

Measuring up: Canadian Results of the OECD PISA Study

The Performance of Canada's Youth in Reading, Mathematics and Science

2009 First Results for Canadians Aged 15



Highlights



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Canada

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Highlights

Canadian students continue to perform well in reading in a global context

Among the 65 countries that participated in PISA 2009, only four countries outperformed Canada on the Combined Reading scale: Shanghai-China, Korea, Finland and Hong Kong-China. Across the three reading aspect subscales (see text box 'What is PISA' for definitions), Canada was outperformed by six countries in Reading Accessing and Retrieving, four countries in Reading Integrating and Interpreting and two countries in Reading Reflecting and Evaluating. When analyzing results for the two text

formats, four countries performed better than Canada on both continuous texts and non-continuous texts.



At the provincial level, most 15-year-olds also performed well in reading. Students in nine of the Canadian provinces performed at or above the OECD average on the combined reading scale with only Prince Edward Island performing below the OECD mean. When comparing performance on combined reading and the reading subscales, provinces fell into one of three groups: above, at or below the Canadian average. Ontario performed above the Canadian average for both the combined reading and all reading subscales and Alberta

What is PISA?

The Programme for International Student Assessment (PISA) was initiated by the member countries of the Organisation for Economic Co-operation and Development (OECD) to provide policy-oriented international indicators of the skills and knowledge that are essential for full participation in modern societies of 15-year-old students. It assesses youth outcomes in three domains – reading, mathematics and science – focussing on what students can do with what they have learned in school, at home and in the community.

PISA was first implemented in 2000 and is repeated every three years with each cycle providing detailed assessment in one of the three domains and summary assessments in the other two. In PISA 2009, reading literacy was the major assessment domain and was defined as “understanding, using, reflecting on and engaging with written texts, in order to achieve one’s goals, to develop one’s knowledge and potential, and to participate in society”. It included three aspect sub-domains and two text format sub-domains:

- **Accessing and retrieving:** Involves going to the information space provided and navigating in that space to locate and retrieve one or more distinct pieces of information.
- **Integrating and interpreting:** Involves processing what is read to make internal sense of a text.
- **Reflecting and evaluating:** Involves drawing upon knowledge, ideas or attitudes beyond the text in order to relate the information provided within the text to one’s own conceptual and experiential frames of reference.
- **Continuous texts:** Are formed by sentences organized into paragraphs. These include newspaper articles, essays, short stories, reviews or letters.
- **Non-continuous texts:** Are documents that combine several text elements such as lists, tables, graphs, diagrams, advertisements, schedules, catalogues, indexes or forms.

In addition to reading, mathematics and science were included in PISA 2009 as minor domains.

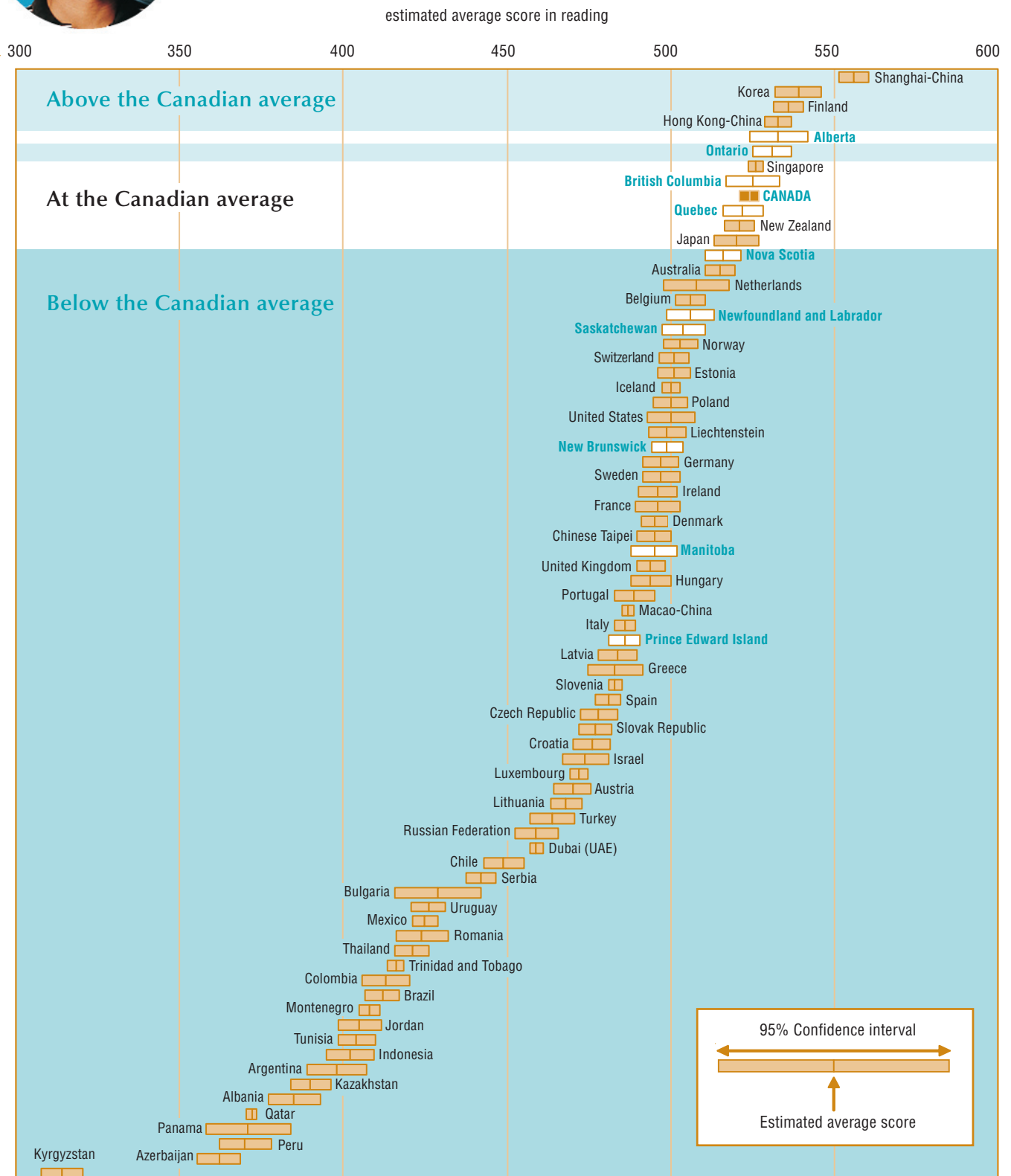
Sixty-five countries and economies participated in PISA 2009, including all 33 OECD countries. In Canada, about 23,000 15-year-old students from around 1,000 schools participated. A large sample was drawn in Canada so that information could be provided at both the Canadian and provincial levels¹.

The PISA 2009 included a direct assessment of students’ skills (paper-and pencil test), a student questionnaire, and a school questionnaire completed by principals. The school and student questionnaire were used to collect background and contextual information related to student performance.

1. No data were collected in the three territories or First Nations schools.



Only students from Shanghai-China, Korea, Finland and Hong Kong-China outperformed Canada in reading



Note: The OECD average is 496 with a standard error of 0.6.

performed above the Canadian average on four of the five reading subscales. British Columbia performed at the Canadian average for both the combined reading and all reading subscales and Quebec performed at the Canadian average for both the combined reading and four reading subscales. Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, and Saskatchewan performed below the Canadian average for both the combined reading and all reading subscales.

Reading performance in five of the ten Canadian provinces decreased between 2000 and 2009

Canada's overall mean performance in reading was not significantly different between 2000 and 2009. However, the proportion on high achievers (Level 4 and above) decreased from 45% in 2000 to 40% in 2009. Additionally Canada's relative performance decreased. Among the countries that participated in both the 2000 and 2009 assessments, only one country outperformed Canada in reading in 2000 while three countries outperformed Canada in 2009.

Across the provinces, reading performance decreased significantly in five of the ten provinces – Prince Edward Island, Quebec, Manitoba, Saskatchewan and Alberta. Even though reading performance decreased in Quebec, Saskatchewan and Alberta, the average score in these provinces was still above the OECD average in PISA 2009. As a result of its decrease in performance, Manitoba went from performing above the OECD average in 2000 to performing at the OECD average in 2009, while Prince Edward Island went from performing above the OECD average in 2000 to performing below the OECD average in 2009.

The overall performance of Canadian students remained unchanged in mathematics and science but decreased in some provinces

Canada continues to perform well internationally in both mathematics and science, scoring well above the OECD average and being outperformed by seven countries in mathematics and six countries in science. The performance of students in all provinces, with the exception of Prince Edward Island, was at or above the OECD average in these two domains.

Canada's performance in mathematics and science remained stable over time. However, across the provinces, mathematics performance decreased in six provinces – Newfoundland and Labrador, Prince Edward Island, New Brunswick, Manitoba, Alberta and British Columbia and science performance decreased in two provinces – Prince Edward Island and Manitoba.

In most Canadian provinces, students in minority-language school systems had lower reading performance than students in majority-language school systems

PISA 2009 also examined the performance of students in English and French school systems for those Canadian provinces that sampled these population groups separately and where the sample was sufficiently large to allow for separate reporting. Reading performance was compared for students in the English-language school system and those in the French-language school system for Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Alberta, and British Columbia. In five provinces (Nova Scotia, New Brunswick, Ontario, Alberta and British Columbia) students in the English-language school systems outperformed students in the French-language school systems by 38 points or more on the combined reading scale, while in two provinces (Quebec and Manitoba) there were no significant differences between students' performance in the two systems.

Canadian students performed well in mathematics and science but compared with reading performance more countries outperformed Canada



Countries, economies and provinces performing significantly better than Canada

Countries, economies and provinces performing the same as Canada

Mathematics

Shanghai-China, Singapore, Hong Kong-China, Korea, Chinese Taipei, **Quebec**, Finland, Liechtenstein

Switzerland, Japan, **Alberta**, Netherlands, **Ontario**, Macao-China, **British Columbia**

Science

Shanghai-China, Finland, Hong Kong-China, **Alberta**, Singapore, Japan, Korea

British Columbia, New Zealand, **Ontario**, Estonia, Australia, **Quebec**, **Nova Scotia**, Netherlands

Females continue to outperform males in reading

As with previous PISA cycles, females continue to outperform males in reading across all participating countries including Canada and across the provinces. In PISA 2009, Canadian females outperformed Canadian males in reading by 34 points, which is similar to the average gap in OECD countries at 33 points.



Summary of gender differences, Canada and the provinces

	Females performed significantly higher than males	Males performed significantly higher than females	No significant differences between males and females
Reading	Canada all provinces		
Mathematics		Canada, Nova Scotia, New Brunswick, Quebec, Alberta, British Columbia	Newfoundland and Labrador, Prince Edward Island, Ontario, Manitoba, Saskatchewan
Science		Canada, New Brunswick, Quebec	Newfoundland and Labrador, Prince Edward Island, Nova Scotia, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia

Conversely, in mathematics and science, Canadian males outperformed Canadian females by 12 and 5 score points respectively. Across the provinces, males significantly outperformed females in mathematics in five provinces and males outperformed females in science in two provinces.

Looking forward

The performance of Canadian 15-year-olds in international comparison merits recognition, yet also raises some concerns. Overall, when compared to their peers in other participating countries, Canadian students continue to do well on the PISA assessment. However, although Canadian results remained statistically similar between 2000 and 2009, its relative ranking declined in all domains. This decline is attributable to improvements in other

countries' performance, the introduction of high performing countries new to PISA 2009 and a decrease in the proportion of high achievers in Canada between 2000 and 2009. This suggests that in order to maintain its' competitive edge in the future, Canada will need to improve at the rate of the top performing countries, rather than simply maintain its

competency level in reading, mathematics and science.

At the provincial level significant differences across the domains continue to exist and decrease in performance was observed in five provinces in reading, six provinces in mathematics and two provinces in science.

Further Canadian results are available in the report, **Measuring up: the performance of Canada's youth in reading, mathematics and science – PISA 2009 OECD PISA Study – PISA 2009 first results for Canadians aged 15**. This publication is available electronically without charge, through the internet at:

www.pisa.gc.ca

www.cmec.ca

www.statcan.gc.ca

www.hrsdc-rhdcc.gc.ca