



# **International Association for the Evaluation of Educational Achievement**

Progress in International Reading Literacy Study (2001)

## **Ontario Report**

**April 2003**

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ISBN: 0-7794-4663-1

ISSN: 1705-8163



## Introduction

The Progress in International Reading Literacy Study (PIRLS) is a newly developed assessment of Grade 4 students' reading achievement, designed to measure trends in reading literacy with respect to two major reading purposes — literary and informational. PIRLS is based on the International Association for the Evaluation of Educational Achievement's (IEA's) 1991 Reading Literacy Study, in which Ontario did not participate. Three PIRLS assessments have been planned. The first took place in 2001, with future assessments planned for 2005 and 2009. PIRLS provides data that are complementary to the IEA's Trends in International Mathematics and Science Study (TIMSS), which also assesses Grade 4 students.

## Participants

The following thirty-five countries participated in PIRLS 2001.

Argentina	Hungary	New Zealand
Belize	Iceland	Norway
Bulgaria	Iran, Islamic Republic of	Romania
Canada (Ontario and Quebec)	Israel	Russian Federation
Colombia	Italy	Scotland
Cyprus	Kuwait	Singapore
Czech Republic	Latvia	Slovak Federation
England	Lithuania	Slovenia
France	Macedonia, Republic of	Sweden
Germany	Moldova, Republic of	Turkey
Greece	Morocco	United States
Hong Kong	Netherlands	

## The Ontario Context

In Canada, only Ontario and Quebec participated in this assessment, which the two provinces administered in partnership. In the spring of 2001, each province conducted the study with a random sample of about 200 schools (English- and French-language), involving approximately 4000 9- and 10-year-old students from each province. Sufficient data were collected to report on the reading achievement of Grade 4 students from both linguistic groups in each province.

## Data Sources

Data were collected by means of student assessment booklets and questionnaires. Each student completed one of eight test booklets and a student questionnaire during a testing time of 80 minutes for the assessment and an additional 15–30 minutes for the questionnaire. A "Learning to Read Survey" was administered to parents or primary caregivers; a Teacher Questionnaire was administered to the language teacher of the students tested and a School Questionnaire was completed by the principal, to provide a more complete picture of the students' learning context.

## **Reporting Scales**

In the PIRLS 2001 International Report, released in April 2003 by the International Study Center at Boston College, students' performance is expressed as a score on a scale from 0 to 1000, with an international average of 500. The international report can be viewed on the PIRLS Web site, <http://timss.bc.edu>, under "Publications." Reports and information related to other IEA studies can be viewed on the IEA Web site: [www.iea.nl](http://www.iea.nl).

## **Reading Literacy in PIRLS**

PIRLS defines reading literacy 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 for a variety of texts. They read to learn, to participate in communities of readers, and for enjoyment."

PIRLS focuses on three aspects of reading literacy:

- purposes for reading (for personal interest or pleasure, to participate in society, to learn);
- processes of comprehension and
- reading behaviours and attitudes.

## **Test Structure**

Purposes for reading and processes of comprehension are the foundation for the PIRLS assessment of reading comprehension. Below are the percentages of the reading assessment devoted to these two aspects.

Purposes for reading are divided into two categories:

- 1) acquire and use information (50%) and
- 2) literary experience (50%).

The following processes of comprehension are assessed by PIRLS:

- 1) focus on and retrieve explicitly stated information (20%);
- 2) make straightforward inferences (30%);
- 3) interpret and integrate ideas and information (30%) and
- 4) examine and evaluate content, language and textual elements (20%).

Reading behaviours and attitudes are assessed through the various questionnaires.

## **Curriculum Match**

The content of the PIRLS assessment is reflected in the expectations up to and including Grade 4 in *The Ontario Curriculum, Grades 1–8: Language*. The two general PIRLS purposes for reading categories — literary experience and acquire and use information — reflect the overall Ontario curriculum expectation “read a variety of fiction and non-fiction materials for different purposes.” The expectations in specific areas of the Ontario reading curriculum reflect the four processes of comprehension as presented in the PIRLS assessment framework. Thus, the areas of reasoning and critical thinking and understanding of form and style are well reflected in the PIRLS processes of comprehension “make straightforward inferences,” “interpret and integrate ideas and information” and “focus on and retrieve explicitly stated information.” The area of knowledge of language structures and, to a lesser extent, the areas of vocabulary building and use of conventions are reflected in the PIRLS process “examine and evaluate content, language and textual elements.”

Examples of reading passages, questions and scoring guides for both reading “for literary experience” and “to acquire and use information” can be found in Appendix C of the PIRLS 2001 International Report.

## **Achievement Results**

The following charts provide information about Grade 4 students’ achievement in reading. Some of the charts show PIRLS results for participating countries and for Quebec’s results compared with Ontario’s. Some charts show the jurisdictions that scored the same as, higher than or lower than Ontario. (Within these categories, jurisdictions are listed in alphabetical order.) Other charts simply indicate Ontario’s performance compared to the other participating jurisdictions.

**Countries' and Provinces' Overall Average Reading Achievement  
Compared to Ontario's<sup>1</sup>**

<b>Higher Than Ontario</b>		<b>Same As Ontario</b>		<b>Lower Than Ontario</b>	
Sweden	561 (2.2)	Bulgaria	550 (3.8)	Argentina	420 (5.9)
		Canada (ON and QC)	544 (2.4)	Belize	327 (4.7)
		England	553 (3.4)	Colombia	422 (4.4)
		Hungary	543 (2.2)	Cyprus	494 (3.0)
		Italy	541 (2.4)	Czech Republic	537 (2.3)
		Latvia	545 (2.3)	France	525 (2.4)
		Lithuania	543 (2.6)	Germany	539 (1.9)
		Netherlands	554 (2.5)	Greece	524 (3.5)
		<b>Ontario</b>	<b>548 (3.3)</b>	Hong Kong	528 (3.1)
		<b>Ontario (English)</b>	<b>550 (3.3)</b>	Iceland	512 (1.2)
		Quebec (English)	543 (3.5)	<b>International Avg.</b>	<b>500 (0.6)</b>
		United States	542 (3.8)	Iran, Islamic Rep. of	414 (4.2)
				Israel	509 (2.8)
				Kuwait	396 (4.3)
				Macedonia	442 (4.6)
				Moldova, Rep. of	492 (4.0)
				Morocco	350 (9.6)
				New Zealand	529 (3.6)
				Norway	499 (2.9)
				<b>Ontario (French)</b>	<b>494 (4.2)</b>
				Quebec	537 (3.0)
				Quebec (French)	537 (3.3)
				Romania	512 (4.6)
				Russian Federation	528 (4.4)
				Scotland	528 (3.6)
				Singapore	528 (5.2)
				Slovak Republic	518 (2.8)
				Slovenia	502 (2.0)
				Turkey	449 (3.5)

<sup>1</sup> Overall average reading achievement scale scores are provided for each jurisdiction; standard error statistics are provided in parentheses. Please refer to the appendix for an explanation of the terms “standard error statistics,” “confidence interval” and “significant difference.”

Because results are rounded to the nearest whole number, the categorization of some jurisdictions may appear to be inconsistent.

**Countries' and Provinces' Average Achievement in Reading for Informational Purposes  
Compared to Ontario's<sup>2</sup>**

<b>Higher Than Ontario</b>		<b>Same As Ontario</b>		<b>Lower Than Ontario</b>	
Bulgaria	551 (3.6)	Canada (ON and QC)	541 (2.4)	Argentina	422 (5.4)
Netherlands	553 (2.6)	Czech Republic	536 (2.7)	Belize	332 (4.9)
Sweden	559 (2.2)	England	546 (3.6)	Colombia	424 (4.3)
		Germany	538 (1.9)	Cyprus	490 (3.0)
		Hong Kong	537 (2.9)	France	533 (2.5)
		Hungary	537 (2.2)	Greece	521 (3.7)
		Italy	536 (2.4)	Iceland	504 (1.5)
		Latvia	547 (2.3)	<b>International Avg.</b>	<b>500 (0.7)</b>
		Lithuania	540 (2.7)	Iran, Islamic Rep. of	408 (4.6)
		<b>Ontario</b>	<b>542 (3.2)</b>	Israel	507 (2.9)
		<b>Ontario (English)</b>	<b>544 (3.3)</b>	Kuwait	403 (4.5)
		Quebec	541 (2.9)	Macedonia	445 (5.2)
		Quebec (French)	541 (3.3)	Moldova, Rep. of	505 (4.7)
		Quebec (English)	539 (4.0)	Morocco	358 (10.9)
		Russian Federation	531 (4.3)	New Zealand	525 (3.8)
		United States	533 (3.7)	Norway	492 (2.8)
				<b>Ontario (French)</b>	<b>501 (4.2)</b>
				Romania	512 (4.6)
				Scotland	527 (3.6)
				Singapore	527 (4.8)
				Slovak Republic	522 (2.7)
				Slovenia	503 (1.9)
				Turkey	452 (3.8)

<sup>2</sup> Average achievement in reading for informational purposes scale scores are provided for each jurisdiction; standard error statistics are provided in parentheses. Please refer to the appendix for an explanation of the terms “standard error statistics,” “confidence interval” and “significant difference.”

Because results are rounded to the nearest whole number, the categorization of some jurisdictions may appear to be inconsistent.



**Countries' and Provinces' Average Achievement in Reading for Literary Purposes  
Compared to Ontario's<sup>3</sup>**

<b>Higher Than Ontario</b>		<b>Same As Ontario</b>		<b>Lower Than Ontario</b>	
Sweden	559 (2.4)	Bulgaria	550 (3.9)	Argentina	419 (5.8)
		Canada (ON and QC)	545 (2.6)	Belize	330 (4.9)
		England	559 (3.9)	Colombia	425 (4.2)
		Hungary	548 (2.0)	Cyprus	498 (2.5)
		Italy	543 (2.7)	Czech Republic	535 (2.3)
		Lithuania	546 (3.1)	France	518 (2.6)
		Netherlands	552 (2.5)	Germany	537 (1.9)
		<b>Ontario</b>	<b>551 (3.3)</b>	Greece	528 (3.3)
		<b>Ontario (English)</b>	<b>553 (3.5)</b>	Hong Kong	518 (3.1)
		Quebec (English)	546 (4.2)	Iceland	520 (1.3)
		United States	550 (3.8)	<b>International Avg.</b>	<b>500 (0.6)</b>
				Iran, Islamic Rep. of	421 (4.5)
				Israel	510 (2.6)
				Kuwait	394 (3.8)
				Latvia	537 (2.2)
				Macedonia	441 (4.5)
				Moldova, Rep. of	480 (3.7)
				Morocco	347 (8.4)
				New Zealand	531 (3.9)
				Norway	506 (2.7)
				<b>Ontario (French)</b>	<b>488 (4.3)</b>
				Quebec	534 (3.0)
				Quebec (French)	533 (3.4)
				Romania	512 (4.7)
				Russian Federation	523 (3.9)
				Scotland	529 (3.5)
				Singapore	528 (5.6)
				Slovak Republic	512 (2.6)
				Slovenia	499 (1.8)
				Turkey	448 (3.4)

<sup>3</sup> Average achievement in reading for literary purposes scale scores are provided for each jurisdiction; standard error statistics are provided in parentheses. Please refer to the appendix for an explanation of the terms “standard error statistics,” “confidence interval” and “significant difference.”

Because results are rounded to the nearest whole number, the categorization of some jurisdictions may appear to be inconsistent.

**Countries' and Provinces' Percentages of Students Reaching PIRLS International  
Benchmarks in Overall Reading Achievement**

<b>Countries and Provinces</b>	<b>Top 10% Benchmark</b>	<b>Upper Quarter Benchmark</b>	<b>Median Benchmark</b>	<b>Lower Quarter Benchmark</b>
England	24 (1.6)	45 (1.9)	72 (1.6)	90 (1.0)
Bulgaria	21 (1.3)	45 (1.9)	72 (1.9)	91 (1.1)
Sweden	20 (1.1)	47 (1.4)	80 (1.3)	96 (0.5)
United States	19 (1.3)	41 (2.0)	68 (2.0)	89 (1.2)
<b>Ontario</b>	<b>19 (1.4)</b>	<b>40 (1.8)</b>	<b>70 (1.6)</b>	<b>92 (0.8)</b>
New Zealand	17 (1.4)	35 (1.7)	62 (1.9)	84 (1.3)
Canada (O, Q)	16 (1.0)	37 (1.3)	69 (1.3)	93 (0.6)
Singapore	15 (1.5)	35 (2.3)	64 (2.3)	85 (1.6)
Netherlands	14 (1.0)	40 (1.7)	79 (1.5)	98 (0.5)
Italy	14 (1.0)	36 (1.3)	69 (1.5)	92 (0.8)
Scotland	14 (1.1)	32 (1.8)	62 (1.8)	87 (1.1)
Hungary	13 (0.9)	36 (1.5)	71 (1.2)	94 (0.6)
Lithuania	13 (1.4)	36 (1.7)	71 (1.7)	95 (0.6)
Latvia	12 (1.1)	36 (1.6)	73 (1.5)	96 (0.6)
Germany	12 (0.8)	34 (1.3)	69 (1.2)	93 (0.6)
Israel	11 (0.8)	28 (1.2)	54 (1.4)	79 (1.1)
Quebec	11 (1.0)	31 (1.8)	67 (2.0)	94 (0.8)
Romania	11 (1.3)	27 (2.0)	54 (2.1)	81 (1.7)
Czech Republic	10 (0.9)	32 (1.5)	68 (1.5)	93 (0.7)
Greece	10 (0.8)	28 (2.0)	60 (2.2)	89 (1.2)
France	9 (0.9)	26 (1.2)	60 (1.4)	90 (0.9)
Russian Federation	8 (1.0)	27 (2.1)	64 (2.3)	92 (1.6)
Slovak Republic	7 (1.0)	23 (1.4)	59 (1.7)	88 (1.1)
Iceland	7 (0.6)	23 (1.0)	53 (1.0)	85 (0.8)
Hong Kong	6 (0.7)	26 (1.7)	64 (1.9)	92 (1.1)
Norway	6 (0.9)	19 (1.2)	48 (1.4)	80 (1.4)
Cyprus	6 (0.8)	18 (1.3)	45 (1.6)	77 (1.4)
Slovenia	4 (0.5)	17 (1.0)	48 (1.2)	83 (0.9)
Moldova, Rep. of	4 (0.9)	15 (1.8)	42 (2.5)	79 (1.7)
Macedonia, Rep. of	3 (0.4)	10 (0.9)	28 (1.5)	55 (2.1)
Turkey	2 (0.3)	7 (0.9)	25 (1.6)	58 (1.7)
Argentina	2 (0.4)	5 (0.8)	17 (1.6)	46 (2.5)
Iran, Islamic Rep. of	1 (0.2)	4 (0.5)	16 (1.4)	42 (1.9)
Colombia	1 (0.4)	3 (0.8)	14 (1.5)	45 (2.4)
Morocco	1 (0.9)	3 (1.4)	8 (2.1)	23 (3.0)
Kuwait	0 (0.1)	2 (0.4)	10 (1.1)	36 (2.0)
Belize	0 (0.2)	1 (0.4)	5 (0.6)	16 (1.3)

Top 10% benchmark (90th percentile) = scale score of 615

Upper quarter benchmark (75th percentile) = scale score of 570

Median benchmark (50th percentile) = scale score of 510

Lower quarter benchmark (25th percentile) = scale score of 435

### Countries' and Provinces' Average Reading Achievement by Gender<sup>4</sup>

Countries	Girls	Boys	Achievement Difference
Italy	545 (2.6)	537 (2.7)	8 (2.5)
France	531 (2.7)	520 (3.0)	11 (3.3)
Colombia	428 (5.1)	416 (4.7)	12 (4.3)
Russian Federation	534 (4.3)	522 (4.8)	12 (2.3)
Czech Republic	543 (2.8)	531 (2.6)	12 (2.8)
Germany	545 (2.2)	533 (2.5)	13 (2.7)
Quebec (English)	550 (3.7)	537 (4.1)	13 (3.3)
Romania	519 (4.2)	504 (5.7)	14 (3.8)
Quebec	544 (3.4)	530 (3.1)	14 (2.7)
Hungary	550 (2.4)	536 (2.5)	14 (2.1)
Netherlands	562 (2.7)	547 (2.8)	15 (2.2)
Slovak Republic	526 (3.0)	510 (3.3)	16 (3.0)
Quebec (French)	545 (3.8)	529 (3.5)	16 (3.2)
Lithuania	552 (3.0)	535 (2.7)	17 (2.7)
Scotland	537 (3.9)	519 (4.2)	17 (4.0)
Canada (ON and QC)	553 (2.6)	536 (2.6)	17 (2.1)
United States	551 (3.8)	533 (4.9)	18 (4.1)
<b>Ontario (French)</b>	<b>503 (4.7)</b>	<b>485 (4.8)</b>	<b>18 (4.4)</b>
Argentina	428 (6.2)	410 (6.5)	18 (4.7)
Hong Kong	538 (3.0)	519 (3.5)	19 (2.9)
Iceland	522 (1.9)	503 (1.5)	19 (2.4)
<b>Ontario (English)</b>	<b>560 (3.8)</b>	<b>541 (3.3)</b>	<b>19 (2.8)</b>
Turkey	459 (4.0)	440 (3.7)	19 (3.1)
<b>International Avg.</b>	<b>510 (0.7)</b>	<b>490 (0.7)</b>	<b>20 (0.7)</b>
<b>Ontario</b>	<b>558 (3.8)</b>	<b>538 (3.4)</b>	<b>20 (2.7)</b>
Morocco	361 (9.6)	341 (10.9)	20 (6.8)
Greece	535 (3.8)	514 (4.0)	21 (3.9)
Macedonia, Rep. of	452 (5.1)	431 (4.8)	21 (3.6)
Norway	510 (3.5)	489 (3.4)	21 (3.9)
Slovenia	512 (2.5)	491 (2.4)	22 (2.8)
Latvia	556 (3.1)	534 (2.6)	22 (3.4)
Israel	520 (3.4)	498 (3.7)	22 (4.3)
Sweden	572 (2.6)	550 (2.5)	22 (2.6)
England	564 (3.9)	541 (3.7)	22 (3.3)
Cyprus	506 (3.3)	482 (3.6)	24 (3.5)
Bulgaria	562 (3.7)	538 (4.7)	24 (3.6)
Singapore	540 (5.3)	516 (5.7)	24 (4.1)
Moldova, Rep. of	504 (4.7)	479 (4.0)	25 (4.0)
New Zealand	542 (4.7)	516 (4.2)	27 (5.4)
Iran, Islamic Rep. of	426 (5.7)	399 (5.6)	27 (8.1)
Belize	341 (5.3)	314 (5.2)	27 (4.8)
Kuwait	422 (5.6)	373 (6.3)	48 (8.4)

<sup>4</sup>Average reading achievement scale scores are provided for each jurisdiction by gender; standard error statistics are provided in parentheses. Please refer to the Appendix for an explanation of the terms “standard error statistics,” “confidence interval” and “significant difference.”

## Summary of Results

- Ontario Grade 4 students performed near the top in overall reading achievement compared to 35 countries worldwide. Only Sweden performed significantly better than Ontario in overall reading achievement and achievement in reading for literary purposes.
- Only Bulgaria, the Netherlands and Sweden outperformed Ontario in achievement in reading for informational purposes.
- Ontario students performed statistically better in reading for literary purposes than they did for informational purposes.
- Ontario Grade 4 French-language students scored significantly lower than Ontario Grade 4 English-language students in overall reading achievement, reading achievement for literary and informational purposes.
- Approximately one-fifth (19%) of Ontario Grade 4 students reached the top 10% benchmark. Forty percent reached the upper quarter benchmark, defined as the 75th percentile. Statistically, only Sweden, Bulgaria and England outperformed Ontario on these indicators.
- In all countries and provinces, Grade 4 girls performed significantly better than Grade 4 boys in reading achievement. In Ontario, there was a 20-point difference favouring the girls. This trend was found in Ontario in reading for both literary and informational purposes.
- Based on parents' responses to statements about the following activities: "read books," "tell stories," "sing songs," "play with alphabet toys," "play word games" and "read aloud signs and labels," 67% of Canadian (Ontario and Quebec) students were in the high early home literacy activities (EHLA) category. The average achievement of these students was significantly higher than students who were in the medium or low EHLA categories. This positive relationship was found in every country.
- In Canada (Ontario and Quebec), as well as in most other countries, there was a strong relationship between speaking the language of the PIRLS test at home and performance on the PIRLS test.
- Across countries, Grade 4 students from high home educational resources (HER) homes (number of books and children's books in the home; available educational aids such as computer, desk and daily newspaper; and parents' education) had higher reading achievement than those from low HER homes. This was also true in Canada (Ontario and Quebec), where a significant difference was found between students with high HER and students with medium or low HER.

- Internationally, average reading achievement was considerably higher — 40 scale-score points — for students from homes that were less than 10% economically disadvantaged than for students from homes that were more than 50% economically disadvantaged. This trend was found in Canada (Ontario and Quebec), where almost half of the students were in the first category.
- Canadian (Ontario and Quebec) students who had attended more than two years of preprimary education performed significantly better than students who had attended one to two years, one year or less or had not attended preprimary education. Internationally, average reading achievement was highest among those who attended preschool for more than two years (523 points).
- In Canada (Ontario and Quebec), approximately 60% of students attended schools that were in the high category in an index based on principals' characterizations of school climate. These students had significantly higher average achievement than students who attended schools where the perception of school climate was less positive. This trend is also found internationally.
- About half of Canadian (Ontario and Quebec) students (54%) had a positive attitude toward reading. As they did in all other countries, students with the most positive attitudes and with a positive reading self-concept had the highest reading achievement.

# APPENDIX

## **Standard Error Statistic, Confidence Interval and Significant Difference**

In PIRLS, the average achievement scale scores were based on samples of students; therefore, they are only estimates of the actual average achievement scale scores students would have demonstrated had they all taken the assessment. Because an estimate is rarely exact, it is common practice to provide a range of scores within which the actual achievement results might fall. This range of scores is called a **confidence interval** and represents the high- and low-end points between which the actual achievement results should fall 95% of the time. The high- and low-end points are calculated by multiplying the **standard error statistic** by 1.96. In PIRLS reports, the confidence interval is presented in parentheses alongside the achievement score.

One can be confident that the actual achievement score of students would fall somewhere within the established range 19 times out of 20 if the assessment were repeated with a different sample of students. If the confidence intervals of the jurisdictions overlap, we can conclude that there is no statistically significant difference in their achievement scores.

In this report, the term “**significant difference**” means that any differences are probably “real” differences and not due to chance.