

Progress in International Reading Literacy Study (PIRLS) 2011
Nova Scotia Results

Progress in International Reading Literacy Study (PIRLS)

The Progress in International Reading Literacy Study (PIRLS) is an international assessment that measures trends in the reading achievement of grade 4 students, as well as policies and practices related to literacy. PIRLS is administered every five years by the International Association for the Evaluation of Educational Achievement (IEA), an independent cooperative of research institutions and governmental agencies.

For PIRLS, reading literacy is defined as the ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment (Mullis et al., 2009, p. 11). This definition of reading literacy relies on theories that consider reading as a constructive and interactive process (Alexander & Jetton, 2000; Anderson & Pearson, 1984; Chall, 1983; Rudell & Unrau, 2004; Walter, 1999). Readers actively construct meaning using a repertoire of linguistic skills, cognitive, and metacognitive strategies and their background knowledge. Literate readers are those who enjoy reading but also learn from it, acquiring knowledge of the world and of themselves. They gain information from the many multi-modal forms (e.g., books, newspapers, Internet, video media, etc.) and in a variety of contexts (e.g., classroom, school library, reading communities in and out of school, etc.).

PIRLS 2011 was administered in April/May of 2011. Participating grade 4 students were given 80 minutes to complete a variety of selected response and constructed response reading comprehension questions that focused on two reading purposes and four comprehension processes. Table 1 provides the assessment framework.

Table 1: PIRLS 2011, Table of Specifications

Purposes for Reading	
Literary experience	50%
Acquire and use information	50%
Processes of Comprehension	
Focus and retrieve explicitly stated information	20%
Make straightforward inferences	30%
Interpret and integrate ideas and information	30%
Examine and evaluate content, language, and textual elements	20%

The study consists of ten reading passages, with between 13 and 16 questions for each passage. Each student was given one of 13 booklets, each having two passages and their associated questions. Table 2 provides additional information about the passages.

Table 2: PIRLS 2011, Main Features of the Texts Used in the Assessment

Text feature	Literary texts	Informational texts
Type of passages	Complete short stories or episodes (contemporary and traditional)	Continuous and non-continuous informational passages (covering scientific, ethnographic, biographical, historical, and practical information and ideas)
Number and length of passages	Five passages of approximately 800 words	Five passages of 600 to 900 words
Visuals	Supportive colourful illustrations	Presentational features, such as diagrams, maps, illustrations, photographs, or tables
Structure	Two main characters and a plot with one or two central events in each story	Various structures, including structure by logic, argument, chronology, and topic
Other features	A range of styles and language features, such as first person narration, humour, dialogue, and some figurative language	A range of organizational features, such as subheadings, text boxes, or lists

In addition to the assessment itself, PIRLS gathered contextual information through home, student, teacher and school questionnaires about the learning and life experiences accumulated through a variety of contexts that are believed to be related to reading literacy. The questionnaires gather information about these experiences and behaviours at home and in school.

Full details about the design, administration, scoring, and use of PIRLS assessment results are available on the CMEC website ([http://cmec.ca/399/Programs-and-Initiatives/Assessment/Progress-in-International-Reading-Literacy-Study-\(PIRLS\)/Overview/index.html](http://cmec.ca/399/Programs-and-Initiatives/Assessment/Progress-in-International-Reading-Literacy-Study-(PIRLS)/Overview/index.html)), as well as sample passages, questions, and scoring guides.

PIRLS in the Nova Scotia Context

Nova Scotia is the second-smallest province in Canada, with a land area of 53 thousand square kilometres and a population of 949 thousand, 56% of which lives in urban areas. English is the main language of communication in Nova Scotia. According to the 2006 census, approximately 11% of the population speaks both English and French, or French only.¹

Nova Scotia has eight school boards, seven of which are anglophone and one is francophone (Conseil scolaire acadien provincial). As of 2010/11, about 96% of students attended anglophone schools and 4% francophone schools.

There are 414 public schools (attended by 97% of total student population), and 33 private schools (attended by 3% of total student population). The total student enrolment is over 125 thousand.

1 The data on land area (2011), total population (2012), urban population (2006), population density (2011) and language (2006) is taken from the Statistics Canada official website (<http://www.statcan.gc.ca/>).

Grade Primary is compulsory and available to all five-year-olds for a full day. Students participating in PIRLS 2011 entered grade Primary if their 5th birthday fell on or before October 1, 2006.² Nova Scotia students are required to attend school until their 16th birthday. Parents have the option to home-school their children, but must follow specific guidelines and courses.


Nova Scotia has participated in the last two administrations of PIRLS: 2006 and 2011. On both occasions, the student population was oversampled in order to provide information about each of the eight school boards, as well as the province overall. In total, just under 4400 students in 203 schools participated in PIRLS 2011.

Definitions

Below are some definitions that are used throughout this report. For more information about the technical definitions, refer to page 20 of the PIRLS 2011 Report ([http://cmec.ca/399/Programs-and-Initiatives/Assessment/Progress-in-International-Reading-Literacy-Study-\(PIRLS\)/Overview/index.html](http://cmec.ca/399/Programs-and-Initiatives/Assessment/Progress-in-International-Reading-Literacy-Study-(PIRLS)/Overview/index.html)).

Oversampling refers to the selection of a greater number of respondents in a sub-group than the relative size in the population would require. This technique provides reliable estimates, allowing an analysis of each sub-group separately.

Statistically significant difference means that the difference between measurements is very likely real and not the result of anything other than differences in the ability being measured (that is, there is no overlap of confidence intervals between different measurements being compared).

Confidence intervals (CI) are represented by ; when confidence intervals overlap, the differences between measurements may not be real and are not statistically significant.

Estimated average scores are estimates of the achievement results that would have been demonstrated if all students in the population had participated in the assessment, referred to as the “true score”.

Standard Error (SE) is used to compute the confidence interval. Estimates are based on a sample of students and therefore there exists a degree of error introduced by its being a sample, and there is always some degree of measurement error; for these reasons, a standard error is computed. In large-scale assessments such as PIRLS, it is common practice when reporting average scores to provide a range within which the “true score” will likely fall. The confidence interval is computed by multiplying the SE by 1.96. The “true score” will fall within the given confidence interval 19 times out of 20.

Statistically significant:



No statistical difference:



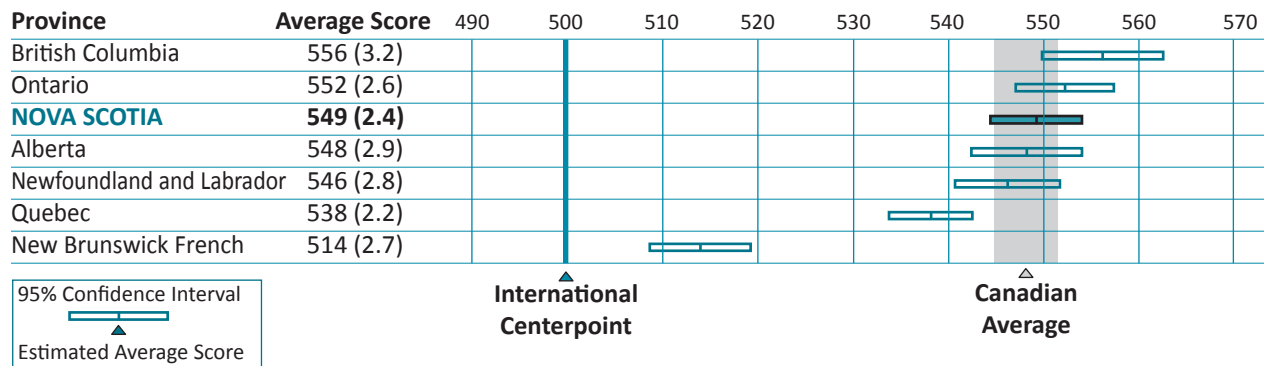
School Boards in Nova Scotia:
 AVRSB Annapolis Valley Regional School Board
 CBVRSB Cape Breton-Victoria Regional School Board
 CCRSB Chignecto-Central Regional School Board
 CSAP Conseil scolaire acadien provincial
 HRSB Halifax Regional School Board
 SRSB Strait Regional School Board
 SSRSB South Shore Regional School Board
 TCRSB Tri-County Regional School Board

2 As of September, 2008, students whose 5th birthday occurred on or before December 31 were eligible to enter grade Primary.

Student Achievement in Reading—Canada and Nova Scotia

In the 2011 Progress in International Reading Literacy Study (PIRLS), Nova Scotia grade 4 students performed well, with an estimated average score of 549, just above the estimated average score for Canada of 548. This score strongly exceeds the International Centerpoint of 500. Only five countries and one economic entity performed significantly better than Nova Scotia: Hong Kong SAR, Russian Federation, Finland, Singapore, Northern Ireland, and United States. No Canadian province performed significantly better than Nova Scotia, and the average performance for Nova Scotia was not different from Canada as a whole.

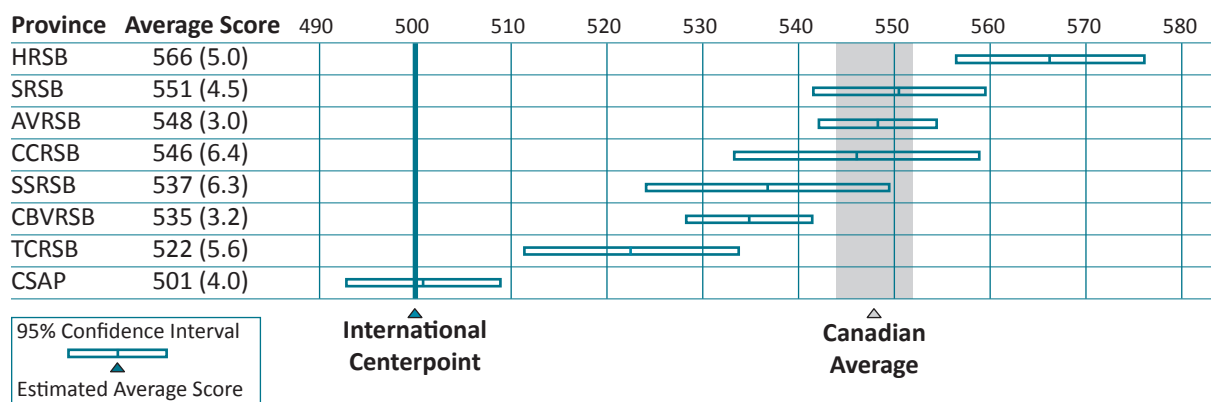
Chart 1: PIRLS 2011, Average Scores and Standard Errors (in parentheses) in Reading for Canada and the Provinces³



Reading Achievement by Nova Scotia School Boards

School board averages and confidence intervals are presented below. The horizontal bar provides the average score and the size of the confidence interval. HRSB performed significantly better than Nova Scotia as a whole, as well as Canada. The average performance of SRSB, AVRSB, CCRSB, and SSRSB was not different from Nova Scotia or Canada as a whole, considering confidence intervals. CBVRSB, TCRSB, and CSAP performed below Nova Scotia and Canada.

Chart 2: PIRLS 2011, Average Scores and Standard Errors (in parentheses) in Reading for School Boards of Nova Scotia

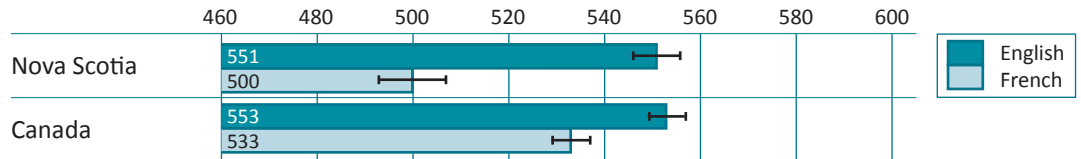


3 Canadian provinces who oversampled their grade 4 population are represented in Chart 1; other Canadian provinces are included in the Canadian average only.

Reading Achievement by Language

The achievement of Nova Scotia students enrolled in English-language schools is significantly better than those enrolled in francophone schools. The difference between language groups in Nova Scotia is 51 points, as compared to 20 points for Canada. Students enrolled in the English school system performed at the same level as the Canadian English average, while students in the French schools performed at a level below the Canadian French average, though comparable to French minority populations in other provinces.

Chart 3: PIRLS 2011, Average Scores and Confidence Intervals in Reading, by Language



Reading Achievement by Sex

On average, girls continue to perform better than boys in Nova Scotia, as they do in Canada and in most participating countries. However, the gap between the estimated average score of girls and boys in Nova Scotia has been reduced from a spread of 22 points in 2006 to 13 points in 2011. In two school boards, SRSB and CCRSB, the gap between the estimated average score of girls and boys is 5 points.

Chart 4: PIRLS 2011, Average Scores and Confidence Intervals for Girls and Boys in Nova Scotia

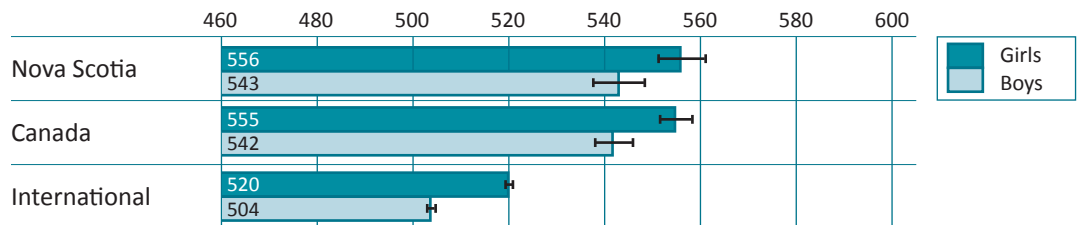
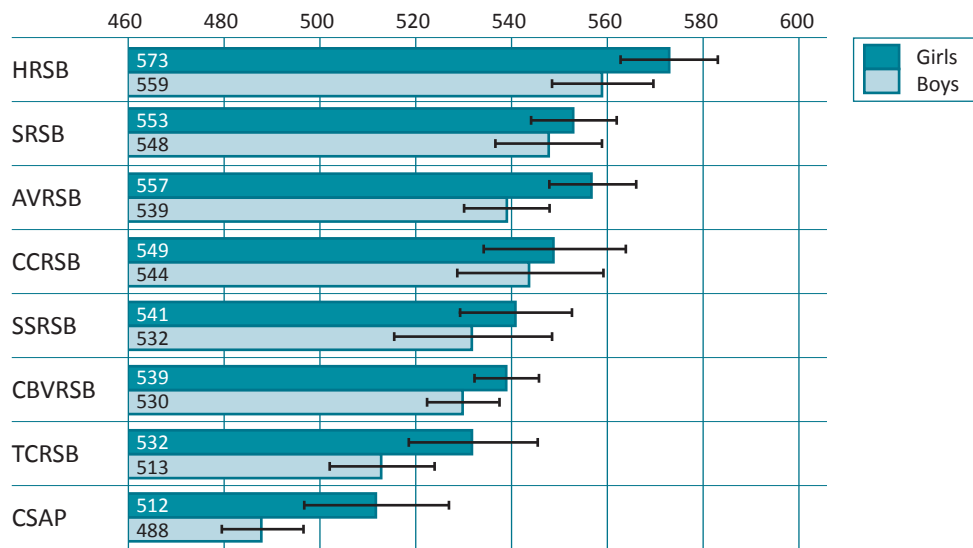


Chart 5: PIRLS 2011, Average Scale Scores and Confidence Intervals for Girls and Boys in Nova Scotia by School Board



Student Achievement by Reading Purpose

Two reading purposes are considered by PIRLS:

1. literary reading
2. informational reading

As is the case with all Canadian provinces, there is no significant difference between literary and informational reading in Nova Scotia. However, results for Canada overall show that students are performing better in literary reading than informational reading.

There is no statistically significant difference between literary and informational reading at the individual school boards.

Table 3: PIRLS 2011, Student Achievement by Reading Purpose

Board	Literary Reading Average (CI)	Informational Reading Average (CI)
HRSB	572 (±9)	562 (±10)
SRSB	558 (±10)	547 (±9)
AVRSB	554 (±7)	542 (±7)
CCRSB	552 (±15)	540 (±15)
SSRSB	541 (±11)	531 (±10)
CBVRSB	541 (±8)	530 (±7)
TCSB	529 (±10)	516 (±11)
CSAP	498 (±11)	501 (±11)

Student Achievement by Comprehension Process

Processes of comprehension relate to the question of “how the reader constructs meaning from a text”. Due to the low number of items in each process described in Table 1 (page 1), results have been aggregated to two combined process scales:

- 1) retrieving and straightforward inferencing (combines “focusing on and retrieving explicitly stated information” and “making straightforward inferences”)
- 2) interpreting, integrating, and evaluating (combines “interpreting and integrating ideas and information” and “examining and evaluating content, language, and textual elements”)

Nova Scotia is among three Canadian provinces showing better performance for the interpreting, integrating, and evaluating than for retrieving and making straightforward inferences. The difference was also significant for Canada overall. There is no statistically significant difference between the two comprehension processes at the individual school boards.

Table 4: PIRLS 2011, Student Achievement by Comprehension Process

Board	Retrieving and straightforward inferencing Average (CI)	Interpreting, integrating, and evaluating Average (CI)
HRSB	559 (±9)	572 (±9)
SRSB	544 (±8)	558 (±8)
AVRSB	541 (±7)	554 (±7)
CCRSB	539 (±13)	552 (±13)
SSRSB	531 (±11)	543 (±11)
CBVRSB	528 (±7)	542 (±7)
TCSB	517 (±10)	528 (±10)
CSAP	501 (±12)	498 (±12)

Trends in Reading Achievement

PIRLS 2011 is the second administration of this assessment for Nova Scotia, making possible a comparison of our 2011 performance with that of 2006. The average score for Nova Scotia went up from 542 in 2006 to 549 in 2011. Though a modest change, this constitutes statistically significant improved performance overall. Nova Scotia was the only province, of those which participated in both administrations, to show improved performance. Two school boards showed a modest but statistically significant improvement over 2006: HRSB and CSAP.

Table 5: PIRLS 2011, Trends in Reading Achievement by School Board⁴

Board	2011 Average (CI)	2006 Average (CI)	Difference
HRSB	566 (±10)	552 (±8)	+14 (±2)
SRSB	551 (±9)	547 (±10)	+4 (±1)
AVRSB	548 (±6)	539 (±12)	+9 (±6)
CCRSB	546 (±13)	541 (±10)	+5 (±3)
SSRSB	537 (±12)	539 (±13)	-2 (±1)
CBVRSB	535 (±6)	542 (±11)	-7 (±5)
TCSB	522 (±11)	525 (±13)	-3 (±2)
CSAP	501 (±8)	485 (±16)	+16 (±8)

4 Where confidence intervals minimally overlapped, an additional analysis (t-test) was conducted to determine whether the differences being compared were statistically significant. Statistically significant differences are indicated with bolded numbers.

Nova Scotia Results in Reading Achievement at the PIRLS 2011 International Benchmarks

There are four international benchmarks in the PIRLS assessment:

- Advanced (625 points or above)
- High (between 550 and 624 points)
- Intermediate (between 475 and 549 points)
- Low (between 400 and 474 points)

Overall, Canada is among the top ten countries with the highest percentage of students reaching the *advanced* level (13%). In Nova Scotia, this level is reached by 14% of students, which represents one of the highest percentages across Canadian provinces. Only Ontario and British Columbia showed a higher result (15%) than Nova Scotia.

Chart 6: PIRLS 2011, Percentages of Students at the International Benchmarks of Reading Performance

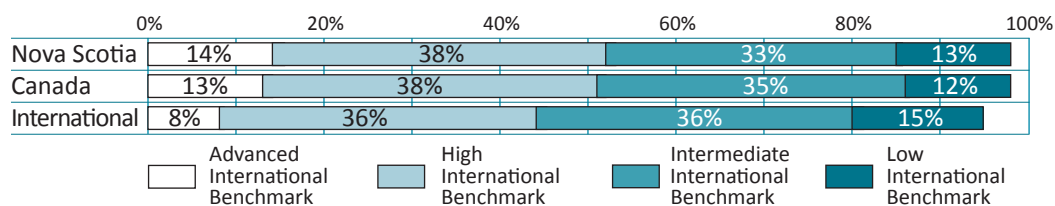


Chart 6 shows that in Nova Scotia, 52% of students performed at or above the high benchmark, compared to the international median of 44% at or above the high benchmark.

Chart 7: PIRLS 2011, Percentages at the International Benchmarks for Nova Scotia School Boards

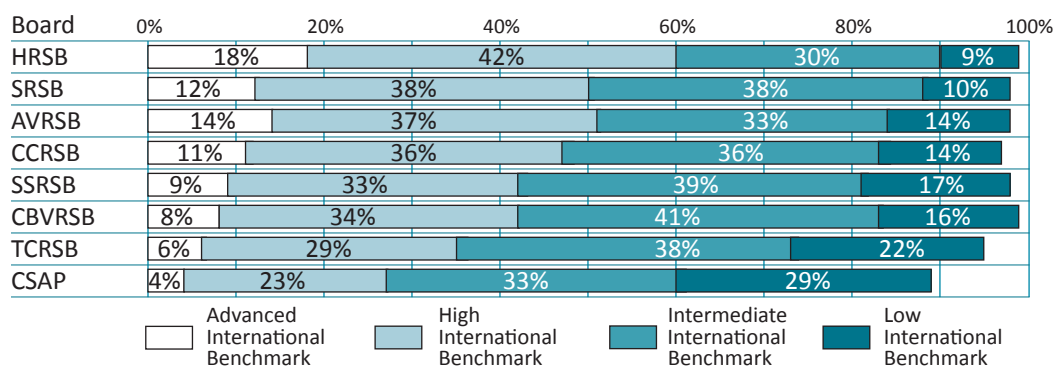


Chart 7 shows the distribution of students in relation to the international benchmarks for each school board. The range within the advanced benchmark is from 18% to 4%, and within the high benchmark school boards range from 42% to 23%.

Nova Scotia Partial Results of the Home, Student, Teacher, and School Questionnaires

Student reading skills are influenced to a large extent by home and school environment, including parent/guardian reading habits, student attitudes and out-of-school activities, teachers' background, school climate and educational resources. PIRLS 2011 Home, Student, Teacher, and School Questionnaires provide interesting points for further study about factors that are associated with achievement in reading literacy. The items indicating factors of greatest significance are included in the table below.

It is important to note that these results of the Home, Student, Teacher, and School Questionnaires do not reflect a causal relationship.

Complete results of the PIRLS 2011 questionnaires are available on the CMEC website ([http://cmec.ca/399/Programs-and-Initiatives/Assessment/Progress-in-International-Reading-Literacy-Study-\(PIRLS\)/Overview/index.html](http://cmec.ca/399/Programs-and-Initiatives/Assessment/Progress-in-International-Reading-Literacy-Study-(PIRLS)/Overview/index.html)).

Table 6: PIRLS 2011, Nova Scotia Partial Results of the Home, Student, Teacher, and School Questionnaires

Variables (highest and lowest categories are shown in parentheses)	Percentage of students				Difference in performance between extreme categories	
	Highest category		Lowest category		NS	CAN
	NS	CAN	NS	CAN		
Parents like reading (like vs. do not like)	52%	41%	9%	9%	40 points	36 points
Students like reading (like vs. do not like)	34%	35%	18%	14%	62 points	54 points
Student confidence in reading (confident vs. not confident)	46%	41%	7%	9%	96 points	81 points
Students lacking prerequisite knowledge and skills (a lot vs. not at all)	6%	15%	19%	15%	13 points	33 points
School emphasis on academic success (very high vs. medium)	20%	12%	11%	21%	28 points	35 points
Bullying at school (often vs. almost never)	18%	20%	50%	44%	33 points	35 points

Conclusion

PIRLS 2011 results provide information not only about reading achievement from an international perspective, but also from a pan-Canadian and provincial perspective. The results of PIRLS 2011 indicate that Canadian students perform well in reading. Results indicate higher levels of reading than almost all participating countries.

Compared to this 2011 global benchmark, most Nova Scotia grade 4 students performed well with an average score of 549, which strongly exceeds the International Centerpoint of 500. Only five countries and one economic entity performed significantly better than Nova Scotia: Hong Kong SAR, Russian Federation, Finland, Singapore, Northern Ireland and United States.

Canadian and Nova Scotian students show strong performance in reading literacy. At the national level, the average score of Nova Scotia students is not significantly different from that of Canadian students overall (548). Considering confidence intervals, there are no provinces performing better than Nova Scotia.

PIRLS 2011 results provide information about a range of topics to inform discussions and research about the trends, policies and practices of reading literacy. Over the next few months and years, further analysis of these results along with provincial and board level data will contribute to the further development of reading literacy in Nova Scotia.

The Council of Ministers of Education (Canada) and the Nova Scotia Department of Education wish to thank the grade 4 students, their parents and guardians, and the grade 4 teachers of Nova Scotia who participated in PIRLS 2011. We are very grateful for your involvement in this study as it will contribute to a better understanding of educational policies and practices in reading instruction in the early elementary school years.