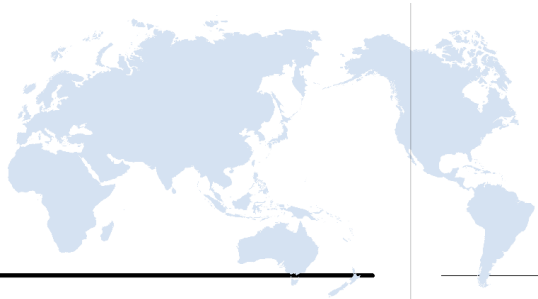
COUNTRY NOTE



OECD

PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT (PISA) RESULTS FROM PISA 2018

The Programme for International Student Assessment (PISA) is a triennial survey of 15-year-old students that assesses the extent to which they have acquired the key knowledge and skills essential for full participation in society. The assessment focuses on proficiency in reading, mathematics, science and an innovative domain (in 2018, the innovative domain was global competence), and on students' well-being.

Australia

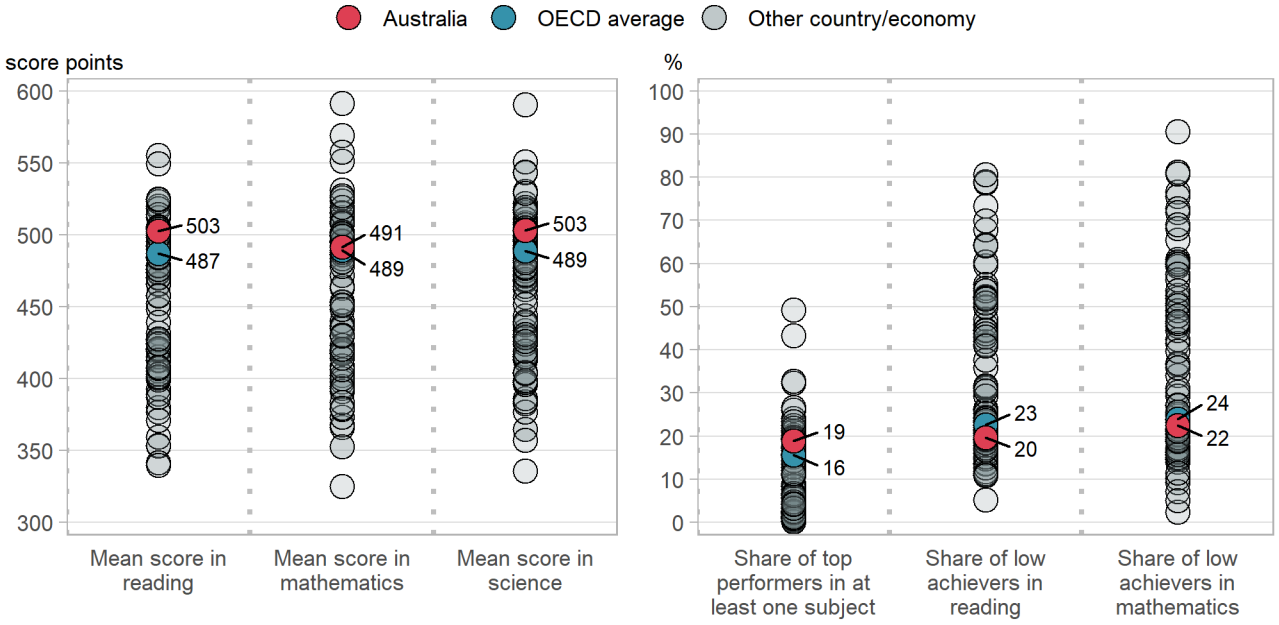
Key findings

- Students in Australia scored higher than the OECD average in reading (503 points) and science (503), but not significantly different from the OECD average in mathematics (491). Overall, their scores were most similar to those of students in Germany, New Zealand, Sweden, the United Kingdom and the United States.
- While Australia's reading performance in PISA 2018 was similar to that observed in 2015, when considering a longer period, mean performance in reading has been steadily declining, from initially high levels, since the country first participated in PISA in 2000. Performance in mathematics has been declining too since 2003, and in science, since 2012. In reading, more rapid declines were observed amongst the country's lowest-achieving students. In mathematics and science, performance declined to a similar extent at the top and the bottom of the performance distribution, as well as on average.
- Some 24% of advantaged students in Australia, but only 6% of disadvantaged students, were top performers in reading in PISA 2018. Yet, students' performance in reading, mathematics and science was less strongly associated with socio-economic status in Australia than on average across OECD countries.
- In Australia, more than 90% of high-achieving advantaged students – but about 75% high-achieving disadvantaged students – expect to complete tertiary education.
- Amongst high-performing students in mathematics or science, one in three boys in Australia expects to work as an engineer or science professional at the age of 30, while only about one in five girls expects to do so. Only 4% of boys, and almost no girls, in Australia expect to work in ICT-related professions.
- Some 29% of immigrant students scored in the top quarter of reading performance in Australia, compared to 17% on average across OECD countries.
- Compared to the average student across OECD countries, Australian students reported being bullied more frequently, felt more afraid of failing, and were more likely to have skipped school and feel lonely at school.
- In Australia, student competition was more prevalent than on average across OECD countries.

- Some 68% of students in Australia hold a growth mindset (they disagreed or strongly disagreed with the statement "Your intelligence is something about you that you can't change very much"), compared to 63% on average across OECD countries.

What 15-year-old students in Australia know and can do

Figure 1. Snapshot of performance in reading, mathematics and science



Note: Only countries and economies with available data are shown.
Source: OECD, PISA 2018 Database, Tables I.1 and I.10.1.

- Students in Australia scored higher than the OECD average in reading, not significantly different from the OECD average in mathematics, and higher than the OECD average in science.
- Compared to the OECD average, a larger proportion of students in Australia performed at the highest levels of proficiency (Level 5 or 6) in at least one subject; at the same time a larger proportion of students achieved a minimum level of proficiency (Level 2 or higher) in at least one subject.

What students know and can do in reading

- In Australia, 80% of students attained at least Level 2 proficiency in reading (OECD average: 77%). At a minimum, these students can identify the main idea in a text of moderate length, find information based on explicit, though sometimes complex criteria, and can reflect on the purpose and form of texts when explicitly directed to do so.
- Some 13% of students in Australia were top performers in reading, meaning that they attained Level 5 or 6 in the PISA reading test (OECD average: 9%). At these levels, students can comprehend lengthy texts, deal with concepts that are abstract or counterintuitive, and establish distinctions between fact and opinion, based on implicit cues pertaining to the content or source of the information. In 20 education systems, including those of 15 OECD countries, more than 10% of 15-year-old students were top performers.

What students know and can do in mathematics

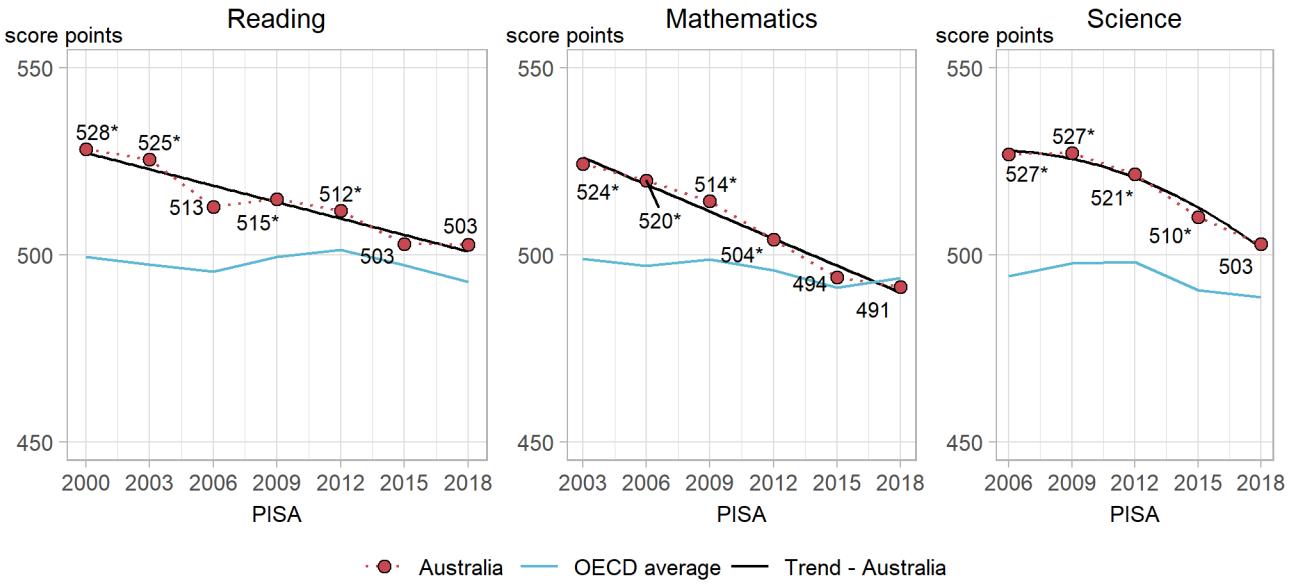
- Some 78% of students in Australia attained Level 2 or higher in mathematics (OECD average: 76%). At a minimum, these students can interpret and recognise, without direct instructions, how a (simple) situation can be represented mathematically (e.g. comparing the total distance across two alternative routes, or converting prices into a different currency). The share of 15-year-old students who attained minimum levels of proficiency in mathematics (Level 2 or higher) varied widely – from 98% in Beijing, Shanghai, Jiangsu and Zhejiang (China) to 2% in Zambia, which participated in the PISA for Development assessment in 2017. On average across OECD countries, 76% of students attained at least Level 2 proficiency in mathematics.
- In Australia, 10% of students scored at Level 5 or higher in mathematics (OECD average: 11%). Six Asian countries and economies had the largest shares of students who did so: Beijing, Shanghai, Jiangsu and Zhejiang (China) (44%), Singapore (37%), Hong Kong (China) (29%), Macao (China) (28%), Chinese Taipei (23%) and Korea (21%). These students can model complex situations mathematically, and can select, compare and evaluate appropriate problem-solving strategies for dealing with them.

What students know and can do in science

- Some 81% of students in Australia attained Level 2 or higher in science (OECD average: 78%). At a minimum, these students can recognise the correct explanation for familiar scientific phenomena and can use such knowledge to identify, in simple cases, whether a conclusion is valid based on the data provided.
- In Australia, 9% of students were top performers in science, meaning that they were proficient at Level 5 or 6 (OECD average: 7%). These students can creatively and autonomously apply their knowledge of and about science to a wide variety of situations, including unfamiliar ones.

Performance trends

Figure 2. Trends in performance in reading, mathematics and science

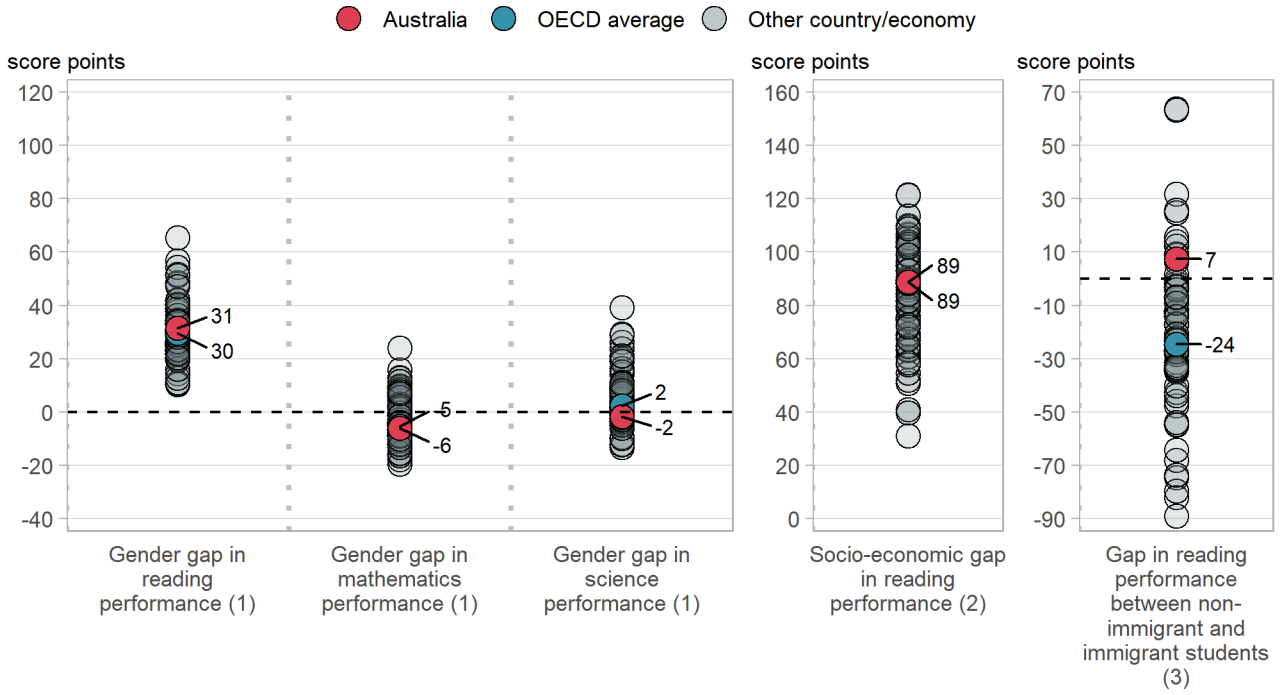


Notes:*indicates mean-performance estimates that are statistically significantly above or below PISA 2018 estimates for Australia.
The blue line indicates the average mean performance across OECD countries with valid data in all PISA assessments. The red dotted line indicates mean performance in Australia. The black line represents a trend line for Australia (line of best fit).
Source: OECD, PISA 2018 Database, Tables I. B1.10, I. B1.11 and I. B1.12.

- Mean performance in Australia has been steadily declining in reading (between 2000 and 2018) and in mathematics (between 2003 and 2018), from initially high levels of performance; it has been declining in science too, at least since 2012. In reading, more rapid declines were observed amongst the country's lowest-achieving students. In mathematics and science, performance declined to a similar extent at the top and at the bottom of the performance distribution, as well as on average.
- The proportion of top-performing students (scoring at Level 5 or 6) remained stable in reading (between 2009 and 2018), but decreased in mathematics (between 2012 and 2018) and in science (between 2006 and 2018). Meanwhile, the proportion of low-achieving students (scoring below Level 2) increased in all subjects.

Where All Students Can Succeed

Figure 3. Differences in performance related to personal characteristics

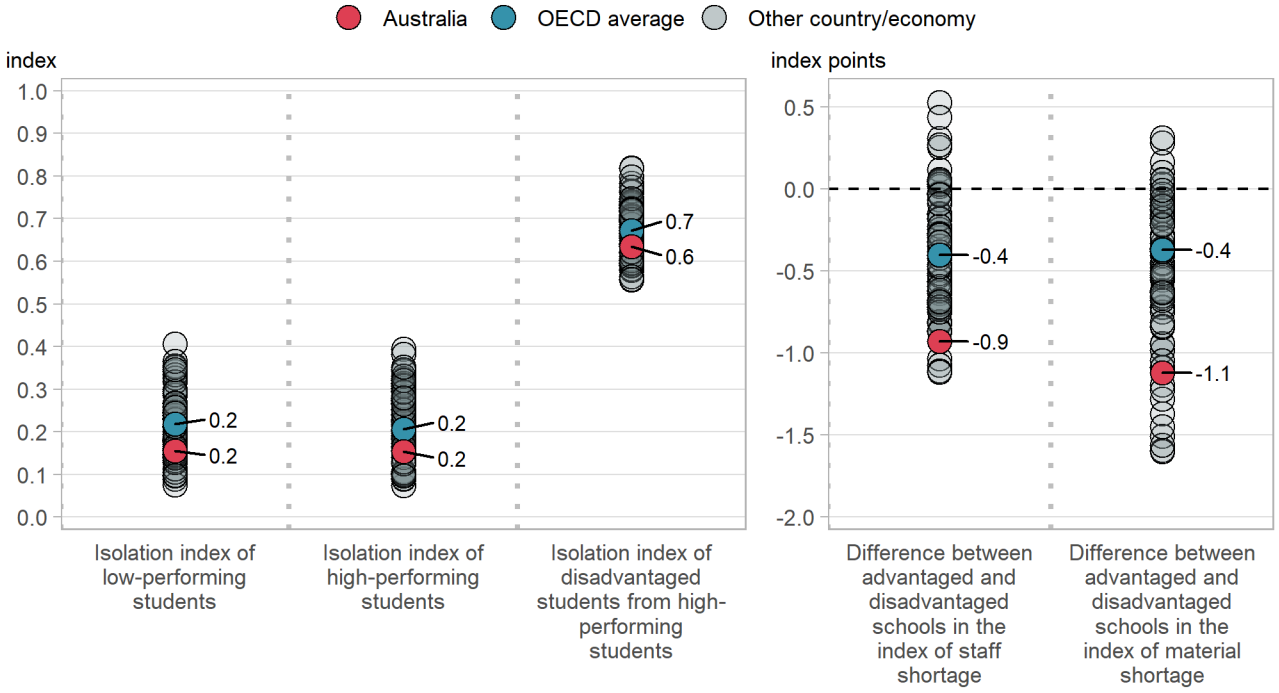


Notes: Only countries and economies with available data are shown. (1) Girls' minus boys' performance; (2) Advantaged minus disadvantaged students' performance; (3) Immigrants' minus non-immigrants' performance in reading, after accounting for students' and schools' socio-economic profile.
Source: OECD, PISA 2018 Database, Tables II.B1.2.3, II.B1.7.1, II.B1.7.3, II.B1.7.5 and II.B1.9.3.

Equity related to socio-economic status

- In Australia, socio-economically advantaged students outperformed disadvantaged students in reading by 89 score points in PISA 2018, compared to 89 score points on average across OECD countries. In PISA 2009, the performance gap related to socio-economic status was 90 score points in Australia (and 87 score points on average across OECD countries).
- Some 24% of advantaged students in Australia, but 6% of disadvantaged students, were top performers in reading in PISA 2018. On average across OECD countries, 17% of advantaged students, and 3% of disadvantaged students, were top performers in reading.
- Socio-economic status was a strong predictor of performance in mathematics and science in all PISA participating countries. It explained 11% of the variation in mathematics performance in PISA 2018 in Australia (compared to 14% on average across OECD countries), and 10% of the variation in science performance (compared to the OECD average of 13% of the variation).
- Some 13% of disadvantaged students in Australia were able to score in the top quarter of reading performance within Australia, indicating that disadvantage is not destiny. On average across OECD countries, 11% of disadvantaged students scored amongst the highest performers in reading in their countries.

Figure 4. School segregation, and gap in material and staff shortage between advantaged and disadvantaged schools



Notes: Only countries and economies with available data are shown. The isolation indices ranging from 0 (no segregation) to 1 (full segregation) measure whether low-/high-performing students or disadvantaged students are more or less concentrated in some schools. See detailed description of the indices in Volume II Chapter 4.
Source: OECD, PISA 2018 Database, Tables II.B1.4.1, II.B1.4.8, II.B1.5.13 and II.B1.5.14.

- School principals in Australia reported less staff shortage and less material shortage than the OECD average; and school principals of disadvantaged schools more often reported staff shortage than principals of advantaged schools. In Australia, 34% of students enrolled in a disadvantaged school and 3% of students enrolled in an advantaged school attend a school whose principal reported that the capacity of the school to provide instruction is hindered at least to some extent by a lack of teaching staff. On average across OECD countries, 34% of students in disadvantaged schools and 18% of students in advantaged schools attend such a school.
- According to school principals in Australia, 99% of teachers in advantaged schools and 97% of teachers in disadvantaged schools are “fully certified” (the difference is not statistically significant). The proportions of teachers with at least a master’s degree are larger in advantaged schools than in disadvantaged schools.
- Many students, especially disadvantaged students, hold lower ambitions than would be expected given their academic achievement. In Australia, about one in four high-achieving disadvantaged students – but fewer than one in ten high-achieving advantaged students – do not expect to complete tertiary education.

Equity related to gender

- In all countries and economies that participated in PISA 2018, girls significantly outperformed boys in reading – by 30 score points on average across OECD countries. In Australia, the gender gap in reading (31 score points) was similar to the average gap. The gap was smaller to that observed in 2009 (37 score points), as boys’ performance remained stable and girls’ performance declined over the period.

- In Australia, boys outperformed girls in mathematics by 6 score points, which was similar to the average gender gap in mathematics across OECD countries (5 score points). While girls slightly outperformed boys in science (by two score points) on average across OECD countries in PISA 2018, in Australia girls and boys performed similarly in science.
- Amongst high-performing students in mathematics or science, one in three boys in Australia expect to work as an engineer or science professional at the age of 30, while about one in five girls expects to do so. About one in three high-performing girls expects to work in health-related professions, while one in six high-performing boys expects to do so. Some 4% of boys and a negligible percentage of girls in Australia expect to work in ICT-related professions.

Equity related to immigrant background

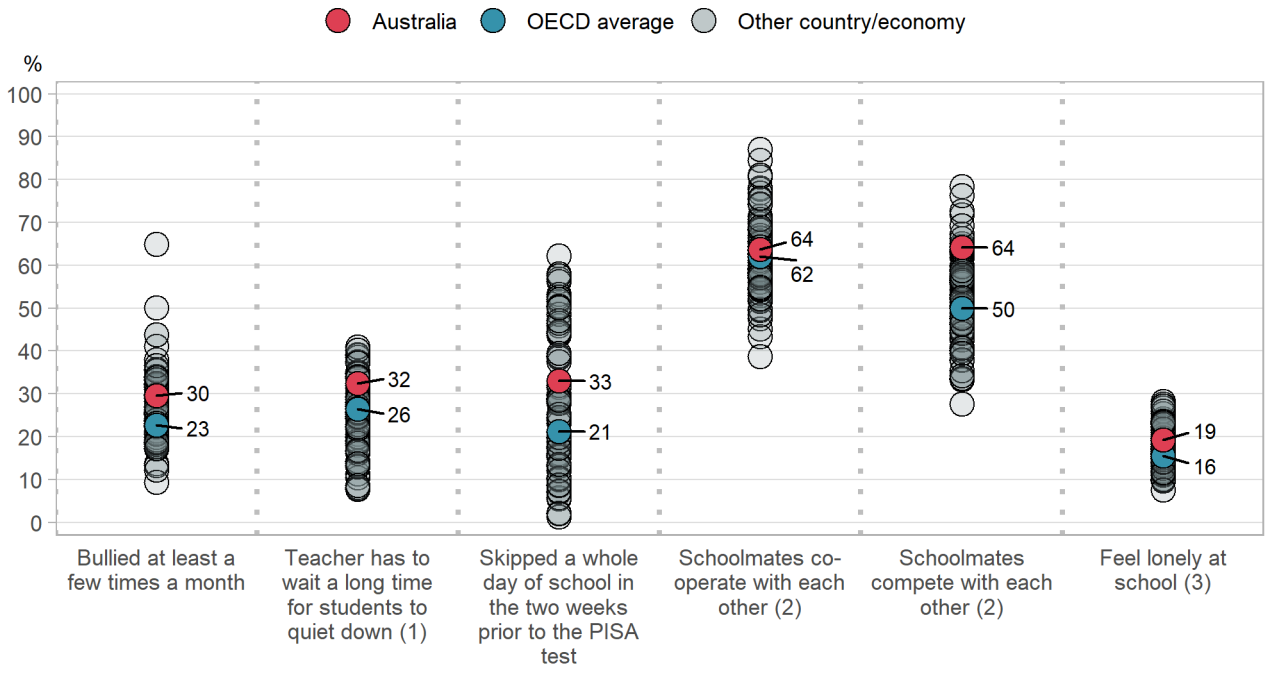
- In 2018, some 28% of students in Australia had an immigrant background, up from 23% in 2009. Amongst these immigrant students, one in four was socio-economically disadvantaged.
- The average difference in reading performance between immigrant and non-immigrant students in Australia was 8 score points in favour of immigrant students, after accounting for students' and schools' socio-economic profile the difference shrank to 7 score points.
- On average across OECD countries, 17% of students with an immigrant background scored in the top quarter of reading performance in 2018. In Australia, 29% of immigrant students performed at that level.

What School Life Means for Students' Lives

How is the school climate in Australia?

- In Australia, 30% of students reported being bullied at least a few times a month, compared to 23% on average across OECD countries. At the same time, 93% of students in Australia (and 88% of students on average across OECD countries) agreed or strongly agreed that it is a good thing to help students who cannot defend themselves.
- Some 32% of students in Australia (OECD average: 26%) reported that, in every or most language-of-instruction lessons, their teacher has to wait a long time for students to quiet down. In Australia, students who reported that, in every or most lessons, the teacher has to wait a long time for students to quiet down scored 25 score points lower in reading than students who reported that this never happens or happens only in some lessons, after accounting for socio-economic status.
- On average across OECD countries, 21% of students had skipped a day of school and 48% of students had arrived late for school in the two weeks prior to the PISA test. In Australia, 33% of students had skipped a day of school and 46% of students had arrived late for school during that period. In most countries and economies, frequently bullied students were more likely to have skipped school, whereas students who valued school, enjoyed a better disciplinary climate and received greater emotional support from parents were less likely to have skipped school.

Figure 5. School climate



Notes: Only countries and economies with available data are shown. (1) In every or most language-of-instruction lessons; (2) Very or extremely true; (3) Agreed or strongly agreed.
Source: OECD, PISA 2018 Database, Tables III.B1.2.1, III.B1.3.1, III.B1.4.1, III.B1.8.1, III.B1.8.2 and III.B1.9.1

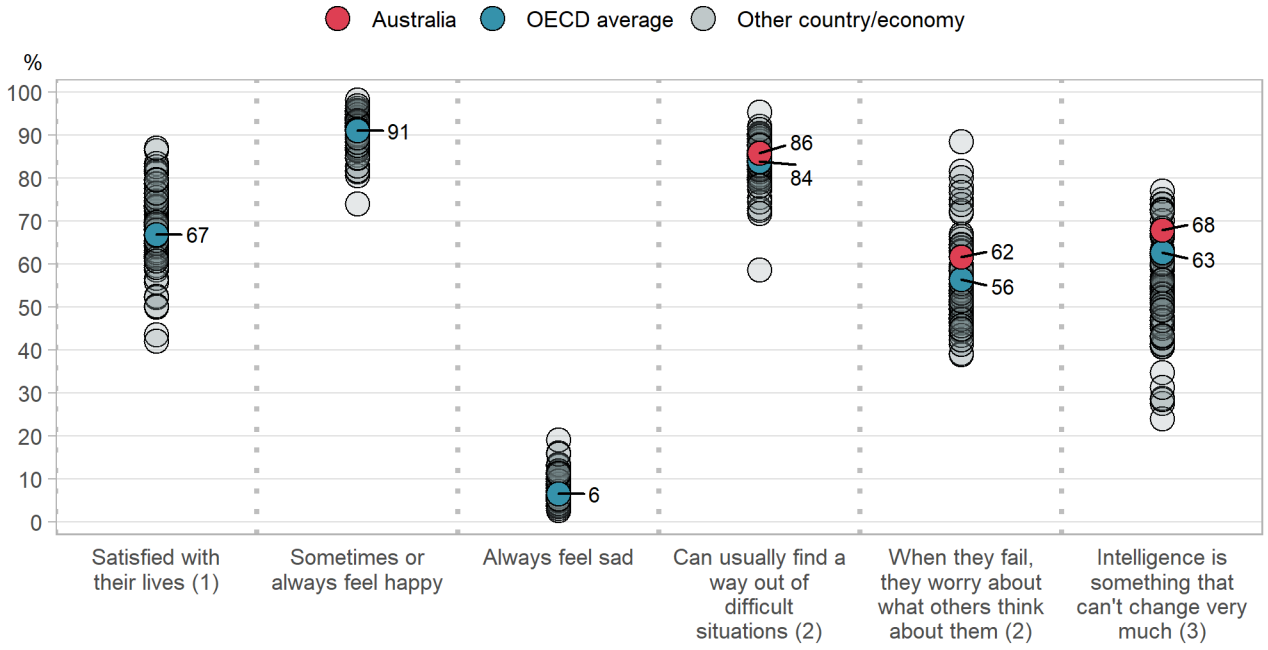
- Some 82% of students in Australia (OECD average: 74%) agreed or strongly agreed that their teacher shows enjoyment in teaching. In most countries and economies, including in Australia, students scored higher in reading when they perceived their teacher as more enthusiastic, especially when students said their teachers are interested in the subject.
- In Australia, 64% of students reported that their schoolmates co-operate with each other (OECD average: 62%) and 64% reported that they compete with each other (OECD average: 50%).

- Some 19% of students in Australia (OECD average: 16%) agreed or strongly agreed that they feel lonely at school.

How do students in Australia feel about their lives and learning?

- In Australia, 86% of students agreed or strongly agreed that they can usually find a way out of difficult situations (OECD average: 84%), and 62% agreed or strongly agreed that, when they fail, they worry about what others think of them (OECD average: 56% of students). In almost every education system, including Australia, girls expressed greater fear of failure than boys, and this gender gap was considerably wider amongst top-performing students.
- A majority of students across OECD countries holds a growth mindset (they disagreed or strongly disagreed with the statement "Your intelligence is something about you that you can't change very much"). In Australia, 68% of students hold a growth mindset.

Figure 6. Student well-being and growth mindset



Notes: Only countries and economies with available data are shown. (1) Between 7 and 10 on the life-satisfaction scale; (2) Agreed or strongly agreed; (3) Disagreed or strongly disagreed.
Source: OECD, PISA 2018 Database, Tables III.B1.11.1, III.B1.12.1, III.B1.12.2, III.B1.13.1, III.B1.13.2 and III.B1.14.1

Key features of PISA 2018

The content

- The PISA 2018 survey focused on reading, with mathematics, science and global competence as minor areas of assessment; Australia did not participate in the assessment of global competence. PISA 2018 also included an assessment of young people's financial literacy, which was optional for countries and economies. Results for reading, mathematics and science are released on 3 December 2019 and results for global competence and financial literacy in 2020.

The students

- Some 600 000 students completed the assessment in 2018, representing about 32 million 15-year-olds in the schools of the 79 participating countries and economies. In Australia, 14 273 students, in 779 schools, completed the assessment, representing 257 779 15-year-old students (89% of the total population of 15-year-olds).

The assessment

- Computer-based tests were used in most countries, with assessments lasting a total of two hours. In 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 into groups based on a passage of text describing a real-life situation. More than 15 hours of test items for reading, mathematics, science and global competence were covered, with different students taking different combinations of test items.
- Students also answered a background questionnaire, which took about 35 minutes to complete. The questionnaire sought information about the students themselves, their 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.
- Some countries/economies also distributed additional questionnaires to elicit more information. These included: in 19 countries/economies, a questionnaire for teachers asking about themselves and their teaching practices; and in 17 countries/economies, 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 chose to distribute three other optional questionnaires for students: 52 countries/economies distributed a questionnaire about students' familiarity with computers; 32 countries/economies distributed a questionnaire about students' expectations for further education; and 9 countries/economies distributed a questionnaire, developed for PISA 2018, about students' well-being.

References

OECD (2019), *PISA 2018 Results (Volume I): What Students Know and Can Do*, PISA, OECD Publishing, Paris, https://doi.org/10.1787/5f07c754-en

OECD (2019), *PISA 2018 Results (Volume II): Where All Students Can Succeed*, PISA, OECD Publishing, Paris, https://doi.org/10.1787/b5fd1b8f-en

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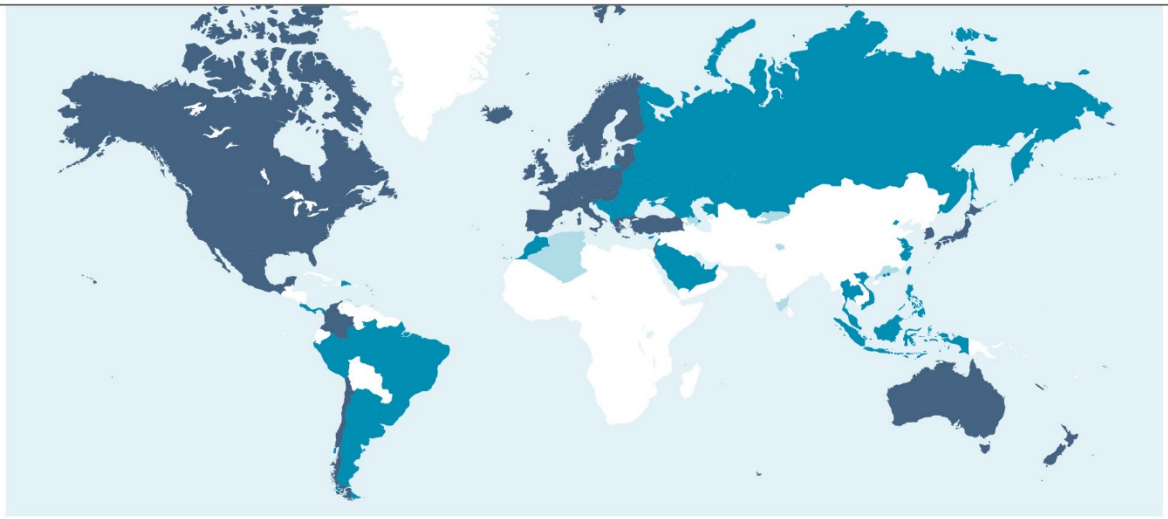
Map of PISA countries and economies



OECD member countries

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

Partner countries and economies in PISA 2018

Albania, Argentina, Baku (Azerbaijan), Belarus, Bosnia and Herzegovina, Brazil, Brunei Darussalam, B-S-J-Z (China)**, Bulgaria, Costa Rica, Croatia, Cyprus, Dominican Republic, Georgia, Hong Kong (China), Indonesia, Jordan, Kazakhstan, Kosovo, Lebanon, Macao (China), Malaysia, Malta, Republic of Moldova, Montenegro, Morocco, Republic of North Macedonia, Panama, Peru, Philippines, Qatar, Romania, Russian Federation, Saudi Arabia, Serbia, Singapore, Chinese Taipei, Thailand, Ukraine, United Arab Emirates, Uruguay, Viet Nam

Partner countries and economies in previous cycles

Algeria, Azerbaijan, Guangdong (China), Himachal Pradesh (India), Kyrgyzstan, Liechtenstein, Mauritius, Miranda (Venezuela), Tamil Nadu (India), Trinidad and Tobago, Tunisia

* Puerto Rico participated in the PISA 2015 assessment (as an unincorporated territory of the United States).

** B-S-J-Z (China) refers to four PISA 2018 participating Chinese provinces/municipalities: Beijing, Shanghai, Jiangsu and Zhejiang. In PISA 2015, the four PISA participating Chinese provinces/municipalities were: Beijing, Shanghai, Jiangsu and Guangdong.

For more information about PISA 2018 visit http://www.oecd.org/pisa/

Data can also be found on line by following the StatLinks under the tables and charts in the publication.

Explore, compare and visualise more data and analysis using: http://gpseducation.oecd.org/.

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