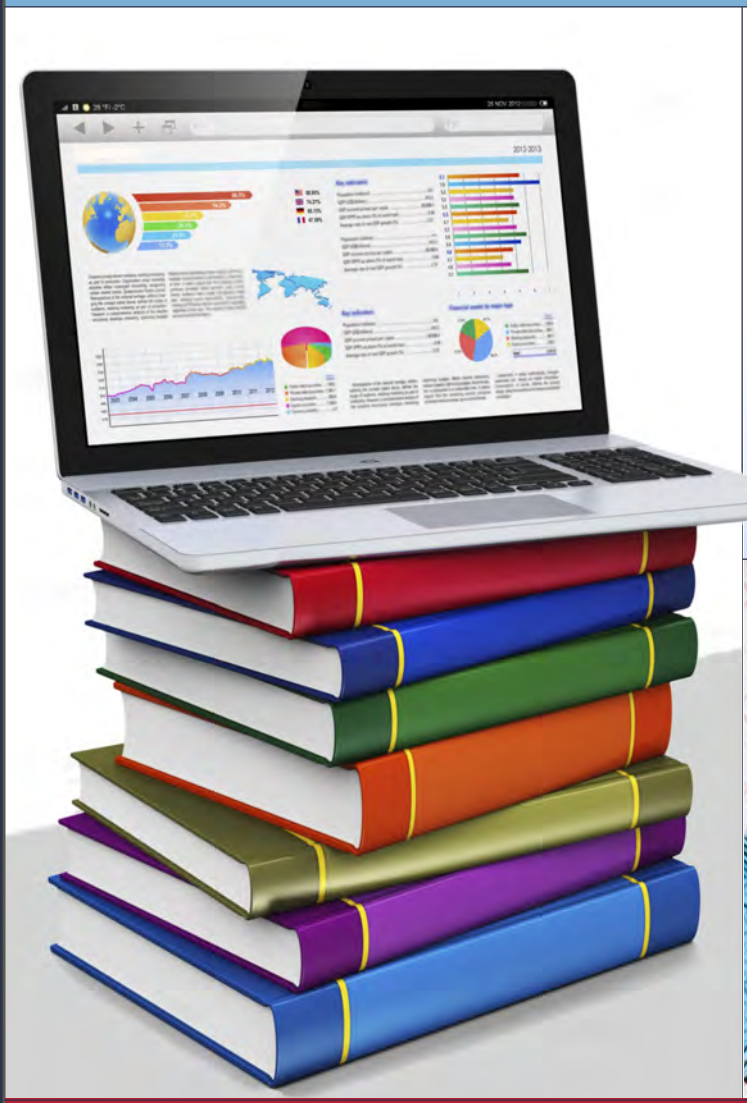
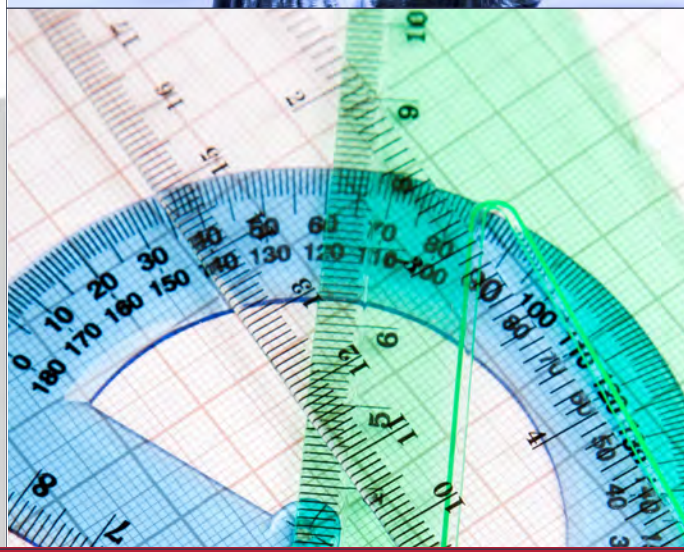
Pan-Canadian Assessment Program

# PCAP 2016

## Reading, Mathematics, and Science

# Highlights





cmec

# PCAP 2016 HIGHLIGHTS

## What is PCAP?

PCAP (the Pan-Canadian Assessment Program) is a survey of the knowledge and skills of Canadian students in three core learning areas—reading, mathematics, and science. 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 2016, approximately 27,000 students in Grade 8 (Secondary II in Quebec) from close to 1,500 schools across the country were tested. Reading was the major focus of the assessment. Mathematics and science were also assessed. Approximately 20,000 students responded in English and 7,000 in French. Students from all provinces participated in PCAP 2016; students from the territories did not participate in the assessment.

## 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 2016 was the fourth cycle of PCAP to be completed, and it focused on reading literacy, defined through four subdomains: *understanding texts*, *interpreting texts*, *responding personally to texts*, and *responding critically to texts*.

The provinces and territories work to ensure that the unique qualities of our country's education systems are taken into account in the assessment. 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, which guided the development of test items, incorporates an agreed-upon perspective for all jurisdictions that is based on the latest pedagogical research.

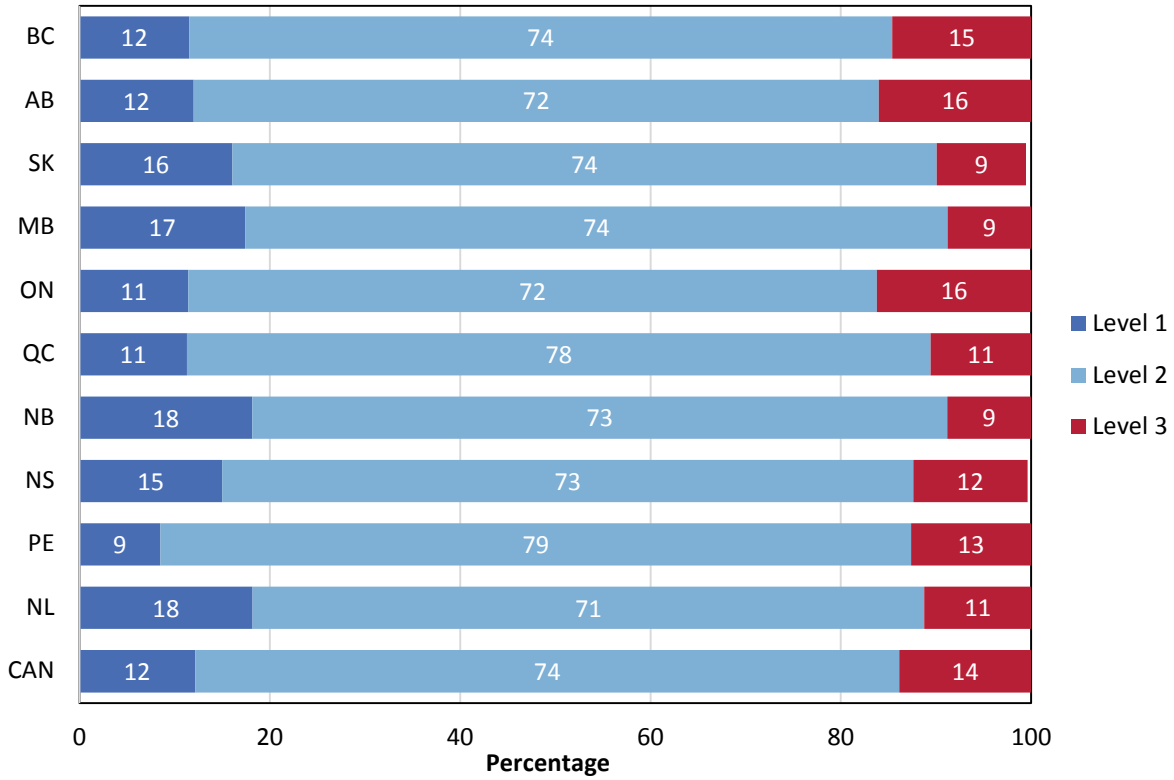
## *Canadian students perform well in reading*

The results of student performance on the PCAP 2016 Reading Assessment are presented in two ways: as the percentage of students attaining the three performance levels and as overall mean scores.

In reporting levels of performance in reading, PCAP provides an overall picture of students' accumulated understanding in this domain by the end of Grade 8/Secondary II. The assessment categorizes results according to three levels of performance. The expected level of performance of Grade 8/Secondary II students is Level 2, which is considered "baseline proficiency," or the level at which students demonstrate the reading skills and competencies needed to participate effectively in school and in everyday life.

In PCAP 2016, 88 per cent of Grade 8/Secondary II students in Canada performed at or above Level 2 in reading. Across provinces, the results range from 82 per cent in New Brunswick and Newfoundland and Labrador to 91 per cent in Prince Edward Island. Across Canada, 12 per cent of students did not reach the expected level in reading. Again, results varied among the provinces. The proportion of low achievers in reading in British Columbia, Alberta, Ontario, and Quebec was similar to that in Canada overall. Compared to all other provinces and Canada overall, Prince Edward Island had a lower percentage of students at Level 1.

At the higher end of the PCAP scale, 14 per cent of all Canadian students performed at Level 3. At the provincial level, the proportion of students achieving at the highest level was similar to the Canadian average in British Columbia, Alberta, Ontario, Nova Scotia, and Prince Edward Island.




*Note*: Percentages may not add up to 100 due to rounding.

## Description of level 2 reading achievement (scores between 400 and 602)

**Subdomain: *Understanding texts ("reading the lines")***

Students at this level demonstrate:

- a clear understanding of a variety of texts;
- an understanding of directly stated information as well as implied information that relies on context;
- knowledge of how texts are structured and organized.

**Subdomain: *Interpreting texts ("reading between the lines")***

Students at this level are able to:

- connect general statements and supporting details in order to provide a broad perspective on the meaning of the text;
- draw conclusions by understanding inferences and figurative language.

**Subdomain: *Responding personally to texts ("reading beyond the lines")***

Students at this level are able to:

- provide reasonable personal responses that are supported with references to the text and other sources;
- use their background knowledge to make personal connections between the text and their own experiences, providing reasonable explanations and supporting arguments;
- state a viewpoint, using evidence from the text or personal experiences to support their position.

**Subdomain: *Responding critically to texts ("reading beyond the lines")***

Students at this level are able to:

- provide reasonable critical responses that are supported with references to the text and other sources;
- provide a reasonable response supported by appropriate statements using evidence from the text;
- use details from the text and other sources to support their response.

## *British Columbia, Alberta, Ontario, Quebec, and Prince Edward Island perform at the Canadian average in reading*

| Province | Mean score | Confidence interval (±) | Difference (Province–Canada) |
|---|---|---|---|
| British Columbia | 509 | 4.9 | 2 |
| Alberta | 510 | 3.3 | 3 |
| Saskatchewan | 491 | 3.0 | -16* |
| Manitoba | 487 | 4.3 | -20* |
| Ontario | 512 | 4.3 | 5 |
| Quebec | 503 | 4.0 | -4 |
| New Brunswick | 489 | 3.5 | -18* |
| Nova Scotia | 498 | 3.7 | -9* |
| Prince Edward Island | 513 | 7.2 | 6 |
| Newfoundland and Labrador | 491 | 5.2 | -16* |
| **Canada** | **507** | **2.1** | |

* Significant difference compared to Canada

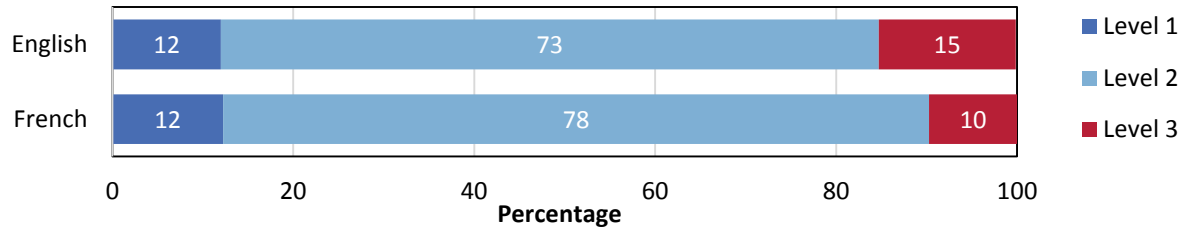
## *The highest scores in mathematics and science are achieved by students in Quebec and Alberta, respectively*

Although reading was the major domain in PCAP 2016, the assessment also measured performance in mathematics and science.

| | Higher than Canada | Similar to Canada | Lower than Canada |
|---|---|---|---|
| **Mathematics** | Quebec | Ontario, Prince Edward Island | British Columbia, Alberta, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, Newfoundland and Labrador |
| **Science** | Alberta | British Columbia, Ontario, Quebec, Prince Edward Island, Newfoundland and Labrador | Saskatchewan, Manitoba, New Brunswick, Nova Scotia |

## *In Canada, reading results show significant difference by the school system's language*

In Canada overall, the same proportion of students in French-language schools and English-language schools achieved Level 2 or above. English-language school systems had a greater proportion of students attain Level 3.



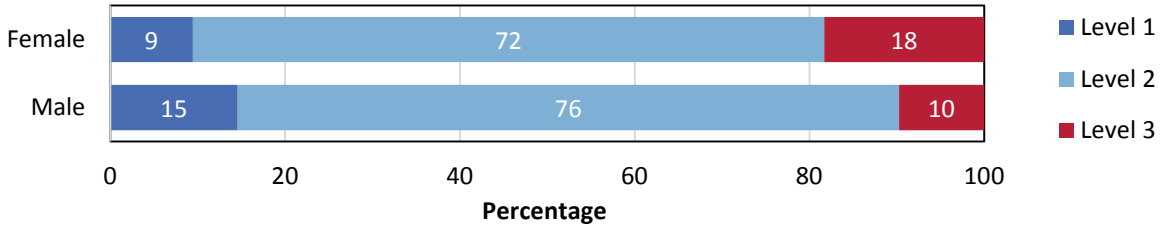

## *Across provinces, mathematics and science results were variable*

At the pan-Canadian level, higher achievement was found in reading in English-language schools and in mathematics in French-language schools; similar performance was found in science between the two language groups.

| | Anglophone schools performed significantly better than francophone schools | Francophone schools performed significantly better than anglophone schools | No significant difference between school systems |
|---|---|---|---|
| **Reading** | British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia | | |
| **Mathematics** | | British Columbia, Saskatchewan, Ontario, Quebec, New Brunswick, Nova Scotia | Alberta, Manitoba |
| **Science** | Alberta, Manitoba, Ontario, Nova Scotia | Saskatchewan, Quebec | British Columbia, New Brunswick |

## *Girls perform better than boys in reading and science; however, there is no gender gap in mathematics in Canada overall*

Girls performed significantly better than boys in PCAP 2016 on the overall reading assessment, as well as in each of the four subdomains. With respect to mean scores in overall reading, girls outperformed boys by 27 points in Canada as a whole. A higher percentage of girls than boys achieved at or above Level 2 in all provinces and in Canada as a whole, except in Quebec, where there was no gender gap. Boys were more likely to perform at Level 1—that is, below expected levels of reading proficiency—and were less likely than girls to achieve Level 3 for Canada as a whole. These findings are consistent with results reported in international studies such as PIRLS 2011 and 2016 for Grade 4 students and PISA 2015 for 15-year-olds.




In Canada overall, PCAP 2016 showed no gender difference in achievement in mathematics at the Grade 8/Secondary II level; however, the results are different in PISA 2015 mathematics, where boys outperformed girls at age 15. In science, girls outperformed boys in Canada overall and in four provinces; however, no gender gap was found in the other provinces or for 15-year-olds in PISA 2015.

| | Girls perform significantly better than boys | Boys perform significantly better than girls | No significant difference between girls and boys |
|---|---|---|---|
| **Reading** | All provinces | | |
| **Mathematics** | | Saskatchewan | British Columbia, Alberta, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador |
| **Science** | Alberta, Manitoba, New Brunswick, Nova Scotia | | British Columbia, Saskatchewan, Ontario, Quebec, Prince Edward Island, Newfoundland and Labrador |

## *The fourth administration of PCAP allows for comparisons of achievement over time*

### **Reading**: Between 2010 and 2016, reading achievement increased across Canada

At the pan-Canadian level, reading scores in PCAP 2016 improved, compared to the baseline year of 2010, although, overall, Grade 8/Secondary II students are achieving at the same level as they were in 2013. Reading achievement in French-language schools in Canada as a whole improved from 2010 to 2016. In English-language schools, results remained stable over this period. Girls in Canada as a whole achieved at a higher level than in 2010; there was no significant change in reading for boys during this period.

### **Mathematics**: Between 2010 and 2016, mathematics achievement increased in Canada and in most provinces

Mathematics results at the Canadian level increased by 11 points (511 ± 1.1) between 2016 and the baseline established in 2010. All provinces showed improvement, with the exception of Ontario, where results remained the same as those in the baseline year. In British Columbia, Quebec, and New Brunswick, higher scores than in 2010 were attained by students in both anglophone and francophone schools systems; in the majority of provinces, higher scores were attained by both girls and boys.

### **Science**: Between 2013 and 2016, science achievement improved in Canada and in many provinces

Compared with the baseline established in PCAP 2013 (500 ± 1.0), pan-Canadian science achievement has increased by 8 points (508 ± 1.0). Higher scores were attained by students in French-language schools while results in English-language schools remained stable. Positive changes were achieved by both girls and boys. Within provinces, science results either remained stable or improved between 2013 and 2016.

## *Coming soon…*

Secondary analysis undertaken as part of the forthcoming *PCAP 2016: Contextual Report on Student Achievement in Reading* will explore how resources and school and classroom conditions, as well as student characteristics and family circumstances, may impact reading achievement among Grade 8/ Secondary II students.

Further results are available in
*PCAP 2016: Report on the Pan-Canadian Assessment of Reading, Mathematics, and Science*.

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