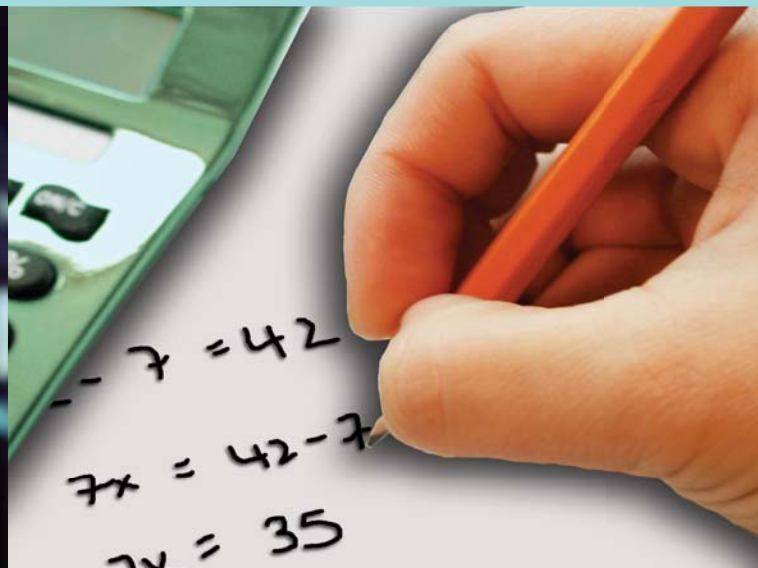


PCAP 2013

Science, Reading, and Mathematics

HIGHLIGHTS



cmeC

Council of
Ministers
of Education,
Canada

Conseil des
ministres
de l'Éducation
(Canada)

PCAP 2013 HIGHLIGHTS

What is PCAP?

PCAP is a survey of the knowledge and skills of Canadian students in three core learning areas — science, reading, and mathematics. It was developed and is administered by the Council of Ministers of Education, Canada (CMEC).

Why was PCAP developed?

CMEC developed PCAP to ensure the availability of statistically valid, comparable data on student achievement in Canada. PCAP data will be used by education researchers, policy-makers, and government officials to make improvements to provincial and territorial education systems.

Who writes PCAP?

In the spring of 2013, approximately 32,000 students in Grade 8 (Secondary II in Quebec) from over 1,500 schools across the country were tested. Science was the major focus of the assessment. Reading and mathematics were also assessed. Approximately 24,000 students were tested in English and 8,000 in French. Students from all provinces participated in PCAP.

What does PCAP assess?

The assessment is not tied to the curriculum of a particular province or territory but is instead a fair measurement of students' abilities to use their learning skills to solve real-life situations. It measures how well students are doing; it does not attempt to assess approaches to learning.

PCAP 2013 was the third cycle of PCAP to be completed, and it focused on science literacy, defined through three competencies (science inquiry, problem solving, and scientific reasoning); four sub-domains (nature of science, life science, physical science, and Earth science); and attitudes about science and its role in society.

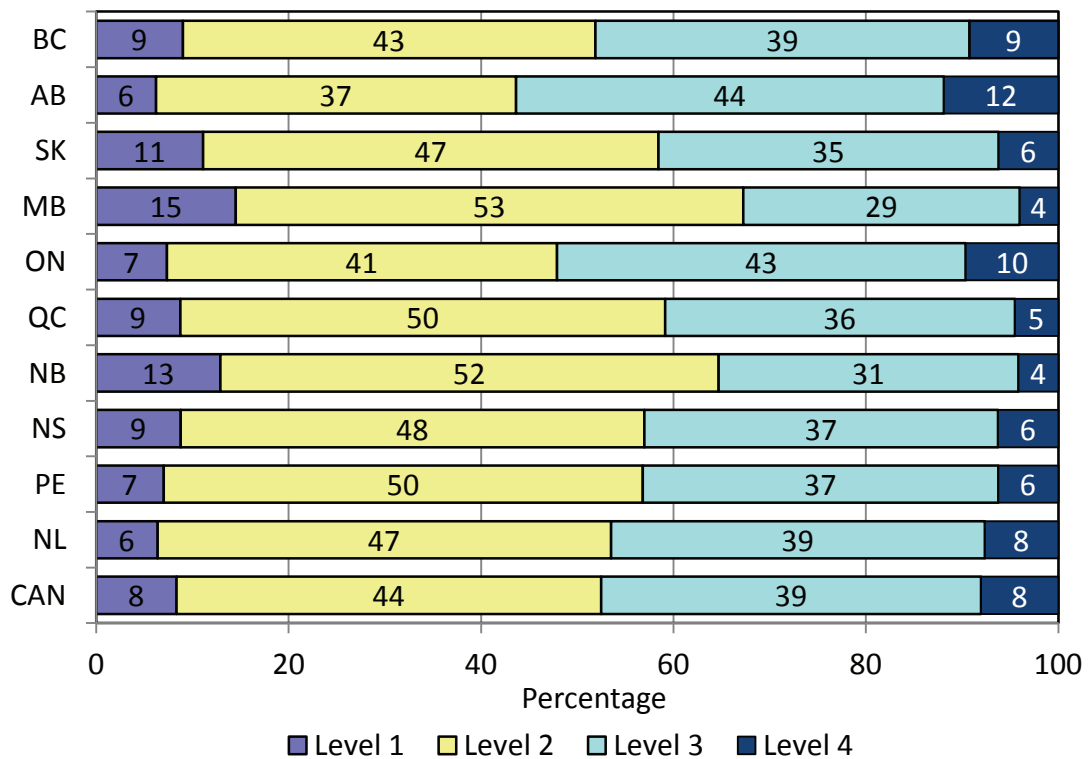
Provinces and territories also work to ensure that the unique qualities of our country's education systems are taken into account. Factors such as linguistic differences, rural and urban school locations, and cultural influences are all considered in both the assessment itself and in related context questionnaires. In addition, the common curricular framework for each subject incorporated an agreed-upon perspective for all jurisdictions that was based upon the latest pedagogical research.

Canadian students perform well in science

Overall in Canada, 91 per cent of students achieve the expected level of performance (level 2) in science. Almost 50 per cent of students achieve the higher levels of performance.

Across jurisdictions, between 86 and 94 per cent of students achieve the expected level (level 2). Between 33 and 56 per cent of students achieve above the minimum level of proficiency. More students reach the highest levels of performance (levels 3 and 4) in Alberta (56 per cent) and Ontario (53 per cent).

Results for level of performance in science¹



Level 2 is considered “baseline proficiency,” or the level at which students begin to demonstrate the competencies needed to participate in life situations related to science.

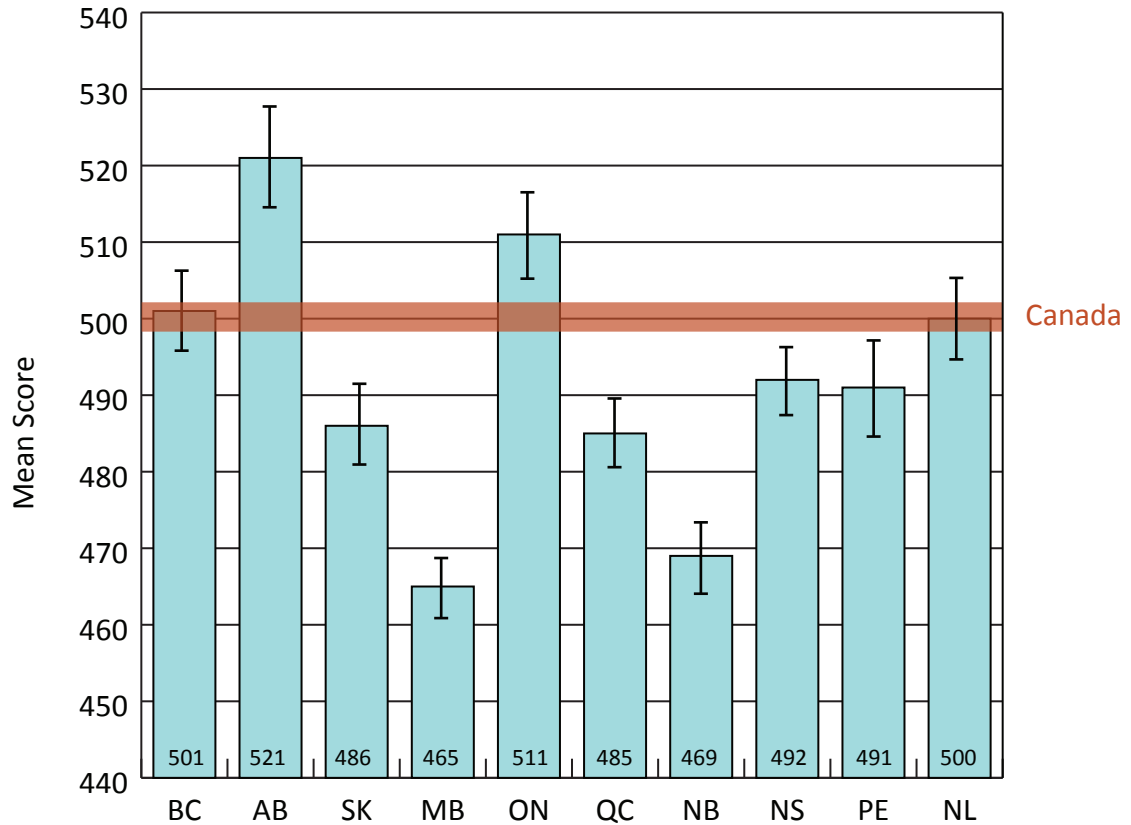
Description of level 2 (Science achievement scores between 379 and 515)

Students at performance level 2 can:

- recognize and apply their understanding of basic scientific knowledge in various contexts;
- interpret information from tables, graphs, and pictorial diagrams;
- draw conclusions;
- identify clearly described scientific issues in a range of contexts;
- select facts and knowledge to explain phenomena;
- apply simple models or inquiry strategies;
- interpret and use scientific concepts from different disciplines and can apply them directly;
- make decisions based on scientific knowledge;
- develop short communications using facts;
- communicate their understanding through brief descriptive responses.

¹ Totals may not sum to exactly 100 per cent because of rounding.

British Columbia, Alberta, Ontario, and Newfoundland and Labrador perform at or above the Canadian average in science



Highest average scores are achieved by Ontario students in reading and by Quebec, Alberta, and Ontario students in mathematics

	Better than Canada	As well as Canada	Lower than Canada
Reading	Ontario		British Columbia, Alberta, Quebec, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador
Mathematics	Quebec	Alberta, Ontario	British Columbia, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador

Students enrolled in English majority-language school systems achieve higher results in science than those enrolled in French minority-language school systems

Jurisdiction	English school systems	French school systems
British Columbia	501	495
Alberta	521*	488
Saskatchewan	486*	474
Manitoba	465*	452
Ontario	513*	464
Quebec	484	485
New Brunswick	467	475
Nova Scotia	493*	466
Canada	505*	483

*significant difference Red = minority language

For most provinces in which there is a significant difference in achievement between the English- and French-language systems in science and reading, students in majority-language systems outperform those in minority-language systems. In mathematics, students in the French-language system outperform those in the English-language systems in all jurisdictions in which there is a significant difference except in Ontario, where anglophone students achieve results that are higher than those of francophone students.

There is no gender gap in science and mathematics in Canada overall; however, consistent with other large-scale studies, girls perform better than boys in reading

In Canada overall, there is no gender difference in achievement in either science or mathematics at the Grade 8/Secondary II level, as shown in PCAP 2013. This is consistent with the PISA 2012 science results; however, the results are different in mathematics, where boys outperform girls at age 15. In reading, girls continue to outperform boys in Canada, which is consistent with results reported in international studies such as PIRLS 2011 for Grade 4 students and PISA 2012 for 15-year-olds.

	Boys perform significantly better than girls	Girls perform significantly better than boys	No significant difference between boys and girls
Science	Saskatchewan	Alberta	Canada and most jurisdictions
Reading		Canada and all jurisdictions	
Mathematics		Prince Edward Island	Canada and most jurisdictions

The third administration of PCAP allows for comparisons of achievement over time

Mathematics: Between 2010 and 2013, there has been an increase in mathematics achievement across Canada and in most jurisdictions.

In mathematics, there has been a significant improvement in achievement between 2010 and 2013, and this positive change is found in both English- and French-language schools. There has been a significant positive change in scores for girls in mathematics, while the achievement for boys has not significantly changed over time. This differs from the results reported in PISA 2012 in which there was a clear trend showing a decrease in average scores in most provinces for 15-year-olds; however, TIMSS 2011, which assesses the same grade level as PCAP (Grade 8/Secondary II), shows a less clear trend with increasing achievement for some topics and decreasing achievement for others.

Reading: Between 2007 and 2013, there is no difference in reading achievement across Canada; however, results did improve between 2010 and 2013.

In reading, although there was a negative change in achievement between 2007 and 2010, an improvement in reading scores in PCAP 2013 suggests that, overall, Grade 8/Secondary II students are achieving at the same level as they were in 2007. Reading achievement in English-language schools improved from 2007 to 2013. In French-language schools, there was a positive change in reading scores between 2010 and 2013; however, student achievement remains significantly lower than that attained in 2007. Canadian girls are achieving at the same level as in 2007, although this represents an increase compared to the 2010 reading results. The achievement of boys is slightly less than it was in 2007, but it is comparable to the results obtained by boys in 2010.

Coming soon...

Secondary analysis undertaken as part of the forthcoming report *PCAP 2013 Contextual Report on Student Achievement in Science* will explore how resources and school and classroom conditions, as well as student characteristics and family circumstances, may impact science achievement in Grade 8/Secondary II students.

Further results are available in
PCAP 2013: Report on the Pan-Canadian Assessment of Science, Reading, and Mathematics.

This publication is available on the CMEC Web site: <http://www.cmec.ca>