



Results of the Programme for International Student Assessment (PISA) 2018 Report

Background

The Organisation for Economic Cooperation and Development (OECD) created the Programme for International Student Assessment (PISA) as part of an ongoing program of reporting on educational outcomes across countries. PISA is a triennial program designed to monitor trends in the performance of 15-year-olds in mathematical, scientific and reading literacy over time.

PISA measures the cumulative outcomes of education by assessing how well 15-year-olds, who are nearing the end of their compulsory schooling in most participating educational systems, are prepared to use the knowledge and skills in particular areas to meet real-life opportunities and challenges.

In 2009, the PISA focused on the assessment of reading literacy; in 2012, on mathematical literacy; in 2015, on scientific literacy. In 2018, the focus was once again on reading literacy. Students completed a two-hour cognitive assessment. Students were randomly assigned to a test form that comprised four 30-minute clusters of cognitive materials (scientific literacy, reading literacy, mathematical literacy, and collaborative problem solving). Students then completed a questionnaire and undertook the financial literacy assessment. The questionnaires were designed to enable achievement data to be analysed in relation to these respondents' different backgrounds, living conditions, educational programs and other factors that might impact their performance. Principals also completed a school questionnaire. Australia did not participate in the teacher questionnaire available in 2018.

PISA results are reported as mean (average) scores, which provide a summary of student performance and allow for comparisons of the relative standing between different countries and different subgroups. The OECD average is the mean of the data values across all OECD countries, and can be used to compare a country on a given indicator with a typical OECD country.

The report presents the results for Australia as a whole, the Australian states and territories, and the other participants in PISA 2018, allowing Australia's results to be viewed in an international context, and student performance to be monitored in this context over time.

This report provides the results for reading, mathematical and scientific literacy overall, as well as for the reading literacy subscales. Results are presented as mean (average) scores, as distributions of scores and as percentages of students who attain each of a set of defined proficiency levels. Each of the literacy proficiency scales (and subscales) contain descriptions of the skills typically shown by students achieving at each level, as defined by international experts.

Where a result is noted to be **significantly different**, this means that the difference is of **statistical significance**, and therefore likely to be a real difference.

Each of the literacy proficiency scales (and subscales) contains descriptions of the skills typically shown by students achieving at each level, as defined by international experts. In PISA 2018, there were:

- eight levels of reading literacy, with Level 6 being the highest and Level 1(c) being the lowest
- six levels of mathematical literacy, with Level 6 being the highest and Level 1 being the lowest
- seven levels of scientific literacy, with Level 6 being the highest and Level 1(b) being the lowest.

Students who are at:

- Level 5 or Level 6 are considered to be highly proficient in the assessment domain and are considered to be high performers.
- Level 3 or above are considered to have attained the National Proficient Standard, and demonstrated more than the minimal skills expected in the domain.
- Level 2 or below are considered to be below proficiency and have not begun to demonstrate the competencies in reading, mathematical or scientific literacy that will enable them to engage effectively and productively across a wider range of situations, and are considered low performers.

Key findings in Australia across all tests

- Australia's results continued a downward trend across reading, mathematics and science.
- For the first time, Australia failed to be above the OECD average in mathematics.
- Australia has a greater spread of scores from lowest to highest than the OECD average in each assessed area.
- Significant gaps in achievement remain for Australian students related to sex, Indigenous status, geolocation and socioeconomic status.
- Australia's mean performance in reading and mathematical literacy has not changed significantly between 2015 and 2018.
- Australia's mean performance in scientific literacy declined by an average of 7 score points between 2015 and 2018.

Key finding in Western Australia across all tests

- Western Australia performed significantly above the OECD average, and above Australia, in each assessed area.
- In terms of means, Western Australia was ranked second, after the Australian Capital Territory, in all assessed areas.

Key finding in Reading literacy

- Australia's average score in reading literacy was 503 points. This was significantly higher than the OECD average of 487 points.
- Australia performed the equivalent of about one-and-a-half years of schooling lower than the highest performing economy, B-S-J-S (China), and around one-and-a-third years lower than the highest performing country, Singapore.
- Australia was ranked sixteenth with ten countries scoring significantly higher in reading literacy in 2018. Australia's performance was not significantly different from that of nine other countries and was significantly higher than all remaining countries.

- Australia's mean performance remained unchanged between 2015 and 2018.
- In terms of means, Western Australia (512 points), performed significantly lower than the Australian Capital Territory (535 points), but ranked second. Western Australia performed at a level not significantly different from Victoria and Queensland, but performed significantly higher than the other jurisdictions.
- In Australia the proportion of high performers was 13 per cent, and in Western Australia, the proportion of high performers was 14 per cent – the same as in Victoria and Queensland.
- The proportion of high performing students increased in Queensland by three percentage points, in Western Australia and Victoria by four percentage points, and in the Australian Capital Territory by seven percentage points.
- The proportion of students who reached the National Proficient Standard in reading literacy was 59 per cent in Australia – higher than the OECD average of 54 per cent. The proportion of students who reached the National Proficient Standard in Western Australia was 63 per cent.
- On average, the proportion of low performers across the OECD was 23 per cent, in Australia it was 20 per cent and in Western Australia it was 17 per cent.
- Australia's mean performance has declined significantly from 528 to 503 – by 25 points – since 2000, although the OECD average has not significantly changed.

Key finding in Mathematical literacy

- Australian students achieved an average score of 491 points in mathematical literacy, which was not significantly higher than the OECD average of 489 points. This is the first time that Australia has not performed at a level significantly higher than the OECD average.
- Australia was ranked 29, with 23 countries scoring significantly higher in mathematical literacy. Australia's performance was not significantly different from that of eight other countries, but was significantly higher than all remaining 47 countries/economies.
- Australia's mean performance in mathematical literacy remained the same as in 2015; however, 10 countries improved their mathematical literacy.
- Australia's proportion of high performers (10 per cent) was similar with the OECD average (11 per cent). Australia's proportion of low performers (22 per cent) was also about the same as the OECD average (24 per cent).
- Western Australia, with a mean of 500, performed at a significantly higher level than the OECD average; and the proportion of high performers was 12 per cent and the proportion of low performers was 20 per cent
- In terms of means, the Australian Capital Territory (515 points) performed significantly higher than all other states and territories. Western Australia ranked second (500 points).
- Western Australia performed statistically similarly to Victoria, and significantly higher than New South Wales, South Australia, Queensland, Tasmania and the Northern Territory.
- 54 per cent of Australian students and 58 per cent in Western Australia achieved the National Proficient Standard in mathematical literacy.
- Since 2003, the Australian mean has declined significantly by 33 points – from 524 to 491 points. The Western Australian mean declined significantly by 48 points, from 548 to 500.
- Between PISA 2003 and PISA 2015, the proportion of Western Australian low performers increased by 11 per cent and the proportion of Western Australian top performers decreased by 18 per cent.

Key finding in Science literacy

- Australia's average score in scientific literacy was 503 points. This was significantly higher than the OECD average of 489 points.
- In terms of means, the Australian Capital Territory (533 points) performed significantly higher than all other states and territories. Western Australia ranked second (515 points). Western Australia performed similarly to Victoria and significantly higher than the other jurisdictions.
- Australia was ranked seventeenth with 12 countries scoring significantly higher in scientific literacy in 2018. Australia's performance was not significantly different from that of eight other countries and was significantly higher than all remaining countries.
- Across Australia, 9 per cent of students were classed as high-performers, higher than the OECD average of 7 per cent. In Western Australian the proportion of high performers was 12 per cent.
- The proportion of students who reached the National Proficient Standard in scientific literacy was 58 per cent in Australia and 63 per cent in Western Australia.
- In Australia, 19 per cent of students were low performers, compared to the OECD average of 22 per cent. In Western Australia the proportion of low performers was 16 per cent.
- The Australian results showed little change between 2015 and 2018. The proportion of low performers remained about the same; the proportion of high performers declined by about 2 per cent, and the proportion of students who achieved the National Proficient Standard decreased by 3 per cent.
- The results between 2006 and 2018 show that Australia's proportion of high performers declined by 5 per cent, the proportion of low performers increased by 6 per cent, and the proportion of students who achieved the National Proficient Standard decreased by 9 per cent.

A more comprehensive summary of the report can be found at Appendix 1.

Appendix 1

2018 PISA: Reporting Australia's Results – Volume 1 Student Performance

Summary of results

2018 PISA summary

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.

Participation

In 2018, around 600 000 students from 79 countries and partner economies, including 36 OECD countries and 43 non-OECD countries or economies, participated in the PISA.

In Australia, 740 schools and a total of 14 273 students participated in PISA 2018. Australia took a larger sample than the one required by PISA in order to oversample smaller jurisdictions to ensure that reliable estimates could be inferred for those populations. Of these, 1942 students were from Western Australia, from 100 schools across both the public and private sectors.

The PISA sample is age-based with most participating Australian students in Years 9, 10 or 11. For most jurisdictions, the majority of students were in Year 10.

As in 2012 and 2015, reporting on the performance of students by educational sector is provided at the national level only.

The assessments

In 2009, the PISA focused on the assessment of reading literacy; in 2012, on mathematical literacy; in 2015, on scientific literacy. In 2018, the focus was once again on reading literacy.

In PISA 2018, students completed a computer-based assessment, which consisted of a two-hour cognitive assessment, and a suite of three student questionnaires. The questionnaires were completed after the cognitive assessment, and students had up to one hour to complete the questionnaires.

Students were randomly assigned to a test form that comprised four 30-minute clusters of cognitive materials (scientific literacy, reading literacy, mathematical literacy, and collaborative problem solving). Students then completed a student questionnaire and undertook the financial literacy assessment.

The questionnaires were designed to enable achievement data to be analysed in relation to these respondents' different backgrounds, living conditions, educational programs and other factors that might impact on their performance. Principals also completed a school questionnaire. Australia did not participate in the teacher questionnaire available in 2018.

PISA results are reported as mean (average) scores, which provide a summary of student performance and allow for comparisons of the relative standing between different countries and

different subgroups. The OECD average is the mean of the data values across all OECD countries, and can be used to compare a country on a given indicator with a typical OECD country.

Reporting scales

PISA reports results as mean scores along with various statistics that reflect the distribution of performance. The PISA performance scale provides a more detailed picture of performance by providing a profile of what students have achieved in terms of skills and knowledge – what they can do and what they know. This performance scale is divided into levels of difficulty, or proficiency levels. In PISA 2018, there were:

- eight levels of reading literacy, with Level 6 being the highest and Level 1(c) being the lowest
- six levels of mathematical literacy, with Level 6 being the highest and Level 1 being the lowest
- seven levels of scientific literacy, with Level 6 being the highest and Level 1(b) being the lowest.

PISA 2018 Results key findings

Australia's results were significantly higher than the OECD average in each of reading literacy and scientific literacy. For the first time Australia did not achieve above the OECD average for mathematical literacy.

Western Australia performed significantly above the OECD average, and above Australia, in each assessed area.

The economy B-S-J-Z (China) was ranked first for all three domains and Singapore, which ranked second, was the country that achieved the highest scores in all three domains. The difference between the means of B-S-J-Z (China) and those of Australia indicates that their 15-year-old students are performing at a level representing around one-and-a-half years of schooling above that of Australian students in reading literacy, three years in science literacy and three-and-a-half years in mathematical literacy.

Nationally, in terms of means, Western Australia was ranked second in all three assessments, behind the Australian Capital Territory.

Reading literacy

Australia

Australia achieved an average score of 503 points in reading literacy, which was significantly higher than the OECD average of 487 points.

Australia's performance was significantly lower than 10 countries/economies: B-S-J-Z (China), Singapore, Macao (China), Hong Kong (China), Estonia, Canada, Finland, Ireland, Korea and Poland.

Australia's performance was not significantly different from that of nine countries: Sweden, New Zealand, the United States, the United Kingdom, Japan, Chinese Taipei, Denmark, Norway and Germany.

Australia's performance was significantly higher than 58 countries.

Australia's performance was on average 52 points lower than the highest performing country/economy, B-S-J-Z (China), which is the equivalent of around one-and-a-half years of schooling.

Australia's proportion of high performers (13 per cent) was higher than the OECD average (9 per cent) but lower than B-S-J-Z's (China) proportion of high performers (22 per cent).

Australia's proportion of low performers (20 per cent) was lower than the OECD average (23 per cent) but higher than B-S-J-Z's (China) proportion of low performers (5 per cent).

59 per cent of Australian students attained the National Proficient Standard.

Between 2000 and 2018, Australia's mean performance decreased on average by 25 points (from 528 points in 2000 to 503 points in 2018). The OECD average in PISA 2000 was not different from the OECD average in 2018.

Between 2015 and 2018, Australia's mean performance in PISA remained unchanged at 503 points.

Australia's performance, relative to a number of countries, has changed over the PISA cycles. The performance of four countries (Canada, Hong Kong (China), Ireland and Korea) was not different to Australia's in their first PISA cycle, but in 2018 is higher than Australia. Of the 10 countries whose performance was lower than Australia's in their first cycle, three of these countries/economies (Estonia, Macao (China) and Poland) now perform higher than Australia, and seven (Chinese Taipei, Denmark, Germany, Norway, Sweden, the United Kingdom and the United States) are now on par with Australia.

By sector

On the raw scores, independent schools outperformed Catholic schools, which in turn outperformed government schools. There were no differences in performance between the school sectors after adjusting for the socioeconomic background at both student level and school level. This means that, given similar socioeconomic backgrounds, there was no performance advantage for students who attended an independent school rather than either a Catholic school or government school, or for students who attended a Catholic school rather than a government school.

Female and male students

Female students across all countries and economies participating in PISA 2018 outperformed male students in reading literacy. In Australia, this gender difference was 31 points, which is equivalent to around one year of schooling.

Western Australia

In terms of means, Western Australia's 512 point score for reading literacy was significantly higher than the OECD average of 489 points, but significantly lower than the Australian Capital Territory's score of 535 points.

Western Australia ranked second in Australia behind the Australian Capital Territory. Western Australia performed at a level not significantly different from Victoria and Queensland, but performed higher than the other jurisdictions.

In Western Australia, the proportion of high performers was 14 per cent – the same as in Victoria and Queensland, compared to 13 per cent nationally. The proportion of high performing students increased in Western Australia by 4 per cent, compared to 3 per cent in Queensland, 4 per cent in Victoria and 7 per cent in the Australian Capital Territory.

The proportion of students who reached the National Proficient Standard in Western Australia was 63 per cent, compared to 59 per cent nationally, and was higher than the OECD average of 54 per cent.

In Western Australia the proportion of low performers was 17 per cent, compared to 20 per cent nationally and the OECD average of 23 per cent.

The average reading literacy scores between PISA 2000 (538) and 2018 (512) declined in Western Australia by 26 points.

In the 15 years from 2000 to 2015, there has been an increase in the proportion of low performers and a decline in the proportion of high performers across all jurisdictions.

- Between 2000 and 2018, the increase in the proportion of low performers in Western Australia was 4 per cent.
- Between 2000 and 2018, the decrease in the proportion of high performers in Western Australia was 7 per cent.

Mathematical literacy

Australia

Australian students achieved an average score of 491 points in mathematical literacy, which was not significantly higher than the OECD average of 489 points. This is the first cycle of PISA in which Australian students have not scored at a level higher than the OECD average in mathematical literacy.

Australia's performance was significantly lower than 23 countries/economies: B-S-J-Z (China), Singapore, Macao (China), Hong Kong (China), Chinese Taipei, Japan, Korea, Estonia, the Netherlands, Poland, Switzerland, Canada, Denmark, Slovenia, Belgium, Finland, Sweden, the United Kingdom, Norway, Germany, Ireland, the Czech Republic, and Austria.

Australia's performance was not significantly different from eight countries: Latvia, France, Iceland, New Zealand, Portugal, the Russian Federation, Italy and the Slovak Republic.

Australia's performance was significantly higher than 47 countries.

Australia was outperformed by students in 23 countries or economies. The highest performing economy in PISA 2018 was B-S-J-Z (China), with an average achievement of 591 score points. This was 102 score points and more than one full standard deviation higher than the OECD average, 100 score points higher than Australia and equivalent to more than three-and-a-half years of schooling. The highest performing country was Singapore, with an average achievement of 569 score points. This was 80 points higher than the OECD average, 78 points higher than Australia, and the equivalent to almost three years of schooling.

Since 2003, when mathematical literacy was first assessed as a major domain, Australia's average score has declined by 33 points (more than one year of schooling). The OECD average remains statistically the same. Australia's decline is relative as well as absolute. Five countries that were on a par with Australia in previous cycles outperformed Australia in 2018. Nine countries that were outperformed by Australia in previous cycles outperformed Australia in 2018. Seven countries that Australia outperformed in previous cycles were on a par with Australia in 2018.

Ten per cent of Australian students were classed as high performers. This was similar to the OECD average of 11 per cent but contrasted with 44 per cent of students in B-S-J-Z (China). The percentage of high performers in Australia has declined by 9 percentage points over the period 2003–2018.

Twenty-two per cent of Australian students were low performers. This was similar to the OECD average of 24 per cent but contrasted with B-S-J-Z (China) who had 2 per cent of low performers. The proportion of low performers in Australia has increased by 8 percentage points over the period 2003–2018.

Fifty-four per cent of Australian students attained the National Proficient Standard. Between 2003 and 2018, Australia's mean performance decreased on average by 33 points (from 524 points in 2003 to 491 points in 2018).

Australia's performance, relative to a number of countries, has changed over the PISA cycles. The performance of five countries/economies (Belgium, the Czech Republic, Estonia, Macao (China) and Switzerland) was not different from Australia in their first PISA cycle, but is now higher than Australia in 2018, and of the 16 countries whose performance was lower than Australia in their first cycle, nine of these countries (Austria, Denmark, Germany, Ireland, Norway, Poland, Slovenia, Sweden and the United Kingdom now perform higher than Australia, and seven of these countries in their first cycle (France, Iceland, Italy, Latvia, Portugal, the Russian Federation and the Slovak Republic) are now on par with Australia.

By sector

On the raw scores, independent schools outperformed Catholic schools, which in turn outperformed government schools. After adjusting for the socioeconomic background at both student level and school level, the only difference found was between government and Catholic schools in favour of government schools. This means that, given similar socioeconomic backgrounds, there was no performance advantage for students who attended an independent school rather than either a Catholic school or government school, but government schools achieved higher results than Catholic schools.

Female and male students

Australia is one of 25 countries in which there was a sex difference in mathematical literacy, with male students outperforming female students. Over a 15-year period, the score for both male and female students has declined by 33 points.

Western Australia

Western Australia, with a mean of 500, performed at a significantly higher level than the OECD average of 489.

In terms of means the Australian Capital Territory (515) performed significantly higher than all other states and territories, and Western Australia ranked second (500).

Western Australia performed statistically similarly to Victoria, and significantly higher than New South Wales, South Australia, Queensland, Tasmania and the Northern Territory.

The proportion of high performers in Western Australia was 12 per cent, compared to 15 per cent in the Australian Capital Territory, and the OECD average of 11 per cent.

The proportion of low performers was 20 per cent, compared with 15 per cent in the Australian Capital Territory, and the OECD average of 24 per cent.

Fifty-eight per cent of students in Western Australia achieved the National Proficient Standard in mathematical literacy, compared with 54 per cent of Australian students and the OECD average of 54 per cent.

Since 2003 the Australian mean has declined significantly by 33 points – from 524 to 491 points. The Western Australian mean declined significantly by 48 points, from 548 to 500.

Between PISA 2003 and PISA 2015, the proportion of Western Australian low performers increased by 11 per cent and the proportion of Western Australian top performers decreased by 18 per cent.

Between 2015 and 2018 there were no significant changes in the mean scores for any jurisdiction.

Between 2012 and 2018, four states recorded declines in their performance. The largest of these was in New South Wales (21 points), then Western Australia (16 points), Queensland (14 points), and Tasmania (13 points).

Between 2003 and 2018, declines in performance were recorded in all jurisdictions. Victoria declined by 14 points (the smallest decline of any jurisdiction and equal to half a year of schooling). South Australia declined by 53 points (the largest decline of any jurisdiction and equal to almost two years of schooling). Western Australia declined by 48 points.

Scientific literacy

Australia

Australia achieved an average score of 503 points in PISA 2018 scientific literacy, which was significantly higher than the OECD average of 489 points.

Australia's performance was significantly lower than 12 countries/economies: B-S-J-Z (China), Singapore, Macao (China), Estonia, Japan, Finland, Korea, Canada, Hong Kong (China), Chinese Taipei, Poland and New Zealand.

Australia's performance was not significantly different from seven countries: Slovenia, the United Kingdom, the Netherlands, Germany, the United States, Sweden and Belgium.

Australia's performance was significantly higher than 59 countries.

Australia's performance was on average 87 points lower than the first ranking and highest performing economy, B-S-J-Z (China), which is the equivalent of more than three years of schooling.

Australia's proportion of high performers (9 per cent) was higher than the OECD average (7 per cent) but lower than B-S-J-Z's (China) proportion of high performers (32 per cent).

Australia's proportion of low performers (19 per cent) was lower than the OECD average (22 per cent) but higher than B-S-J-Z's (China) proportion of low performers (2 per cent).

Fifty-eight per cent of Australian students attained the National Proficient Standard.

Between 2006 and 2018, Australia's mean performance decreased on average by 24 points (from 527 points in 2006 to 503 points in 2018).

Australia's performance, relative to a number of countries/economies, has changed over the PISA cycles: the performance of four countries (Estonia, Japan, Korea and New Zealand) was not different from Australia's in their first PISA cycle, but is now higher than Australia in 2018, and of the eight countries/economies whose performance was lower than Australia in their first cycle, two of these countries (Macao (China) and Poland) now perform higher than Australia, and six in their first cycle (Belgium, Germany, Slovenia, Sweden, the United Kingdom and the United States) are now on par with Australia.

By sector

The results of student performance in science literacy across the three school sectors (government, Catholic and independent) were compared using the unadjusted (raw) mean scores, and adjusted scores, after accounting for student- and school-level socioeconomic background.

When comparing the unadjusted mean scores for these three groups of students, on average, students in the independent school sector performed higher than students in Catholic or government schools, and students in Catholic schools performed higher than students in government schools.

When student-level socioeconomic background is taken into account, students in independent schools are still performing higher in all assessment domains than students in government schools, students in Catholic schools are still performing higher in scientific literacy than students in government schools, and students in independent schools are still performing higher in mathematical and scientific literacy than students in Catholic schools, although these differences are reduced.

When student- and school-level socioeconomic background are taken into account, students in government schools are performing higher in science literacy than students in Catholic schools.

Female and male students

For science literacy there was no difference between the performance of female and male students:

- 8 per cent of female students were high performers compared to 10 per cent of high-performing male students.

- 18 per cent of female students were low performers compared to 20 per cent of low-performing male students.
- 58 per cent of female and male students attained the National Proficient Standard.

Between 2006 and 2018, the mean performance for female students decreased by 25 points and for male students by 23 points.

Western Australia

Western Australia performed at a significantly higher level than the OECD average (489 points). In terms of means, Western Australia (515) was ranked second for scientific literacy, after the Australian Capital Territory (533).

The Australian Capital Territory performed significantly higher than all other jurisdictions. Western Australia also performed at a statistically similar level to Victoria, and performed significantly higher than New South Wales, South Australia, Queensland, the Northern Territory and Tasmania.

The Australian Capital Territory had the highest proportion of high performers with 15 per cent of students. Western Australia had 12 per cent compared to the OECD average of 7 per cent.

Western Australia had a lower proportion of low performers with 16 per cent, compared to the OECD average of 22 per cent, but higher than the Australian Capital Territory with 11 per cent.

The proportion of students who reached the National Proficient Standard in scientific literacy was 63 per cent in Western Australia compared with 71 per cent in the Australian Capital Territory, and the OECD average of 48.9.

Between 2015 and 2018 there were changes in performance in two jurisdictions:

- the Australian Capital Territory increased by 6 points
- New South Wales declined by 12 points.

Between 2006 and 2018, the performance of students in six jurisdictions decreased:

- in the Australian Capital Territory by 16 points
- in Queensland by 17 points
- in Tasmania by 25 points
- in Western Australia by 28 points (from 543 to 515)
- in South Australia by 36 points, and
- in New South Wales by 39 points.

Australian results disaggregated by other subgroups

Indigenous students

In PISA 2018, Australian students were asked to identify whether they were of Indigenous background when they completed the student questionnaire. Five per cent of the assessed PISA 2018 students identified as being of an Indigenous background.

On average, Indigenous students achieved significantly lower scores than non-Indigenous students in scientific literacy (75 points lower), reading literacy (76 points lower) and mathematical literacy (69 point lower). The average score difference equated to one proficiency level or around two-and-

three-quarter years of schooling in scientific literacy, around two-and-a-third years of schooling for reading literacy and two-and-a-half years of schooling in mathematical literacy.

There was an under-representation of Indigenous students at the higher end of the proficiency scale and an over-representation of Indigenous students at the lower end of the proficiency scale. Over time, the mean performance for non-Indigenous students has decreased.

Three per cent of Indigenous students were high performers in scientific literacy compared to 10 per cent of non-Indigenous students, while 48 per cent of Indigenous students were low performers compared to 21 per cent of non-Indigenous students. The trend is similar for mathematical literacy. In reading literacy, 5 per cent of Indigenous students were high performers compared to 14 per cent of high performing non-Indigenous students, while 43 per cent of Indigenous students were low performers compared to 18 per cent of non-Indigenous students.

Thirty-one per cent of Indigenous students reached the National Proficient Standard in reading literacy compared to 61 per cent of non-Indigenous students.

Twenty-seven per cent of Indigenous students reached the National Proficient Standard in mathematical literacy compared to 55 per cent of non-Indigenous students.

Thirty-one per cent of Indigenous students reached the National Proficient Standard in science literacy compared to 60 per cent of non-Indigenous students.

Since 2006, the scientific and reading literacy performance of Indigenous students has not changed significantly.

Geographic location

In all PISA cycles, the location of schools have been classified using the MCEETYA Schools Geographic Location Classification. About three-quarters (73 per cent) of the PISA participants attended schools in metropolitan areas, one-quarter were from provincial areas and the remaining 2 per cent of participants attended schools in remote areas.

In all assessment domains, students in metropolitan schools performed at a significantly higher level than students in provincial schools or remote schools. In reading and mathematical literacy, schools in provincial schools performed at a significantly higher level than students in remote schools.

There was a higher proportion of high performers in metropolitan schools compared to students in provincial or remote schools. Similarly, there was a lower proportion of low performers in metropolitan schools compared to students in provincial or remote schools.

The mean performance of students in metropolitan and provincial schools in all assessment domains has decreased over time, and the mean performance of students in remote schools has decreased in mathematical literacy.

Socioeconomic background

Information about socioeconomic background is based on a measure of socioeconomic background: the economic, social and cultural status index (ESCS). Using this index, participating students were distributed into quartiles of socioeconomic background.

On average, students from higher socioeconomic backgrounds performed at a significantly higher level than students from lower socioeconomic backgrounds.

The proportion of high performers increased and the proportion of low performers decreased with each increase in socioeconomic quartile. Over time, the mean performance of students in each of the socioeconomic quartiles has decreased.

On average, students in the highest socioeconomic quartile performed 81 score points higher in mathematics than students in the lowest socioeconomic quartile, 83 points higher in science and 89 points higher in reading. This difference equates to almost three years of schooling for mathematics and science, and two-and-three-quarter school years for reading.

Immigrant background

In PISA, immigrant background consists of three categories: Australian-born, first-generation and foreign-born. Approximately 50 per cent of the PISA 2018 students were Australian-born, 31 per cent were first-generation and 14 per cent of students were foreign-born.

Students reported their country of birth as well as that of their parents.

Australian-born students performed at a lower level than first-generation students in reading literacy and mathematical literacy, and Australian-born students also performed at a lower level than foreign-born students in mathematical literacy. Foreign-born students performed at a lower level than first-generation students in reading and scientific literacy.

Language background

In PISA 2018, 88 per cent of students indicated that English was spoken at home and 12 per cent of students indicated they spoke a language other than English at home.

Students were asked what language was spoken at home most of the time. Students who spoke English at home performed at a level higher than students who spoke a language other than English at home in reading and scientific literacy.

The proportion of low-performing students who spoke English at home was lower than the proportion of low-performing students who spoke a language other than English spoken at home.

Over time, the mean performance for students who spoke English at home and for students who spoke a language other than English decreased in all assessment domains.