What is PISA?

OECD's Programme for International Student Assessment (PISA)

What should citizens know and be able to do? In response to that question and to the need for internationally comparable evidence on student performance, the Organisation for Economic Co-operation and Development (OECD) launched the Programme for International Student Assessment (PISA) in 1997 and the first assessment was conducted in 2000.

PISA is a triennial survey of 15-year-old students around the world that assesses the extent to which they have acquired key knowledge and skills essential for full participation in social and economic life. PISA assessments do not just ascertain whether students near the end of their compulsory education can reproduce what they have learned; they also examine how well students can extrapolate from what they have learned and apply their knowledge in unfamiliar settings, both in and outside of school.

While the eighth assessment was originally planned for 2021, the PISA Governing Board postponed the assessment to 2022 because of the many difficulties education systems faced due to the COVID-19 pandemic.

What is unique about PISA?

PISA is unique because of its:

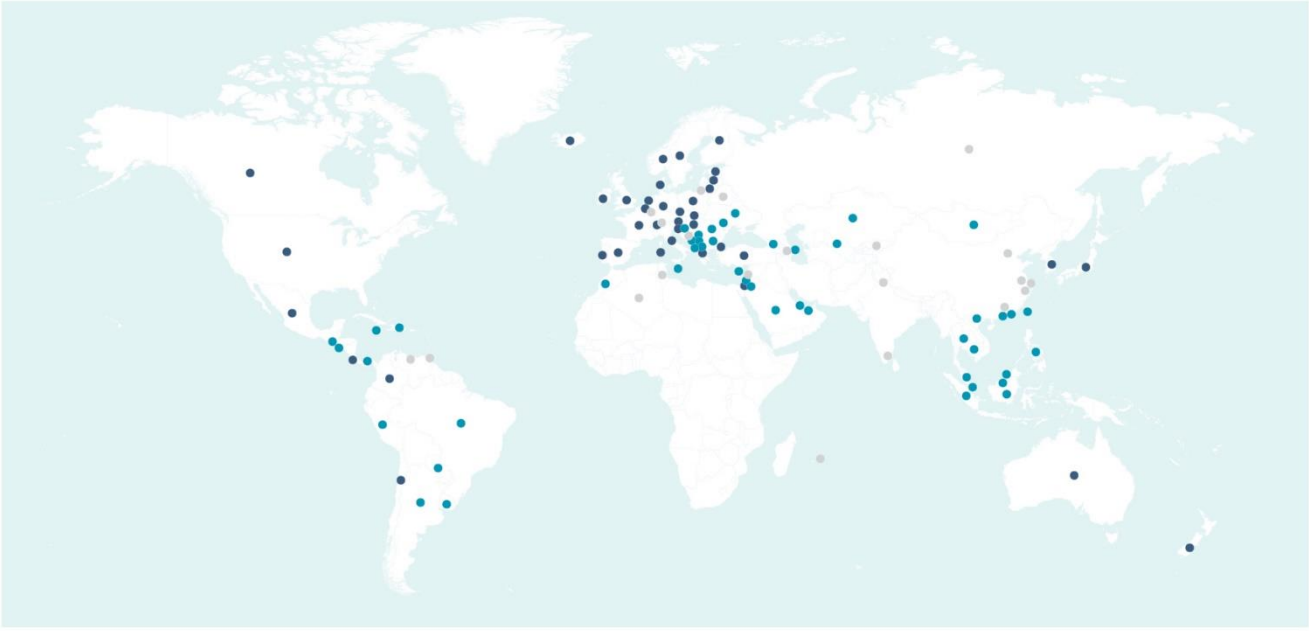
- **policy orientation**, which links data on student learning outcomes with data on students' backgrounds and attitudes towards learning, and with key aspects that shape their learning, in and outside of school; by doing so, PISA can highlight differences in performance and identify the characteristics of students, schools and education systems that perform well
- **innovative concept of student competency**, which refers to students' capacity to apply their knowledge and skills in key areas, and to analyse, reason and communicate effectively as they identify, interpret and solve problems in a variety of situations
- **relevance to lifelong learning**, as PISA asks students to report on their motivation to learn, their beliefs about themselves, and their learning strategies
- **regularity**, which enables countries to monitor their progress in meeting key learning objectives
- **breadth of coverage**, which, in PISA 2022, encompassed 37 OECD countries and 44 partner countries and economies.

Which countries and economies participate in PISA?

PISA is used as an assessment tool in many regions around the world. It was implemented in 43 countries and economies in the first assessment (32 in 2000 and 11 in 2002), 41 in the second assessment (2003), 57 in the third assessment (2006), 75 in the fourth assessment (65 in 2009 and 10 in 2010), 65 in the fifth assessment (2012), 72

in the sixth assessment (2015) and 79 in the seventh assessment (2018). In 2022, 81 countries and economies participated in PISA.

Figure 1. Map of PISA countries and economies



OECD member countries in PISA 2022

Australia
Austria
Belgium
Canada
Chile
Colombia
Costa Rica
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Japan
Korea
Latvia
Lithuania
Mexico
Netherlands
New Zealand
Norway
Poland
Portugal
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
Türkiye
United Kingdom
United States

Partner countries and economies in PISA 2022

Albania
Argentina
Baku (Azerbaijan)
Brazil
Brunei Darussalam
Bulgaria
Cambodia
Croatia
Cyprus
Dominican Republic
El Salvador
Georgia
Guatemala
Hong Kong (China)
Indonesia
Jamaica
Jordan
Kazakhstan
Kosovo
Macao (China)
Malaysia
Malta
Republic of Moldova
Mongolia
Montenegro
Morocco
North Macedonia
Palestinian Authority
Panama
Paraguay
Peru
Philippines
Qatar
Romania
Saudi Arabia
Serbia
Singapore
Chinese Taipei
Thailand
Ukraine
United Arab Emirates
Uruguay
Uzbekistan
Viet Nam

Countries and economies in previous cycles

Algeria
Azerbaijan
Beijing (China)
Belarus
Bosnia and Herzegovina
Guangdong (China)
Himachal Pradesh (India)
Jiangsu (China)
Kyrgyzstan
Lebanon
Liechtenstein
Luxembourg
Mauritius
Miranda (Venezuela)
Russian Federation
Shanghai (China)
Tamil Nadu (India)
Trinidad and Tobago
Tunisia
Zhejiang (China)

First-time participants include Cambodia, El Salvador, Guatemala, Jamaica, Mongolia, the Palestinian Authority, Paraguay and Uzbekistan, while Cambodia, Guatemala and Paraguay participated in the PISA for Development programme. Chinese provinces/municipalities (Beijing, Shanghai, Jiangsu and Zhejiang) and Lebanon are

participants in PISA 2022 but were unable to collect data because schools were closed during the intended data collection period.

Key features of PISA 2022

The content

The PISA 2022 survey focused on mathematics, with reading, science and creative thinking as minor areas of assessment. In each round of PISA, one subject is tested in detail, taking up nearly half of the total testing time. The main subject in 2022 was mathematics, as it was in 2012 and 2003. Reading was the main subject in 2000, 2009 and 2018, science was the main subject in 2006 and 2015.

With this alternating schedule, a thorough analysis of achievement in each of the three core subjects is presented every nine (or 10) years; and an analysis of trends is offered every three (or four) years. As this cycle was postponed from 2021 to 2022 due to the COVID-19 pandemic, this cycle offers results one year later than previous cycles.

Creative thinking was assessed as an innovative domain for the first time in PISA 2022.

The *PISA 2022 Assessment and Analytical Framework* (OECD, 2023[1]) presents definitions and more detailed descriptions of the subjects assessed in PISA 2022:

- Mathematics is defined as students' 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 make well-founded judgements and decisions, and become constructive, engaged and reflective 21st-century citizens.
- Reading is defined as students' capacity to understand, use, evaluate, reflect on and engage with texts in order to achieve one's goals, develop one's knowledge and potential, and participate in society.
- Science literacy is defined as students' 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.
- Creative thinking is defined as students' ability to engage productively in the generation, evaluation and improvement of ideas that can result in original and effective solutions, advances in knowledge and impactful expressions of imagination.

PISA 2022 also included an assessment of young people's financial literacy, which was optional for countries and economies.

The students

Some 690 000 students took the assessment in 2022, representing about 29 million 15-year-olds in the schools of the 81 countries and economies.

PISA students are aged between 15 years 3 months and 16 years 2 months at the time of the assessment, and they have completed at least 6 years of formal schooling. Using this age across countries and over time allows PISA to consistently compare the knowledge and skills of individuals born in the same year who are still in school at age 15, despite the diversity of their education histories in and outside of school. They can be enrolled in any type of institution, participate in full-time or part-time education, in academic or vocational programmes, and attend public or private schools or foreign schools within the country.

The population of PISA-participating students is defined by the PISA Technical Standards as are the students who are excluded from participating (see Annex A2). The overall exclusion rate within a country is required to be below 5% to ensure that, under reasonable assumptions, any distortions in national mean scores would remain within plus

or minus five score points, i.e. typically within the order of magnitude of two standard errors of sampling. Exclusion could take place either through the schools that participated or the students who participated within schools. There are several reasons why a school or a student could be excluded from PISA. Schools might be excluded because they are situated in remote regions and are inaccessible, because they are very small, or because of organisational or operational factors that precluded participation. Students might be excluded because of intellectual disability or limited proficiency in the language of the assessment.

The assessment

As was done in 2015 and 2018, computer-based tests were used in most countries and economies in PISA 2022, with assessments lasting a total of two hours for each student. In mathematics and reading, a multi-stage adaptive approach was applied in computer-based tests whereby students were assigned a block of test items based on their performance in preceding blocks.

Test items were a mixture of multiple-choice questions and questions requiring students to construct their own responses. The items were organised in groups based on a passage setting out a real-life situation. More than 15 hours of test items for reading, mathematics, science and creative thinking were covered, with different students taking different combinations of test items.

There were six different kinds of test forms representing various combinations of two of the four domains (i.e. the three core domains, plus the innovative domain). Typically, within each country/economy, 94% of students received test forms covering 60 minutes of mathematics as the major domain, and another 60 minutes of one of the three minor or innovative domains (reading, science or creative thinking). In addition, 6% of students received test forms composed of two minor domains. Each test form was completed by enough students to allow for estimations of proficiency and psychometric analyses of all items by students in each country/economy and in relevant subgroups within a country/economy, such as boys and girls, or students from different social and economic backgrounds.

In addition, PISA 2022 retained a paper-based version of the assessment that included only trend items that had been used in prior paper-based assessments. This paper-based assessment was implemented in four countries: Cambodia, Guatemala, Paraguay and Viet Nam.

The assessment of financial literacy was offered again in PISA 2022 as an optional computer-based test. It was based on a revised framework based on the PISA 2022 updated framework. The cognitive instruments included trend items and a set of new interactive items that were developed specifically for PISA 2022.

The questionnaires

Students answered a background questionnaire, which took about 35 minutes to complete. The questionnaire sought information about the students' attitudes, dispositions and beliefs, their homes, and their school and learning experiences. School principals completed a questionnaire that covered school management and organisation, and the learning environment. Both students and schools responded to items in the Global Crises Module in their respective questionnaires. These items aimed to elicit their perspectives on how learning was organised when schools were closed because of the COVID-19 pandemic.

Some countries/economies also distributed additional questionnaires to elicit more information. These included: a questionnaire for teachers asking about themselves and their teaching practices; and a questionnaire for parents asking them to provide information about their perceptions of and involvement in their child's school and learning.

Countries/economies could also choose to distribute two other optional questionnaires for students: a questionnaire about students' familiarity with computers and a questionnaire about students' well-being. A financial literacy questionnaire was also distributed to the students in the countries/economies that conducted the optional financial literacy assessment.

Where can you find the results?

The initial PISA 2022 results are released in five volumes:

- **Volume I: The State of Learning and Equity in Education** (OECD, 2023[2]) presents two of the main education outcomes: performance and equity. The volume examines countries' and economies' performance in mathematics, reading and science and how performance has changed over time. In addition, equity in education is analysed from the perspectives of inclusion and fairness, focusing on students' gender, socio-economic status and immigrant background.
- **Volume II: Learning During – and From – Disruption** (OECD, 2023[3]) examines various student-, school-, and system-level characteristics, and analyses how these are related to student outcomes, such as performance, equity and student well-being. The volume also presents data on how learning was organised when schools were closed because of COVID-19. These results can assist countries in building resilience in their education systems, schools and students so they are all better able to withstand disruptions in teaching and learning.
- **Volume III** (OECD, forthcoming[4]) is on creative thinking. This volume examines students' capacity to generate original and diverse ideas in the 66 countries and economies that participated in the innovative domain assessment for the PISA 2022 cycle. It explores how student performance and attitudes associated with creative thinking vary across and within countries, and with different student- and school-level characteristics. The chapter also offers an insight into students' participation in creative activities, how opportunities to engage in creative thinking vary across schools and socio-demographic factors, and how these are associated with different student outcomes including well-being.
- **Volume IV** (OECD, forthcoming[5]) is on financial literacy. This volume examines 15-year-old students' understanding about money matters in the 23 countries and economies that participated in this optional assessment. The volume explores how the financial literacy of 15-year-old students is associated with their competencies in other subjects and how it varies across socio-demographic factors. It also offers an overview of students' experiences with money, of their financial behavior and attitudes, and of exposure to financial literacy in school.
- **Volume V** (OECD, forthcoming[6]) on students' readiness for lifelong learning. This volume presents key aspects of students' preparedness to continue learning throughout their lives. These include students' attitudes towards mathematics, their social and emotional skills, and their aspirations for future education and a career.

References

OECD (2023), *PISA 2022 Assessment and Analytical Framework*, PISA, OECD Publishing, Paris, https://doi.org/10.1787/dfe0bf9c-en. [1]

OECD (2023), *PISA 2022 Results (Volume I): The State of Learning and Equity in Education*. [2]

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OECD (forthcoming), *PISA 2022 Results (Volume III)*. [4]

OECD (forthcoming), *PISA 2022 Results (Volume IV)*. [5]

OECD (forthcoming), *PISA 2022 Results (Volume V)*. [6]