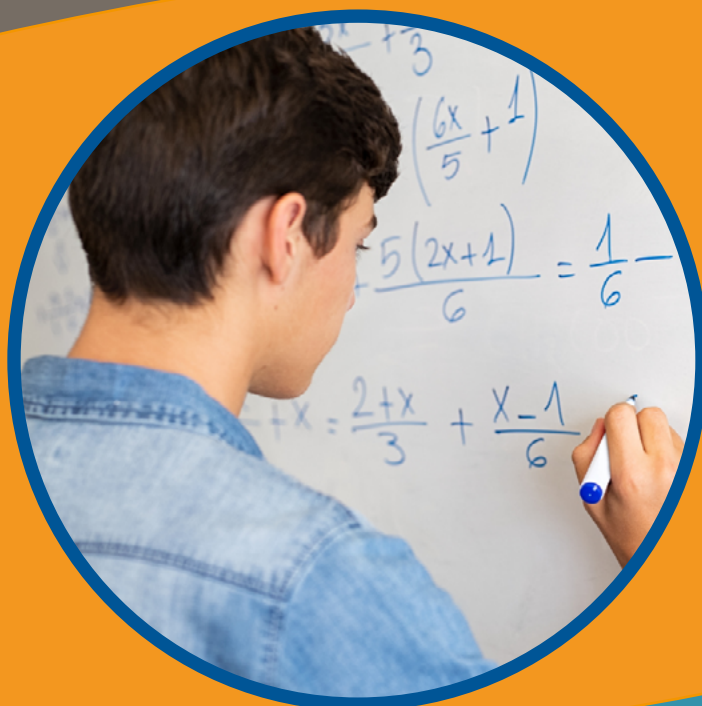


# Programme for International Student Assessment (PISA) 2022

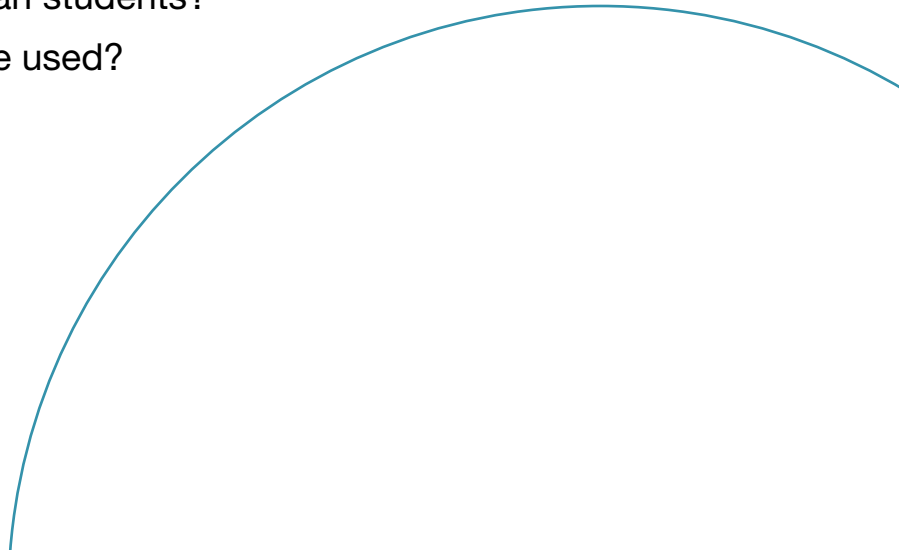
# FAQ



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# PISA 2022 FAQ

- What is PISA?
  - What is PISA 2022?
  - Why does Canada participate in PISA?
  - Who are the Canadian partners involved in PISA?
  - How much does PISA cost?
  - How many students in Canada took part in PISA 2022?
  - Why is Canada's sample size so much larger than that of many other countries?
  - What is the difference between the OECD report and the Canadian report?
  - What is the PISA assessment cycle?
  - How can student performance across countries, economies, and Canadian provinces be compared?
  - How can we compare average scores?
  - What is a non-response bias analysis and why was it required for Canada in PISA 2022?
  - How was mathematical literacy defined in PISA 2022?
  - What were the levels of mathematics achievement in PISA 2022?
  - How were reading literacy and science literacy defined in PISA 2022?
  - Is the assessment fair to Canadian students?
  - How will the results from PISA be used?
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## What is PISA?

Launched in 1997 by the Organisation for Economic Co-operation and Development (OECD) and first administered in 2000, the Programme for International Student Assessment (PISA) conducts a survey to assess the knowledge and skills of 15-year-olds near the end of their compulsory schooling. PISA draws on leading international expertise to develop valid comparisons across countries and cultures and provides education researchers, policymakers, and the public with comprehensive international data in three core learning areas: mathematics, reading, and science.



## What is PISA 2022?

PISA 2022 is the eighth iteration of the OECD assessment. In 2022, mathematics was the focus, but the assessment also included reading, science, creative thinking, and financial literacy testing. PISA 2022 evaluated approximately 690,000 students from 81 countries and economies. The assessment, which was computer-based, also collected contextual information through questionnaires administered to students and school principals to explore student, family, and school factors that can help explain differences in performance. Students in several provinces also answered questions about their attitudes towards trades.

# Why does Canada participate in PISA?

Canada's participation in PISA ensures that the performance of Canadian students in the core learning areas of mathematics, reading, and science can be measured against that of students in other countries and economies around the world.

The data collected by PISA not only provides a comparable measure of success but can also be further analyzed by policymakers and researchers to help identify the characteristics of high-performing education systems.



## Who are the Canadian partners involved in PISA?

Employment and Social Development Canada (ESDC) and the 10 provincial ministries and departments of education, through the Council of Ministers of Education, Canada (CMEC), are partners in administering PISA. The Canadian report was developed by CMEC and ESDC.

## How much does PISA cost?

At the international level, PISA is funded by contributions to OECD from participating countries. In Canada, the direct costs for PISA are covered by ESDC which provides funding to CMEC. For the three years of the latest cycle of PISA, the direct cost was approximately \$2.4 million per year.



## How many students in Canada took part in PISA 2022?

In Canada, approximately 23,000 students from about 800 different schools in the 10 provinces took part in PISA 2022. The assessment was administered in English or in French according to the province's school system. The total number of students who participated in each province is outlined in the appendix to the Canadian PISA 2022 report. Currently, Yukon, Northwest Territories, and Nunavut do not participate in PISA, nor do Indigenous students from band-operated schools.





## Why is Canada's sample size so much larger than that of many other countries?

The smaller sample sizes used in many countries provide results that are valid at the national level only. In Canada, education policy is developed and implemented at the provincial and territorial level, so a larger sample is required to obtain statistically reliable results in each jurisdiction. In addition, Canada oversampled official language minorities in eight provinces to learn more about the skills of that population.



## What is the difference between the OECD report and the Canadian report?

The OECD PISA 2022 report focuses on the results for each country and economic region that has chosen to participate in the assessment. It also offers detailed quantitative and qualitative information on personal and school factors that influence a student's performance.

Canada releases its own companion report at the same time as the OECD report to provide further information on

student performance at the provincial level and to show comparative results across and between Canadian provinces, as well as other countries and economies. The Canadian report also provides performance results for English- and French-language systems by gender, and also includes other contextual analyses such as socio-demographic characteristics and students' beliefs and values.

# What is the PISA assessment cycle?

PISA operates on a cycle that allows for comparison of results over time in all three core learning areas – reading, mathematics, and science. These data help participating countries and economies – and Canadian provinces – understand how the performance of their

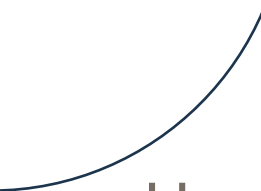
education systems may have changed over time. Since 2000, each PISA assessment has had a major domain and two minor domains. The major domain (shown in orange in the table below) has changed every three years.

<b>2000</b>	<b>Reading</b>	Math	Science
<b>2003</b>	Reading	<b>Math</b>	Science
<b>2006</b>	Reading	Math	<b>Science</b>
<b>2009</b>	<b>Reading</b>	Math	Science
<b>2012</b>	Reading	<b>Math</b>	Science
<b>2015</b>	Reading	Math	<b>Science</b>
<b>2018</b>	<b>Reading</b>	Math	Science
<b>2022</b>	Reading	<b>Math</b>	Science
<b>2025</b>	Reading	Math	<b>Science</b>



As the table shows, in 2022, mathematics was the major domain for a third time, with reading and science as minor domains. Creative thinking was the innovative domain. Many Canadian provinces also participated in financial literacy, an optional domain in PISA.

PISA 2025 will be the ninth round of testing, and science will be its major domain. Learning in the digital world will be the innovative domain in the next cycle.



## How can student performance across countries, economies, and Canadian provinces be compared?

Education systems and school programs differ from one jurisdiction to another, so comparing results can be a complex task. PISA allows a variety of education systems to be compared according to a set of common benchmarks in reading, mathematics, and science. These benchmarks have been established through extensive consultations with participating OECD countries and with the guidance of statisticians, psychometricians, and other pedagogical experts from around the world. They

reflect in general terms what 15-year-old students are expected to know and be able to do in the three core learning areas to meet real-life challenges.

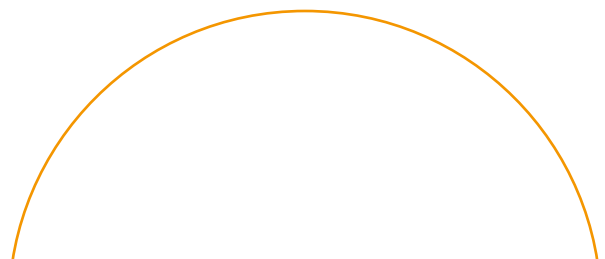
By agreeing to the common benchmarks developed by PISA to evaluate student achievement, Canadian provinces — as well as OECD countries and economies — are able to determine their performance in relation to other PISA participants, even if their approaches to education differ.

## How can we compare average scores?

Because scores are based on samples of students from each country and province, we cannot say with certainty that these scores are the same as those that would have been obtained had all 15-year-olds been tested. A “confidence interval” is a range of scores within which the score for the population is likely to fall 95 percent of the time, or 19 times out of 20.

When comparing two countries or two provinces, the two average scores cannot

be said to differ if the confidence interval for the two average scores overlaps. For example, countries performing at about the same level as Canada have a confidence interval for the average score that overlaps with Canada’s confidence interval. An additional statistical test is also conducted to determine whether there is a significant difference between the two populations.





# What is a non-response bias analysis and why was it required for Canada in PISA 2022?

Canada did not meet the required technical standards in PISA 2022, namely reaching the minimal school and student response rates. Because of lower-than-expected response rates, Canada and some of the other PISA participating countries were required to conduct a non-response bias analyses (NRBA). The purpose of the NRBA was to determine whether the data were of acceptable quality for inclusion in the PISA data set, as well as to determine whether the results from participating (i.e., respondent) schools and students differ in comparison to the non-respondent schools and

students. Both respondent and non-respondent schools and students were those selected for participation in PISA 2022.

Findings from the province-specific NRBA showed that even though there was no evidence of bias among the participating schools, the results of the following provinces require careful interpretation due to potential non-response bias among students: Newfoundland and Labrador, Nova Scotia, Quebec, Ontario, Manitoba, Alberta, and British Columbia.

## How was mathematical literacy defined in PISA 2022?

OECD defined mathematical literacy as: “...an individual’s capacity to reason mathematically and to formulate, employ, and interpret mathematics to solve problems in a variety of real-world contexts. It includes concepts, procedures, facts, and tools to describe, explain, and predict phenomena. It helps individuals know the role that mathematics plays in the world and make the well-founded judgments and decisions needed by constructive, engaged and reflective 21<sup>st</sup> century citizens (OECD, 2018, p. 7)<sup>1</sup>.” Mathematical literacy prepares students to address real-world critical issues facing 21<sup>st</sup> century society

through problem solving, mathematical reasoning, and computational thinking.

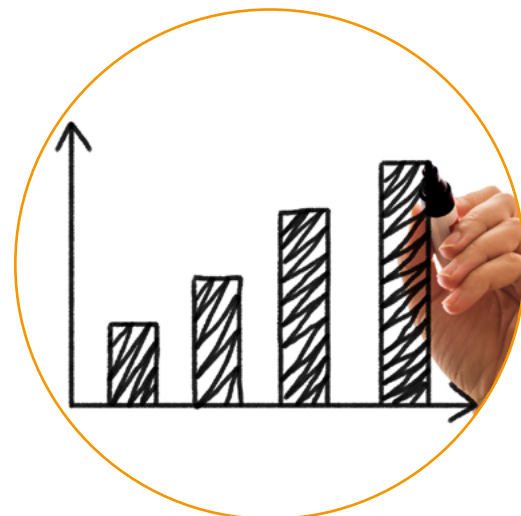
PISA’s mathematical literacy focused not only on overall skills in mathematics but also on specific mathematical processes (i.e., mathematical reasoning; formulating situations mathematically; employing mathematical concepts, facts, procedures; and interpreting, applying, and evaluating mathematical outcomes) and mathematical content knowledge subscales (i.e., space and shape; change and relationships; quantity; and uncertainty and data).

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<sup>1</sup> Organisation for Economic Co-operation and Development (2018). PISA 2022 Mathematics Framework (draft). OECD Publishing. <https://pisa2022-maths.oecd.org/files/PISA%202022%20Mathematics%20Framework%20Draft.pdf>

# What were the levels of mathematics achievement in PISA 2022?

PISA mathematical literacy is expressed on an eight-level proficiency scale whereby tasks at the lower end of the scale (Levels 1a–1c) are deemed easier and less complex than tasks at the higher end (Level 6) and this progression in task difficulty/complexity applies to both the overall mathematics scale and the mathematics subscales. OECD considers Level 2 to be the baseline level of proficiency that is required to participate fully in society. A difference of one level is considered an important difference in student performance.



# How were reading literacy and science literacy defined in PISA 2022?

In PISA 2022, reading literacy was defined as an individual's capacity to understand, use, evaluate, reflect on and engage with texts to achieve one's goals, to develop one's knowledge and potential, and to participate in society (OECD, 2023, p. 40)<sup>2</sup>.

Scientific literacy was defined as an individual's ability to engage with science-related issues, and with the ideas of science, as a reflective citizen. A scientifically literate person is willing

to engage in reasoned discourse about science and technology, which requires the competencies to explain phenomena scientifically, evaluate and design scientific enquiry, and interpret data and evidence scientifically (OECD, 2023, p. 40)<sup>3</sup>.

<sup>2</sup> Organisation for Economic Co-operation and Development. (2023). PISA 2022 results (Volume 1). OECD Publishing. [https://www.oecd-ilibrary.org/education/pisa-2022-results-volume-i\\_53f23881-en](https://www.oecd-ilibrary.org/education/pisa-2022-results-volume-i_53f23881-en)

<sup>3</sup> Ibid.

## Is the assessment fair to Canadian students?

Canada has actively participated in PISA to ensure that the uniqueness of our country's education systems is taken into account. Factors such as linguistic differences, rural and urban school locations, and cultural influences were all considered when developing the assessment. In addition, the universal framework for each subject incorporates an agreed upon philosophy for all countries that is based upon the latest pedagogical research.

In the sense that Canadian students answer the same questions as students from every other country, it is very fair.

The assessment is also unique in that it is not tied to the curriculum of any province or participating country or economy, but is instead a fair measurement of students' abilities to use their learning skills to solve real-life situations.

## How will the results from PISA be used?

The assessment results will be used by provincial education ministries/departments and researchers to evaluate the quality of our education systems and inform policy development.

OECD plans to produce further thematic reports based on the PISA 2022 performance data and the results of the student and school questionnaires. CMEC and its federal partner (ESDC) will also conduct analyses of PISA data, and provinces will undertake analyses pertinent to their unique educational circumstances.



