) by warning you that few turtles are still alive today

16. The article is divided into sections with headings.

What does each section tell you about?

- (A) different dangers sea turtles face
- ★ (B) different life stages of a sea turtle
- (C) different kinds of sea turtles
- (D) different beliefs about sea turtles

Stop

End of this part of the booklet.
Please stop working.

★ **Correct Answer**

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The Green Sea Turtle's Journey of a Lifetime, Item 2

2. "One of the baby sea turtles begins to stir and hatch from her egg."

Write the first two things the hatchling does next.

Process: Focus on and Retrieve Explicitly Stated Information

2 – Complete Comprehension

The response indicates two of the following: breaking the shell of the egg, getting out of the shell, digging/climbing out to the surface, or moving toward the water.

Examples:

- Breaking shell
 - *She opens the egg.*
 - *Tears at the shell.*
- Getting out of the shell
 - *She breaks out of the egg.*
 - *Breaks free from shell.*
- Digging out
 - *She climbs up and up.*
 - *She uses her flippers to get out.*
 - *Digs in the sand.*
 - *She digs out of the nest.*
- Moving toward the water
 - *She goes to the sea.*

1 – Partial Comprehension

The response gives one of the above points.

0 – No Comprehension

The response does not include any of the points listed above, or is vague, unrelated to the text, or repeat words in the question.

Examples:

- *Tears.*
- *Climbs.*
- *Digs.*
- *She swims.*
- *She makes a hole.*
- *She is alive with motion.*
- *Juveniles.*
- *Adults.*

The Green Sea Turtle's Journey of a Lifetime, Item 3

3. When the hatchling reaches the surface of the sand, what helps her go the right way?

What can confuse the hatchlings?

Process: Make Straightforward Inferences

2 – Complete Comprehension

The response shows understanding of both parts of the question.

- Helps: the hatchling is drawn to (moon) light reflecting off the sea/away from darkness.

Examples:

- Moonlight.
- Light from the moon.
- Reflection off the sea.
- The shiny sea.
- Moonlight reflecting on the ocean.

- Confuses: the hatchling is confused by artificial light inland.

Examples:

- Street lights.
- House lights.
- Lights from people.
- Car lights.

1 – Partial Comprehension

The response shows understanding of one part of the question.

0 – No Comprehension

The response does not show understanding of either part of the question. It may be vague, unrelated to the text, or repeat words in the question.

Examples:

- Sunlight.
- Light. (not clear if moonlight or street lights)
- Moon. (does not specify light)
- Waves.
- Water.
- Seeing water.
- Reflection on the moon

The Green Sea Turtle's Journey of a Lifetime, Item 4

4. Why is the hatchling's journey to the water a "race for survival"?

Use the text to explain your answer.

Process: Make Straightforward Inferences

1 – Acceptable Response

The response indicates the hatchlings have to avoid danger from predators.

Examples:

- *The crabs and birds and herons will snatch them up.*
- *Crabs and birds will kill them.*
- *They are likely to be eaten.*
- *Because birds can swoop down and eat them.*
- *Seagulls and crabs will take them.*
- *It is a race for survival because sea birds eat sea turtles.*
- *Because of the predators/enemies.*

0 – Unacceptable Response

The response indicates that the hatchlings need to move quickly but not why, refers to being eaten by sharks, is vague, unrelated to the text, or repeats words in the question.

Examples:

- *They have to run really fast.*
- *They have to race if they want to survive. (repeats stem)*
- *They are no bigger than a walnut.*
- *Sharks will eat them.*
- *They can be eaten by sharks and fish.*
- *There are crabs everywhere.*

The Green Sea Turtle's Journey of a Lifetime, Item 6

6. According to the text, what is one way people have made the sea more dangerous for turtles?

Process: Make Straightforward Inferences

1 – Acceptable Response

The response gives one of the points listed below.

- Plastic.
- Trash/rubbish/garbage/litter/waste.
- Pollution.
- Lights/street lights/car lights.

0 – Unacceptable Response

The response refers to other dangers not included in the text. It may be vague, unrelated to the text, or repeats words in the question.

Examples:

- *People stand on them.*
- *Hunting.*
- *Net fishing.*
- *Sharks.*
- *Poison.*
- *Oil.*
- *Chemicals.*

The Green Sea Turtle's Journey of a Lifetime, Item 7

7. The color of a hatchling's shell protects it from predators.

Give a way it is protected from birds.

Give a way it is protected from sharks.

Process: Interpret and Integrate Ideas and Information

2 – Complete Comprehension

The response gives an acceptable response for both protection from birds and protection from sharks.

- Protected from birds: The response recognizes that the dark shell color of the top conceals the turtle by blending in with the dark water.

Examples:

- *The dark color of the top part of the shell blends in with the dark water when viewed above.*
- *The top half is dark so the turtle blends in with the dark water.*
- *It is the same color as the sea.*
- *It blends in with the sea because its shell is black.*
- *It camouflages them.*
- *It blends into the sea.*
- *Her shell is dark so it blends in.*
- *Its shell blends in.*

- Protected from sharks: The response recognizes that the light shell color of the bottom conceals the turtle by blending in with the sunlight.

Examples:

- *The bottom is white so sharks may not spot her in the sunlight.*
- *The bottom of the shell underneath the turtle is white so a shark that is underneath the turtle thinks that the turtle is in the sunlight.*
- *It is the same color as the sunlight.*
- *The shell blends into the water.*
- *It camouflages itself.*

1 – Partial Comprehension

The response gives an acceptable response for protection from birds or protection from sharks.

0 – No Comprehension

The response does not fully recognize how the shell color conceals the turtle. It may give a partial explanation, be vague, unrelated to the text, or repeat words in the question.

- Protected from birds

Examples:

- *It is protected from birds with its dark topped shell.*
- *It is protected from birds because of its shell.*
- *It can camouflage itself in the grass.*
- *The top half of its shell is green so it blends in with grass and rocks.*

- Protected from sharks

Examples:

- *The bottom of her shell is white.*
- *It is protected from sharks because of its hard shell.*
- *It blends in with the sand.*



The Green Sea Turtle's Journey of a Lifetime, Item 8

8. When does a sea turtle hold its breath for up to 5 hours?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response indicates sleeping, resting, or at night.

Examples:

- *To sleep.*
- *Rest.*
- *At night/at night-time.*

0 – Unacceptable Response

The response indicates any activity other than those above. It may be vague, unrelated to the text, or repeat words in the question.

Examples:

- *To go under water.*
- *When they are juvenile/adult.*
- *To get food.*
- *Under rocks and ledges.*
- *On land.*
- *In danger.*

The Green Sea Turtle's Journey of a Lifetime, Item 10

10. Why does a sea turtle's body fat become green?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response identifies that it eats green food.

Examples:

- Sea grass.
- The algae and seaweed it eats make it green.
- It eats seaweed.
- It eats food that is green.
- Grass.
- It eats plants.

0 – Unacceptable Response

The response does not identify a reason or is incorrect. It may be vague, unrelated to the text, or repeat words in the question.

Examples:

- It has green body fat.
- That is how they get their name.
- Becomes green from what she eats.
- It becomes an adult.
- Its fat is green because it is a green sea turtle.
- Because it is old.

The Green Sea Turtle's Journey of a Lifetime, Item 11

11. What information does the article provide about the sea turtle's size and food at each stage of its life?

Complete the table below.

Three have been done for you.

Stage of life	Size	Food
Egg		The egg has its own food.
hatchling		
juvenile	dinner plate	
adult		algae and sea grass

Process: Interpret and Integrate Ideas and Information

3 – Extensive Comprehension

The response correctly completes all 5 spaces. See bold text in the table on the following page for responses that are acceptable or not acceptable for each blank space.

Note to scorers: Do not credit responses that include any incorrect pieces of information alongside correct answers.

2 – Satisfactory Comprehension

The response correctly completes 4 out of the 5 spaces.

1 – Minimal Comprehension

The response correctly completes 3 out of the 5 spaces.

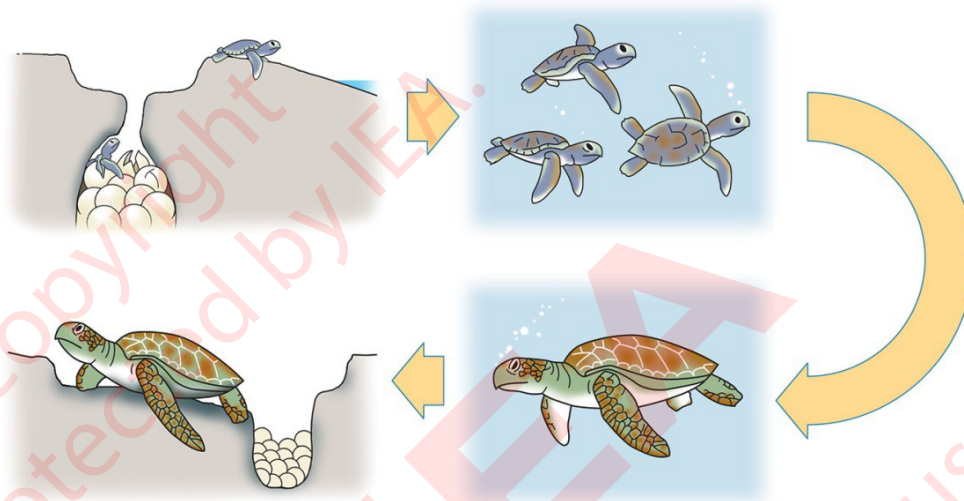
0 – Unsatisfactory Comprehension

The response correctly completes 2 or fewer of the spaces. It may be vague, unrelated to the text, or repeat words in the question.

Stage of life	Size	Food
Egg	golf ball NOT ACCEPTED ball golf	The egg has its own food.
Hatchling	walnut NOT ACCEPTED nut	Shrimp (accept crabs, prawns, shellfish) jellyfish snails/sea snails NOT ACCEPTED plastic seaweed or sea grass algae fish
Juvenile	dinner plate	algae sea grass/grass/turtle grass or seaweed jellyfish NOT ACCEPTED lawn pasture fish
Adult	3 feet 300 pounds NOT ACCEPTED 3 300	algae and sea grass

The Green Sea Turtle's Journey of a Lifetime, Item 14

14. A diagram from the article is shown below.



What does this diagram help you to understand?

Process: Evaluate and Critique Content and Textual Elements

1 – Acceptable Response

The response indicates the life cycle or stages in a turtle's life.

Examples:

- What all the parts of the life cycle are.
- The different stages in its life.
- It shows the order of the stages.
- The (life) cycle of a turtle.
- The circle of life for turtles.
- This helps us know how they grow up/develop.
- What they turn into as they get older.
- The turtle's lifetime.
- The turtles hatch and crawl into the water and come back to lay their eggs.
(must describe all stages)
- What parts the sea turtles are going through.
- Journey of life/life journey/path of life.

0 – Unacceptable Response

The response does not indicate the life cycle or stages in a turtle's life. It may be vague, unrelated to the text, or repeat words in the question.

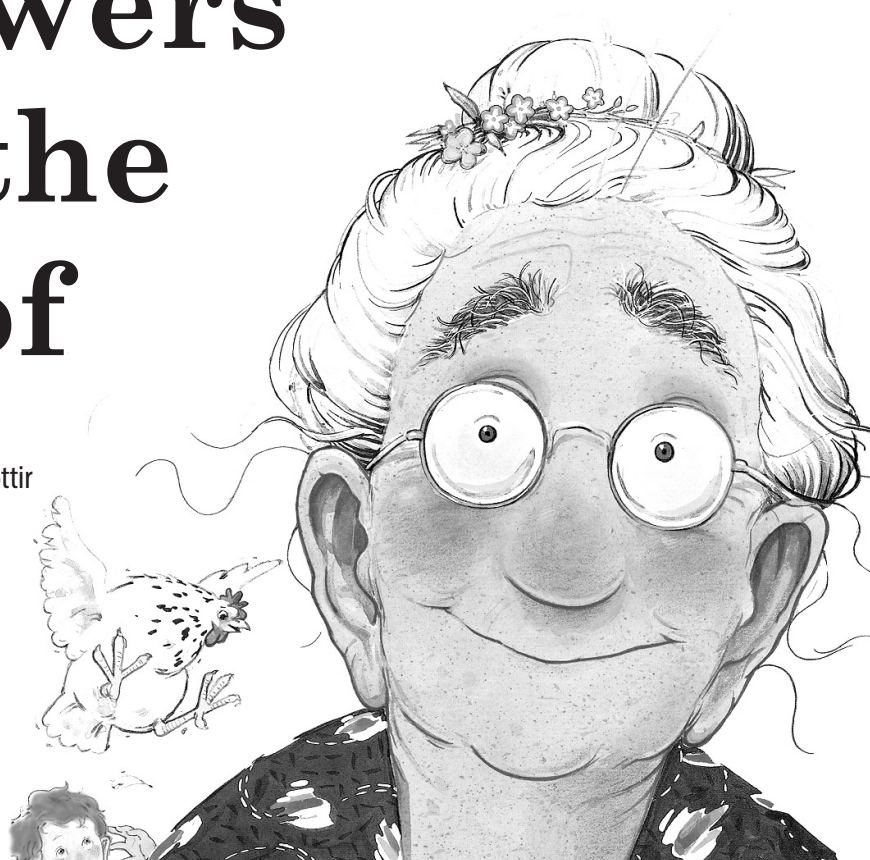
Examples:

- *It looks interesting.*
- *It is about the turtle's life.*
- *How they hatch. (not all the stages)*
- *Helps you understand what a turtle does. (too vague)*
- *Helps you understand the journey of a sea turtle.*
- *How they make their nest.*
- *"Journey into the Sea and Back." (need to go beyond title)*



Flowers on the Roof

by Ingibjörg Sigurdardóttir



Shall I tell you about a granny I know? She's a really strange old lady, and so full of life! Her real name is Gunnjona, but I call her Granny Gunn. Before she moved into our block of flats she lived in the country. Her farmhouse was just like a doll's house. It had tiny little windows and the roof was covered with grass. And there were flowers growing on the roof too!

Granny Gunn had lived all on her own in the farmhouse but she was never lonely because she had many animals to play with: a cow, seven hens, two sheep and a cat.

One day Granny Gunn became ill.

“You aren’t seriously ill, but you should move into town,” the doctor had said. “It’s not very wise to live here all alone. Your cow can’t call me if you break your leg out in the yard!”

“I can look after myself!” Granny Gunn answered. But then she thought that maybe it would be fun to live in town.

“All right!” she said suddenly. “I’ll move to town.”

Soon she had sold her farm and bought an apartment in our block of flats.

But what was she going to do about the animals? She couldn’t take them to town with her, could she? Luckily, the people on the next farm kindly said that they would look after them. It was still very difficult for Granny Gunn to say goodbye to her animal friends. She was so sad that in the end she decided to take her cat, Robert, with her.



Granny Gunn packed all her things into a van and was soon on her way to her new home. She was very excited and really looking forward to seeing the town.

I was very excited, too! I couldn’t wait to see who was going to move into the apartment opposite ours. Perhaps it would be another little boy for me to play with. But it was Granny Gunn. Still, at least she had a cat.

Granny Gunn wasn't too happy when she looked around her new flat.

"This is just dreadful!" she said. "The walls are all smooth and white. And just look at those windows! They're far too big!" She became very quiet.

"I'm off back home!" she said, and turned to leave.

Then she suddenly gave a little scream. Robert the cat had jumped out of the window!

"Don't worry," I said quickly. "He's only jumped out onto the balcony. Look."

Granny Gunn rushed past me onto the balcony. But when she got there, she forgot all about Robert. The balcony was huge, and she could see the mountains far away and even a bit of the sea. Granny Gunn crouched down so that she couldn't see any of the rooftops—only the mountains and the sky. Granny Gunn decided to stay after all.

But the next day when I went around to help her unpack, she still looked very unhappy.

"Are you upset because all your animals are so far away?" I asked her.

"I do rather miss them," she sighed.

"Then why don't you go and fetch them?" I asked.

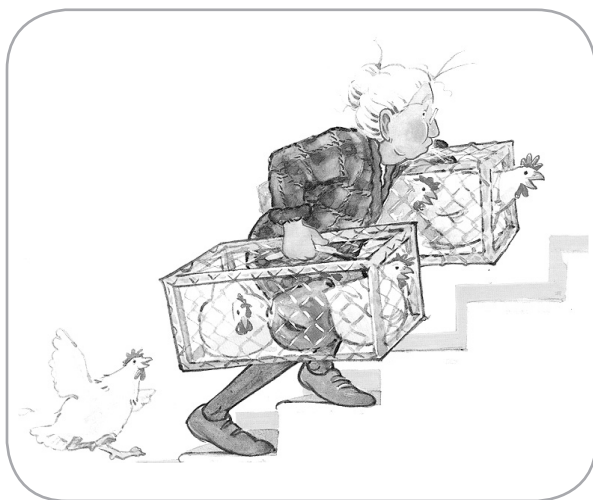


Granny Gunn winked at me and gave me a funny grin.

There was no one at home when I came to visit her the next day. Granny Gunn had taken the bus out into the country.

That night I woke up to hear a strange cackling sound coming up the stairs. What could it be? Of course! The hens! They must have been too frightened to go in the lift!

The next morning, I helped Granny Gunn feed the hens.

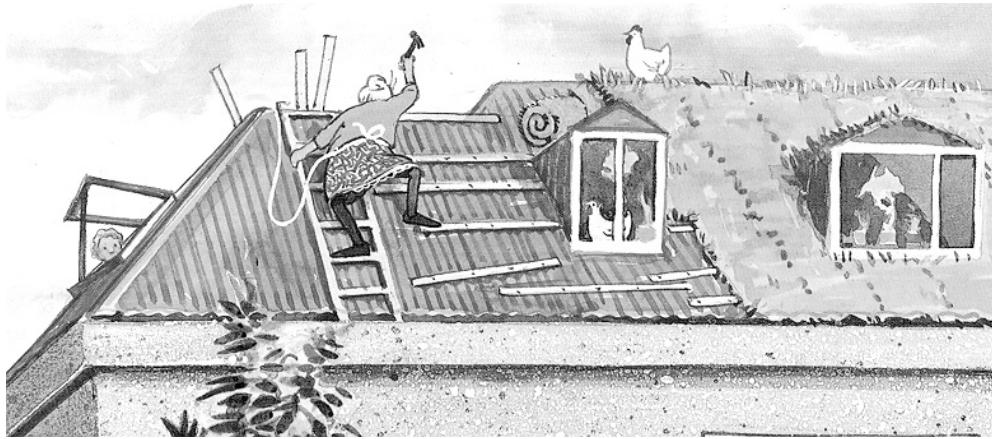


“I feel as if I’m back home,” she said. “The hens are cackling all around me, and if I squint, I can easily imagine that the mountains I see are those near my farm. All that’s missing is the smell of earth and grass.” Suddenly she opened her eyes wide and sat up. Granny Gunn had clearly thought of something new.

“Well now,” she said. “Don’t you think it would be rather nice to have some grass on the roof? I think we’ll have to go to town tomorrow!”

And that’s exactly what we did.

When we got home, Granny Gunn carried the pieces of turf up onto the roof. She laid them out carefully, and fixed them so that they wouldn’t fall off.



Granny Gunn is much happier now. She’s made a bit of countryside here in the town. She’s now as fond of her rooftop garden as she had been of her old farm. And there are flowers growing on the roof once more.

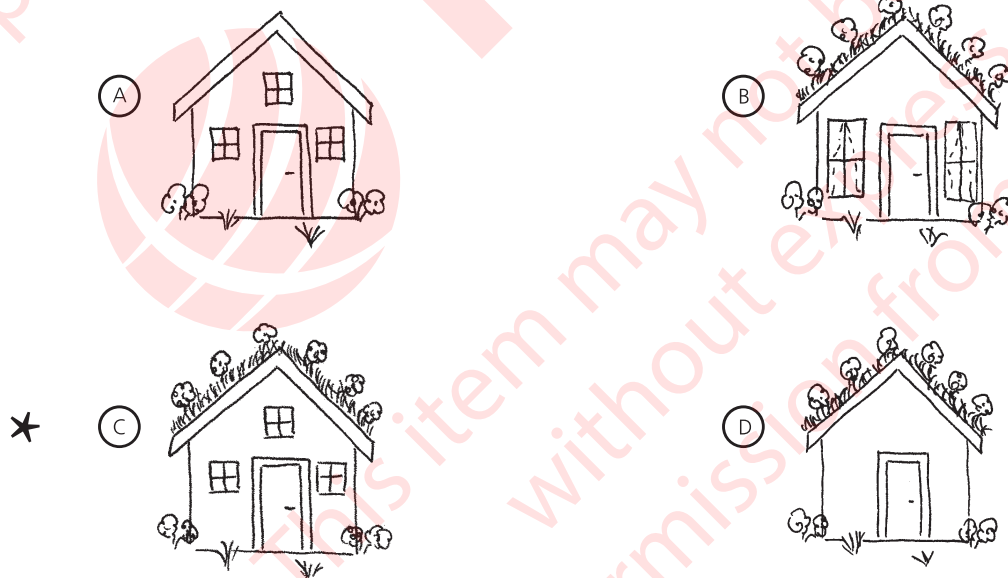
Granny Gunn is not like anyone else I know. She can do anything! There’s only one thing that bothers her now. How is she going to get the cow into the lift?!

Questions Flowers on the Roof

1. Who is telling the story?

- (A) a granny
- ★ (B) a child
- (C) a doctor
- (D) a farmer

2. Which of these is most like Granny Gunn's farmhouse?



3. Why did the doctor think that Granny Gunn should move to town?

- (A) because she was lonely without her friends
- (B) so she could live with her relatives
- (C) because she could not take care of her animals
- ★ (D) in case she needed someone to look after her

★ **Correct Answer**

4. Who offered to look after Granny Gunn's animals when she moved to town?

- ★ (A) the people on the next farm
- (B) the doctor
- (C) Granny Gunn's family
- (D) Robert

5. Granny Gunn did not like the walls and windows in her new flat. Why else was she unhappy?

- (A) She was ill.
- (B) She missed her cat.
- (C) She did not like the balcony.
- ★ (D) She felt homesick.

6. Why did Granny Gunn scream when the cat jumped out of the window?




★ Correct Answer

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7. When Granny Gunn was on the balcony, she crouched down so that she could not see any of the rooftops—only the mountains and the sky. Why did she do this?



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8. Find the part of the story by this picture of Granny Gunn:  . Why did Granny Gunn wink and grin at the little boy?



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9. Write **two** ways in which Granny Gunn made her new flat feel like home.



1.



2.

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10. At the end of the story, how did Granny Gunn feel about her new home?



1
0
8
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11. The last line in the story is: ‘How is she going to get the cow into the lift?’

Why does the story finish with this question?

- ★ (A) to add a joke to the story
- (B) to explain the moral of the story
- (C) to make the story believable
- (D) to help the reader understand what happened

12. What were the little boy’s feelings about Granny Gunn when she first moved in and at the end of the story? Use what you have read to describe each feeling and explain why his feelings changed.



3
2
1
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★ **Correct Answer**

13. Which of the following might you learn from this story?
- (A) Old people will never be happy if they change where they live.
 - ★ (B) You can make a new place feel like home if you bring familiar things with you.
 - (C) You can get used to living with animals, even though they are noisy.
 - (D) Children and old people do not make good friends.



Stop

End of this part of the booklet.
Please stop working.

★ **Correct Answer**

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Flowers on the Roof, Item 6

6. Why did Granny Gunn scream when the cat jumped out of the window?

Process: Make Straightforward Inferences

1 – Acceptable Response

These responses provide an appropriate inference for why Granny screamed.

Evidence:

The response demonstrates understanding that Granny did not know there was a balcony outside of her window. It may simply state that she did not know this.

Examples:

- *She did not know there was a balcony.*
- *Because she thought it was a long drop.*

Or, the response may focus on the fact that she was afraid her cat would be hurt, or could die.

Examples:

- *She thought the cat would fall.*
- *She was afraid he would get hurt.*

0 – Unacceptable Response

These responses do not provide an appropriate inference for why Granny screamed.

Evidence:

The response does not demonstrate understanding that Granny did not know there was a balcony outside of her window.

Examples:

- *She thought the cat was going to run away.*
- *It made her afraid.*
- *She loved her cat.*

Flowers on the Roof, Item 7

7. When Granny Gunn was on the balcony, she crouched down so that she could not see any of the rooftops – only mountains and the sky. Why did she do this?

Process: Interpret and Integrate Ideas and Information

2 – Complete Comprehension

These responses demonstrate complete comprehension by integrating ideas from across the text to interpret Granny's feelings about the mountains and sky.

Evidence:

The response provides a connection between Granny's view from the balcony and her home in the country. It may state that Granny was reminded of her home in the country when she saw the mountains and the sky.

Examples:

- *because they reminded her of the country*
- *She could easily imagine that the mountains were those that were near her farm.*
- *She was thinking about her farm and missing it.*

Or, the response may suggest that Granny could actually see the countryside where she had lived.

Example:

- *because she wanted to see the countryside where she had lived before*

1 – Partial Comprehension

These responses demonstrate partial comprehension of Granny's feelings about the mountains and the sky.

Evidence:

The response accurately describes Granny's feelings about the view from her balcony, or provides an appropriate explanation for why she did this. However, the response does not make a connection to her feelings about her home in the country.

Examples:

- *The mountains were beautiful.*
- *so she could see the countryside*
- *She didn't like the rooftops.*

0 – No Comprehension

These responses demonstrate no comprehension of Granny's feelings about the mountains and the sky.

Evidence:

The response does not accurately describe Granny's feelings about the view from the balcony, and does not make a connection to her feelings about her home in the country, or repeats question.

Examples:

- *because she was tired*
- *because she couldn't see over the rooftops*
- *to see only the mountains and the sky* (The response repeats question.)



Flowers on the Roof, Item 8



8. Find the part of the story by this picture of Granny Gunn: . Why did Granny Gunn wink and grin at the little boy?

Process: Make Straightforward Inferences

1 – Acceptable Response

These responses provide an appropriate inference for why Granny winked.

Evidence:

The response demonstrates understanding that Granny realized at that point that she could bring more of her animals to the city. It may simply state that she had an idea or a plan, or that she realizes the little boy had a good idea.

Examples:

- *Because the child gave her a good idea.*
- *She had a plan.*
- *She thought it was an unusual idea.* (NOTE: “Unusual” is an acceptable interpretation of Granny’s reaction to the idea since it does not imply that she rejects the idea.)

Or, the response may simply indicate that Granny agrees with the little boy’s idea.

Examples:

- *She was thinking yes, I will do that.*
- *because she agreed that it was a good plan*

Or, the response may describe that the idea was to bring more of her animals to the city.

Examples:

- *because she thought she could fetch her animals to town*
- *She decided to go get her hens.*

Or, the response may accurately describe the little boy’s idea that prompted her wink and grin.

Examples:

- *because he said, why don’t you go and get your animals*
- *because the little boy told her it was okay to bring her animals to town*

0 – Unacceptable Response

These responses do not provide an appropriate inference for why Granny winked.

Evidence:

The response does not demonstrate understanding that Granny had an idea or plan at that point in the story. It may only provide an inaccurate or vague explanation.

Examples:

- *She liked the little boy.*
- *She thought it was a bad idea.*
- *because she was happy*
- *She decided to put grass on the roof.* (NOTE: This is not the idea or plan that Granny had when she winked at the child.)
- *as if to say thanks*



Flowers on the Roof, Item 9

9. Write two ways in which Granny Gunn made her new flat feel like home.

Process: Focus on and Retrieve Explicitly Stated Information

2 – Complete Comprehension

These responses demonstrate complete comprehension of Granny's actions to make her flat feel like home.

Evidence:

The response provides any two of the actions taken by Granny listed below.

Example:

- *Granny Gunn put grass on the rooftop and moved her chickens into the apartment.*
- *She brought her cat with her and then went to get her farm animals. (NOTE: Bringing her cat and bringing her animals are considered two different events.)*

1 – Partial Comprehension

These responses demonstrate partial comprehension of Granny's actions to make her flat feel like home.

Evidence:

The response provides only one of the actions taken by Granny listed below.

Examples:

- *She brought her cat to town.*
- *She put some grass and flowers on the roof.*
- *She put grass on the roof. She planted flowers on the roof. (Note: Putting grass and flowers on the roof are considered a reference to only one event.)*
- *She put flowers on the roof and could see the mountains when she crouched down. (Note: seeing the mountains is not an appropriate way).*

0 – No Comprehension

These responses demonstrate no comprehension of Granny’s actions to make her flat feel like home.

Evidence:

The response does not provide any of the actions taken by Granny listed below. It may describe other actions taken by Granny not related to making her apartment feel like home.

Example:

- *She moved to the city.*

Or, the response may provide only a vague or circular description of her attempt to make her apartment feel like home.

Examples:

- *She tried to make it look like her farm.*
- *She brought them back with her.* (Please note that “them” is too vague.)

Actions Taken by Granny to Make Her Apartment Feel Like Home

NOTE TO SCORERS: More than one example from any individual category is only counted as one way Granny made her apartment feel like home. To receive credit for “two ways” students must give one example from at least two different categories. Students may provide a reasonable paraphrase of these actions.

Actions related to her animals

- *She brought her animals.* (Students may or may not mention hens.)

Actions related to her cat

- *She brought her cat.* (This may be considered different from “bringing her animals” since the two events occurred at different points in the story.)

Actions related to her roof

- *She put grass/flowers on the roof.* (Both flowers and grass may be mentioned, but they are credited as only one action. This may also be phrased as a generalization, such as “Made the roof look like it had in the country.”)
- *She brought the smell of earth.*

Flowers on the Roof, Item 10

10. At the end of the story, how did Granny Gunn feel about her new home?

Process: Make Straightforward Inferences

1 – Acceptable Response

These responses provide an appropriate inference of Granny's feelings at the end of the story.

Evidence:

The response demonstrates understanding that Granny had a positive feeling about her new home at the end of the story.

Examples:

- *She felt like she was back home.*
- *She decided that she liked it after all.*

0 – Unacceptable Response

These responses do not provide an appropriate inference of Granny's feelings at the end of the story.

Evidence:

The response does not demonstrate understanding that Granny had a positive feeling about her new home at the end of the story. It may provide only inaccurate information.

Examples:

- *She doesn't like it.*
- *She felt homesick.*
- *unhappy because she missed her animals*

Or, the response may describe other aspects of the story without accurately describing Granny's feelings.

Example:

- *She put grass on the roof.*

Flowers on the Roof, Item 12

12. What were the little boy's feelings about Granny Gunn when she first moved in and at the end of the story? Use what you have read to describe each feeling and explain why his feelings changed.

Process: Interpret and Integrate Ideas and Information

NOTE TO SCORERS: Responses may describe the little boy's feelings about or impressions of Granny Gunn. Also, feelings about Granny Gunn before she moved in (e.g., excited) are not appropriate for a feeling when she moved in.

3 – Extensive Comprehension

These responses demonstrate extensive comprehension by integrating ideas from across the text to interpret the little boy's feelings about Granny Gunn when she first moved in and at the end of the story, as well as why his feelings about her changed.

Evidence:

The response describes the little boy's negative feelings when Granny Gunn first moved in and the positive feelings he had at the end of the story. In addition, the response explains why his feelings changed using appropriate and specific information from the story. Often, his feeling at the end will be implied through the explanation for why his earlier feelings changed.

Examples:

- *At first, he didn't like the idea of a Granny living in the opposite apartment. He started to like Granny when he saw how much fun it was to have animals around.*

Or, the response describes the child's plausible feelings of empathy for Granny Gunn when she first moved in and at the end of the story, rather than feelings about her, and explains why his feelings changed.

- *At first he was sad for Granny Gunn because she missed her animals, but then he was happy because she was happy. His feelings changed because she brought her animals and he saw that she was no longer homesick. [Note that the little boy's feelings of empathy are plausible given the story events. The reason for the change of feelings also is provided.]*

2 – Satisfactory Comprehension

These responses demonstrate satisfactory comprehension of the little boy’s feelings about Granny Gunn and why they changed.

Evidence:

The response describes the little boy’s negative feelings when Granny Gunn first moved in and the positive feelings he had at the end of the story. However, it does not explain why his feelings changed or may include only a vague or general reason for the change.

Examples:

- *He was disappointed that children weren’t moving in but in the end he liked her.*
- *At first he was excited because he thought children were moving in. Then he was sad because it was Granny. At the end he was happy.*
- *He was sad she was moving in but then he liked her because he got to know her.* [“got to know her” is a vague explanation for why his feelings changed]

Or, the response describes one of his feelings (his negative feelings about Granny Gunn when she first moved in OR his positive feelings about her at the end of the story) and explains why his feelings changed. The response does not demonstrate understanding of the progression of negative to positive feelings. Often, these responses will describe and explain his feelings at the end only.

- *He thought she could do anything because she had made her new home like her farm.*
- *He liked her at the end of the story because she was happier with her new home.*
- *The little boy was disappointed because he was hoping that kids would move in, but his opinion changed because he saw that she could do anything.*

1 – Limited Comprehension

These responses demonstrate limited comprehension of the little boy’s feelings.

Evidence:

The response describes his negative feelings about Granny Gunn when she first moved in OR his positive feelings about her at the end of the story.

Examples:

- *He was disappointed when she moved in.*
- *At the end, he really liked her.*
- *At the beginning of the story the little boy thinks Granny is a strange old lady. Later in the book he says “She can do anything.”* (NOTE: first part of the response is inaccurate but the response conveys understanding of a positive impression of Granny at the end of the story)

Or, the response explains why his feelings changed but does not describe either feeling.

- *He saw she could do anything.*

0 – Unsatisfactory Comprehension

These responses demonstrate unsatisfactory comprehension of the little boy’s feelings.

Evidence:

The response does not provide an accurate description of the little boy’s feelings when Granny Gunn first moved in or at the end of the story, or explain why his feelings changed. Or, a feeling is named, but the response does not indicate if it is a feeling about Granny Gunn when she first moved in or at the end of the story.

- *The little boy first thought Granny was strange.*
- *The little boy felt bad for her.*
- *He was happy.* (NOTE: no association of the feeling with either part of the story)



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The Pearl

By Mary Joslin

Illustrated by Meile So

Down by the sea, the children used to play together. Rich or poor, they all joined in the same games.

One day, they went diving in the deeper water.

“Look!” cried a boy. “Look what I’ve found!”

“It’s a pearl,” said another. “It’s beautiful.”

The children gathered round to look. They were all eager to touch it, as they could see how perfect and gleaming it was. But who would dare to ask the one big question ...



1. Where does the boy find the pearl?

- Ⓐ on the beach
- Ⓑ beside the sea
- Ⓒ where they played games
- ★ Ⓓ in the deeper water

2. Why are the children all eager to touch the pearl?

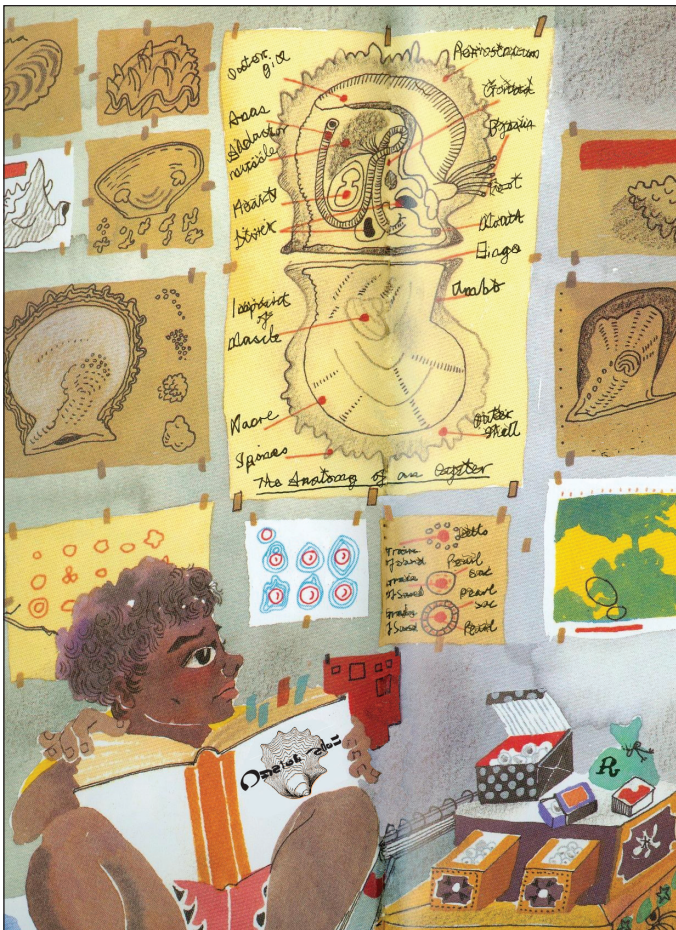
- Ⓐ They want to take it away.
- ★ Ⓑ They think it is special.
- Ⓒ They think the boy will drop it.
- Ⓓ They do not believe it is real.

★ Correct Answer

“Can I have it? Please. It’s so lovely.” It was a boy who spoke first.

“It really belongs to Josh. He found it,” said one of the girls.

“You can have it, Reuben,” said Josh, “because you really like it.”



From that day on, the other children saw less of Reuben. While they played outdoors, he stayed inside, reading about pearls. He learned how pearls grow inside oysters, a kind of shellfish that lives in the sea.

When his family asked him what he wanted for a present, he always asked for a pearl. “I shall be a pearl merchant when I grow up,” he said.

3. Why does the girl say the pearl really belongs to Josh?



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4. Why does Josh say Reuben can have the pearl?



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5. What does Reuben do differently after he gets the pearl?

Write two things.



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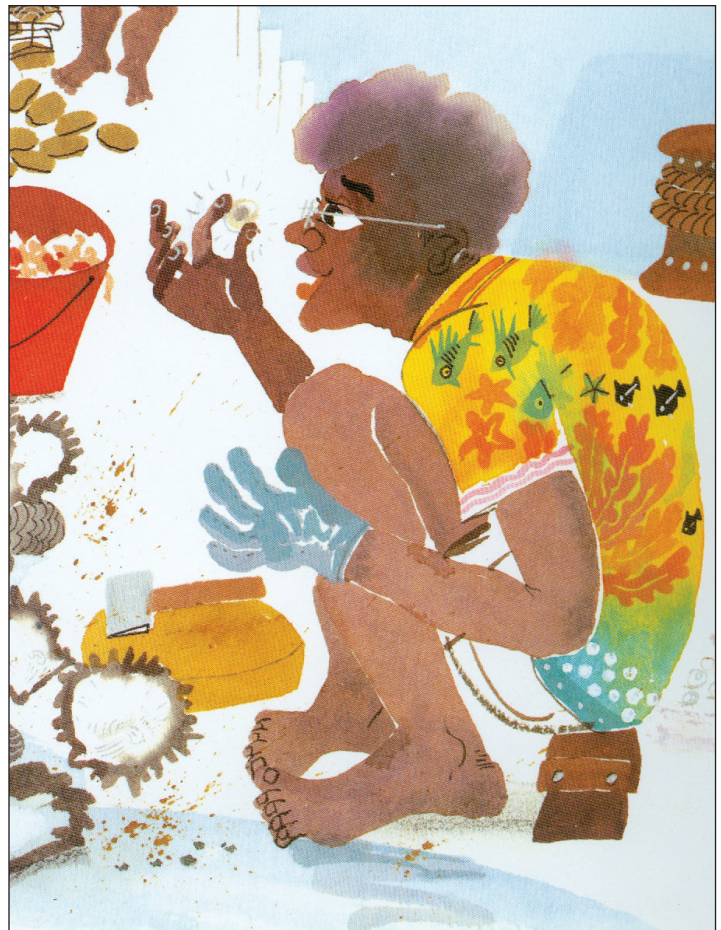
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And so he was. He left the seaside town that had been his home, waving goodbye to his childhood friends.

He travelled to the great city, where pearls were bought and sold.

He traded some of his smaller pearls for larger, finer ones.

He travelled to the ocean shore, where fishermen unloaded their nets, and he searched the oyster shells for new pearls. Now and then, he found one that was round and good.



6. Where does Reuben go when he leaves?



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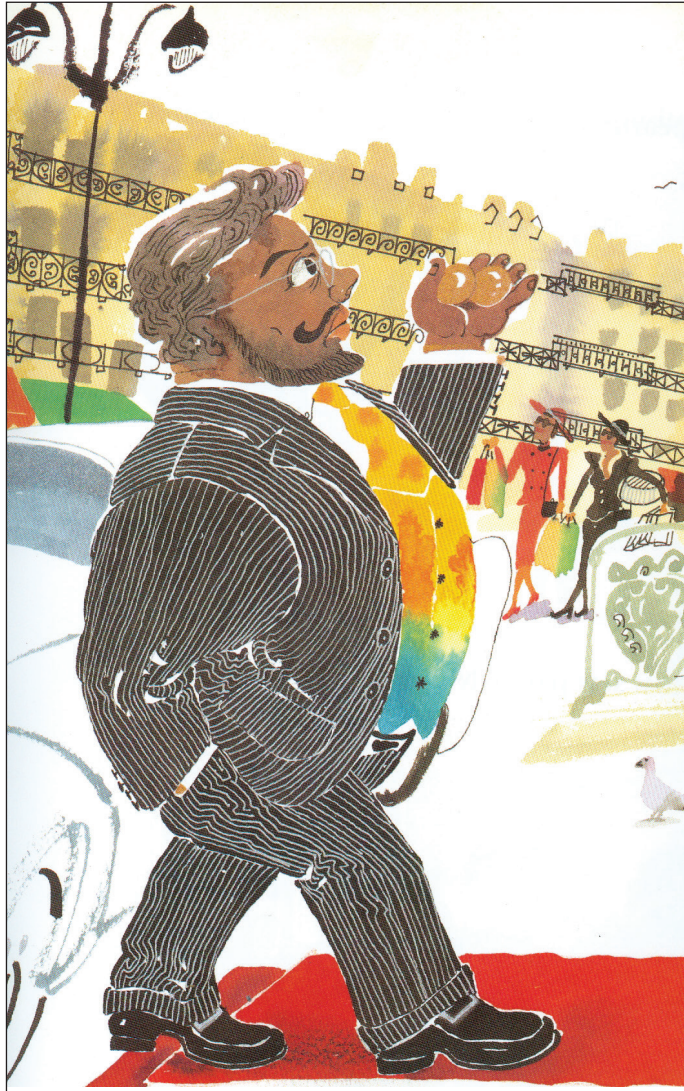
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7. Why does Reuben look for fishermen unloading their nets?

- Ⓐ He wants to buy fresh fish.
- Ⓑ He wants to go in their fishing boats.
- Ⓒ He wants to trade his small pearls.
- ★ Ⓓ He wants to find pearls in oyster shells.

★ Correct Answer

Reuben travelled to the lands where pearl fishers went diving in the sea for the finest pearls – some silvery pale, others glowing rosy pink.



He became a wealthy man. Other merchants would travel anywhere in the world to meet him and trade their pearls.

But although Reuben was rich, he was not happy. He thought more and more about the seaside town where he played as a child. He thought about his friend Josh, and how generous he had been in giving Reuben his first pearl.

8. How do the pearl fishers find the finest pearls?

- ★ (A) They dive for them in the sea.
- (B) They buy them from a merchant.
- (C) They search for them in seaside towns.
- (D) They travel far away for them.

9. How does Reuben become a wealthy man?



10. Why does Reuben think Josh is generous?

- (A) because Josh played with Reuben as a child
- (B) because Josh waved goodbye when Reuben left
- ★ (C) because Josh gave Reuben a beautiful pearl
- (D) because Josh still lived in the town by the sea

★ Correct Answer



He travelled back to the place where he grew up.

“Reuben!” called a voice. “It’s good to see you.” There was Josh, playing with his own children down by the sea.

Josh and Reuben sat and talked for hours, just as if Reuben had never been away.

“I’ve had enough of the city, and of buying and selling,” said Reuben. “What I really want to do is move back here and live in peace. And I want to give you something back, in return for your generosity all those years ago. What would you like? A new house? A shiny big boat?”



11. Josh is pleased that Reuben has come back. What does Josh do that shows this?



12. Why does Reuben want to move back?

- ★ (A) He wants to live in peace.
(B) He wants to find more pearls.
(C) He wants to see his old house.
(D) He wants to buy a big boat.

13. Reuben offers to give Josh two things. What are they?



1. _____



2. _____

1
0
8
9

2
1
0
8
9

★ Correct Answer



“Thank you,” said Josh.
“But I love my simple life here and I don’t need a new house or a boat. I think the best thing we can do with your money is to share it with everyone. Then we can all carry on enjoying our lives.”

Reuben was amazed that Josh didn’t want anything for himself. But then he remembered that great riches had not made him happy, and he smiled.

“Then that is what we will do,” he said.

14. What does Josh say they should do with Reuben's money?

- (A) get a new house
- (B) buy lots of pearls
- ★ (C) share it with everyone
- (D) take it back to the city

► **Think about the whole story.**

15. In the story, Josh is a good person. Write two things that Josh does that show he is a good person.

 1. _____

 2. _____

2
1
0
8
9

Stop

End of this part of the booklet.
Please stop working.

★ **Correct Answer**

From *The Merchant Enticed by the Pearl of Great Price* by Mary Joslin, illustrations by Meilo So, published 2001 by Lion's Children's Books, Oxford. Every effort has been made to obtain copyright permission.

The Pearl, Item 3

3. Why does the girl say the pearl really belongs to Josh?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response identifies that Josh found the pearl.

Example:

- *He found it.*

0 – Unacceptable Response

The response does not identify that Josh found the pearl. It may be vague, unrelated to the text, or repeat words in the question.

The Pearl, Item 4

4. Why does Josh say Reuben can have the pearl?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response identifies that Reuben really likes the pearl.

Examples:

- *Because he really likes it.*
- *Because you really like it.*
- *He loves it.*

0 – Unacceptable Response

The response does not identify that Reuben really likes the pearl. It may be vague, unrelated to the text, or repeat words in the question.

Example:

- *He wants it.*

The Pearl, Item 5

5. What does Reuben do differently after he gets the pearl?

Write two things.

Process: Make Straightforward Inferences

2 – Complete Comprehension

The response identifies two things that Reuben does from the following list:

- No longer plays with his friends/stays indoors.
- Reads/learns about pearls.
- Reads/learns about oysters/shellfish.
- Asks for pearls as a present/wants to have more pearls.
- Wants to become a pearl merchant.

1 – Partial Comprehension

The response identifies one of Reuben's actions.

0 – No Comprehension

The response does not identify any of Reuben's actions. It may be vague, unrelated to the text, or repeat words in the question.

The Pearl, Item 6

6. Where does Reuben go when he leaves?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response identifies that Reuben goes to the (great) city. Also accept responses that identify the ocean shore or other countries.

0 – Unacceptable Response

The response does not identify that Reuben goes to the (great) city, the ocean shore, or other countries. It may be vague, unrelated to the text, or repeat words in the question.

The Pearl, Item 9

9. How does Reuben become a wealthy man?

Process: Interpret and Integrate Ideas and Information

1 – Acceptable Response

The response shows understanding that buying/selling/finding/collecting pearls makes Reuben a wealthy man.

Examples:

- *He gets lots of pearls from all over the world.*
- *By trading and selling pearls.*
- *By collecting pearls.*
- *He is a pearl merchant.*
- *People give him money for his pearls.*
- *Other merchants would travel anywhere in the world to meet him and trade their pearls.*

0 – Unacceptable Response

The response does not show understanding that buying/selling/finding/collecting pearls makes Reuben a wealthy man. It may mention pearls or wealth, but without making the link between them. It may be vague, unrelated to the text, or repeat words in the question.

Examples:

- *He gets rich.*

The Pearl, Item 11

11. Josh is pleased that Reuben has come back. What does Josh do that shows this?

Process: Make Straightforward Inferences

1 – Acceptable Response

The response identifies one piece of evidence that Josh is pleased to see Reuben.

Examples:

- He says, "It's good to see you."
- They talk for hours.

0 – Unacceptable Response

The response does not identify why Josh is pleased to see Reuben. It may be vague, unrelated to the text, or repeat words in the question.

Examples:

- He is playing with his children.
- He has had enough of the city.
- He wants to move back.

The Pearl, Item 13

13. Reuben offers to give Josh two things. What are they?

Process: Focus on and Retrieve Explicitly Stated Information

2 – Complete Comprehension

The response identifies both of the things that Reuben offers:

- (New) house.
- (Shiny big) boat.

1 – Partial Comprehension

The response identifies one of Reuben's offers.

0 – No Comprehension

The response does not identify either of Reuben's offers. It may be vague, unrelated to the text, or repeat words in the question.

The Pearl, Item 15

15. Think about the whole story.

In the story, Josh is a good person.

Write two things that Josh does that show he is a good person.

Process: Interpret and Integrate Ideas and Information

2 – Complete Comprehension

The response shows understanding of at least two of Josh's actions:

- Gives away the pearl at the beginning.
- Does not want expensive presents for himself.
- Welcomes his friend back.
- Wants Reuben to share the money with everyone.

1 – Partial Comprehension

The response shows understanding of one of the points above. It may refer twice to the same action.

0 – No Comprehension

The response does not show understanding of Josh's actions. It may be vague, unrelated to the text, or repeat words in the question.

Example:

- He is kind.
- He is not selfish.

African Rhinos and Oxpecker Birds



Rhinos and Oxpeckers Help Each Other

Rhinos and oxpeckers are animals that are very different from each other. The rhinoceros is a very large land animal. Only the elephant is larger. The oxpecker bird is very tiny.

Rhinos and oxpeckers live together and help each other. The oxpeckers live on the backs of rhinos.

1. Where do you find oxpeckers?



1
0
8
9

2. What does the picture in the big red circle help you understand?

- (A) how oxpeckers fly
- (B) what oxpeckers sound like
- (C) an oxpecker's nest
- (D) what oxpeckers look like

3. Why does the writer tell you about the elephant?

- (A) to show that elephants live near rhinos
- (B) to show that the rhino is very big
- (C) to show that elephants have oxpeckers
- (D) to show that rhinos and elephants eat the same food

★ Correct Answer

The chart below shows some facts about rhinos and oxpeckers.

RHINOCEROS	OXPECKER
Color: Gray	Color: Brown
Weight: 8,000 pounds	Weight: 2 ounces
Height: 6 feet	Height: 8 inches
Food: Grass and leaves	Food: Insects and ticks



Rhinos

Rhinos are most famous for their large horns. In fact, the name rhinoceros means “nose horn.” Some people believe the horn is valuable as medicine, but this is not true.

Still, rhinos are in great danger from hunters. Even though rhinos are protected by law from being killed, they are still hunted for their horns.

4. Look at the chart.
How much does an oxpecker weigh?



1
0
8
9

5. What is the height of a rhino?



1
0
8
9

6. Why do hunters want to kill rhinos?

- (A) Rhinos are too dangerous.
- (B) Hunters want rhino meat.
- (C) Hunters want rhino horns.
- (D) There are too many rhinos.

★ Correct Answer

Rhinos like to eat grass and leaves off trees and bushes. However, they can eat all sorts of plants depending on what they can find.



A tick is a tiny creature that sucks the blood of animals. Ticks like to hide in trees and bushes so that they can climb onto people and animals that pass by. While the rhinos are eating, the ticks living in the trees and bushes jump onto the rhinos and then live in the rhino's skin.

7. What do rhinos eat?



1

0

8

9

8. Why are trees and bushes a good place for ticks to hide?

- (A) because ticks eat grass and leaves
- ★ (B) because rhinos come there to eat
- (C) because the birds want to eat the ticks
- (D) because the leaves protect their skin

★ Correct Answer

The ticks bite the rhino, fill themselves up with the rhino's blood, and make the rhino very itchy. Rhinos have very thick skin that may look tough, but their skin is very sensitive. Rhinos spend a lot of time scratching on trees and rocks trying to get rid of their ticks.

Ticks are very small, but they need blood to live. A tick attaches itself to the skin of an animal and sucks blood. There are hundreds of kinds of ticks on the planet, and they can be found almost everywhere.



9. Explain why ticks are a problem for rhinos.



2

1

0

8

9

10. What do ticks need to live?

- (A) trees
- (B) rhinos
- (C) bushes
- (D) blood

11. What do rhinos do when they are trying to get rid of their ticks?



1

0

8

9

★ Correct Answer

Oxpeckers

The oxpecker is a small brown bird with a wide bill, stiff tail, and sharp claws. The oxpeckers sit on the rhino's back and feed on the many ticks that live in the rhino's skin.

Oxpeckers eat insects, but their favorite food is blood so they prefer the ticks that are full of the rhino's blood. An oxpecker can eat as many as 100 of these bloated ticks in a day.



12. What are these parts of a oxpecker like?

 1 Its tail is _____

 1 Its claws are _____

13. Why do oxpeckers especially like to eat ticks?

★ (A) because the ticks have been sucking blood

(B) because there are many ticks on each rhino

(C) because the ticks have been eating leaves

(D) because the ticks are tiny and easy to eat

14. How many bloated ticks can an oxpecker bird eat in a day?

 1 _____

2
1
0
8
9

1
0
8
9

★ Correct Answer



Depending on Each Other

The rhinos and the oxpeckers help each other. The oxpeckers get their food, and the rhinos have the ticks cleaned away.

The oxpecker also helps keep the rhino safe from its enemies. Rhinos cannot see far and have a hard time spotting enemies. The sharp-eyed oxpeckers stand guard and warn the rhinos of danger by making loud noises and hissing.

15. Why does the oxpecker know there is danger when the rhino does not?

- (A) It can hear better.
- ★ (B) It can see better.
- (C) It can fly.
- (D) It can move faster.

16. What does the oxpecker do to warn the rhino of danger?



1
0
8
9

★ Correct Answer

► **Think about the whole article.**

17. What would life be like for the oxpeckers if there were no rhinos?



What would life be like for the rhinos if there were no oxpeckers?



2
1
0
8
9

Text by TIMSS & PIRLS International Study Center, Boston College. Images obtained from <http://commons.wikimedia.org>: Sabi 2012 05 18 0439 (7375029620), White rhinoceros head - Sofia zoo – 2, Sabi 2012 05 19 0652 (7189805715), Amblyomma variegatum-male, Red billed oxpecker close, Sabi 2012 05 19 0644 (7375046118).

African Rhinos and Oxpecker Birds, Item 1

1. Where do you find oxpeckers?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response recognizes that oxpeckers are found on (the backs of) rhinos.

Examples:

- They live on the backs of rhinos.
- On rhinos.

Also accept responses that identify that oxpeckers are found in Africa.

0 – Unacceptable Response

The response does not recognize that oxpeckers are found on the backs of rhinos or in Africa. It may give a partial response, be vague, unrelated to the text, or repeat words in the question.

Example:

- On its back.

African Rhinos and Oxpecker Birds, Item 4

4. Look at the chart. How much does an oxpecker weigh?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response recognizes that an oxpecker weighs 2 ounces. It must include an indication of the unit of measurement.

0 – Unacceptable Response

The response does not recognize that an oxpecker weighs 2 ounces.

Example:

- 2.

African Rhinos and Oxpecker Birds, Item 5

5. What is the height of a rhino?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response recognizes that the height of a rhino is 6 feet. It must include an indication of the unit of measurement.

0 – Unacceptable Response

The response does not recognize that the height of a rhino is 6 feet.

African Rhinos and Oxpecker Birds, Item 7

7. What do rhinos eat?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response recognizes that rhinos eat at least one of the following: grass/leaves/trees/bushes/plants. Acceptable responses should not include any incorrect answers.

0 – Unacceptable Response

The response does not recognize that rhinos eat grass/leaves/trees/bushes/plants. It may be vague, unrelated to the text, or repeat words in the question.

Example:

- Ticks.

African Rhinos and Oxpecker Birds, Item 9

9. Explain why ticks are a problem for rhinos.

Process: Make Straightforward Inferences

2 – Complete Comprehension

The response shows a complete understanding of why ticks are a problem for rhinos by including two of the following points:

- Ticks bite rhinos/suck their blood.
- This makes the rhinos feel itchy/uncomfortable.
- They have sensitive skin.

Examples:

- *The ticks suck the rhinos' blood and make the rhinos feel itchy.*
- *Rhinos have sensitive skin and don't like the ticks biting them.*

1 – Partial Comprehension

The response shows a partial understanding of why ticks are a problem for rhinos by giving just one of the points above.

Examples:

- *They suck the rhinos' blood.*
- *Rhinos get itchy.*

0 – No Comprehension

The response does not show understanding of why ticks are a problem for rhinos. It may be vague, unrelated to the text, or repeat words in the question.

Example:

- *Their skin is tough.*

African Rhinos and Oxpecker Birds, Item 11

11. What do rhinos do when they are trying to get rid of their ticks?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response recognizes that rhinos scratch (on trees/rocks) to try to get rid of their ticks.

Examples:

- They spend a lot of time scratching.
- Scratch.
- Rub themselves on trees.

0 – Unacceptable Response

The response does not recognize that rhinos scratch (on trees/rocks) to try to get rid of their ticks. It may be vague, unrelated to the text, or repeat words in the question.

African Rhinos and Oxpecker Birds, Item 12

12. What are these parts of an oxpecker like?

Its tail is _____.

Its claws are _____.

Process: Focus on and Retrieve Explicitly Stated Information

2 – Complete Comprehension

The response answers both parts of the question correctly. Appropriate synonyms (e.g. rigid/firm and pointy) are also acceptable.

- Its tail is stiff.
- Its claws are sharp.

1 – Partial Comprehension

The response answers just one part of the question correctly.

0 – No Comprehension

The response does not answer either part of the question correctly. It may be vague, unrelated to the text, or repeat words in the question.

African Rhinos and Oxpecker Birds, Item 14

14. How many bloated ticks can an oxpecker bird eat in a day?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response recognizes that oxpecker birds eat 100 ticks in a day.

0 – Unacceptable Response

The response does not recognize that oxpecker birds eat 100 ticks in a day.

African Rhinos and Oxpecker Birds, Item 16

16. What does the oxpecker do to warn the rhino of danger?

Process: Focus on and Retrieve Explicitly Stated Information

1 – Acceptable Response

The response recognizes that the oxpecker makes a loud noise/hissing.

0 – Unacceptable Response

The response does not recognize that the oxpecker makes a loud noise/hissing.

African Rhinos and Oxpecker Birds, Item 17

17. Think about the whole article.

What would life be like for the oxpeckers if there were no rhinos?

What would life be like for the rhinos if there were no oxpeckers?

Process: Interpret and Integrate Ideas and Information

2 – Complete Comprehension

The response gives an appropriate answer to both parts of the question.

- What would life be like for the oxpeckers if there were no rhinos?

The response shows understanding that the oxpeckers would find it harder to get food without the ticks on the rhinos.

Examples:

- They would have to eat insects.
- They would not be able to eat rhino blood.
- They would not be able to eat ticks.
- It would be hard to find food.

- What would life be like for the rhinos if there were no oxpeckers?

The response shows understanding of one disadvantage the rhino would suffer without the oxpecker: either that it would suffer greater discomfort from ticks; or that it would be more vulnerable to enemies because of its short-sightedness.

Examples:

- They would have lots of ticks.
- They would be itchy all the time.
- Their enemies would catch them.
- Dangerous because they can't see the enemies.

1 – Partial Comprehension

The response answers just one part of the question appropriately.

0 – No Comprehension

The response does not answer either part of the question appropriately. It may be vague, unrelated to the text, or repeat words in the question.

Examples:

- If there were no rhinos.
 - They would die/starve. (without qualification)
 - They would not have any food.
- If there were no oxpeckers.
 - Very hard.
 - They would die. (without further explanation)



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ISBN: 978-1-889938-48-6



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