

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 around the world that assesses the extent to which they have acquired the key knowledge and skills essential for full participation in society. The assessment focuses on the core school subjects of reading, mathematics and science. Students' proficiency in an innovative domain is also assessed; in 2018, this domain was global competence.

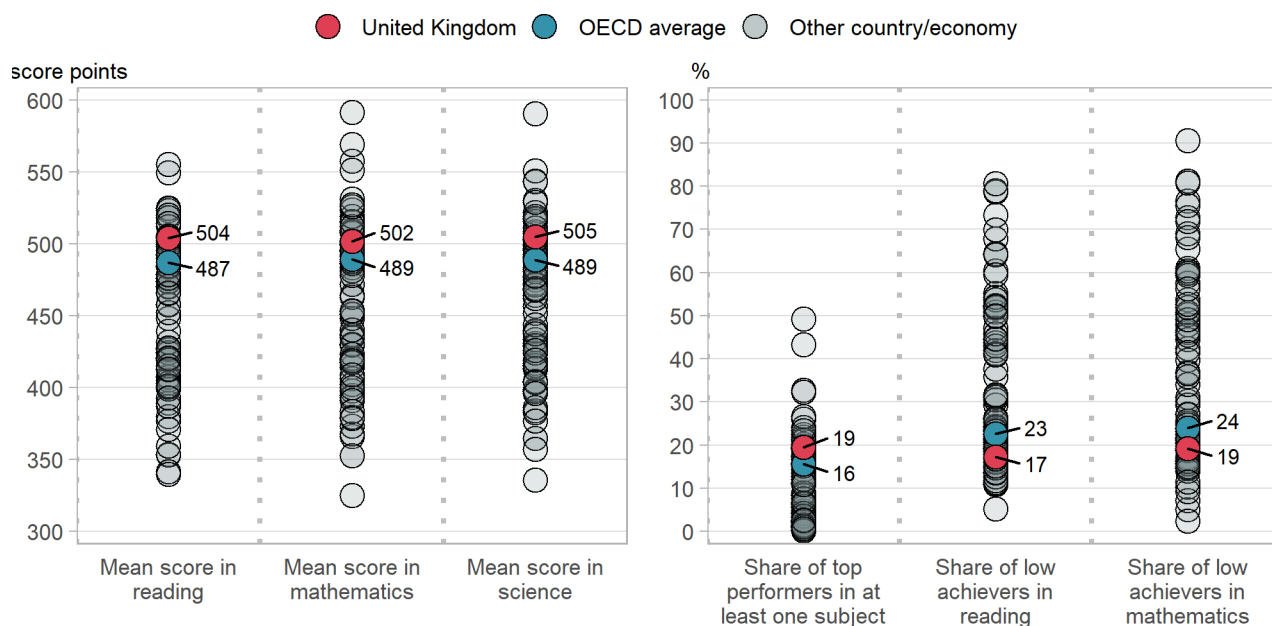
United Kingdom

Key findings

- Fifteen-year-old students in the United Kingdom scored above the OECD averages in reading (504 score points), mathematics (502), and science (505). The United Kingdom's average performance was not statistically significantly different from that of Australia, Belgium, Germany, New Zealand, Norway, Sweden and the United States in at least two of the three subjects. However, it was lower than the average performance of Beijing, Shanghai, Jiangsu and Zhejiang (China) (combined), Canada, Estonia, Hong Kong (China), Korea, Macao (China) and Singapore in all three subjects. The United Kingdom's performance in reading and science has remained stable since 2006, while in mathematics it improved by nine score points between 2015 and 2018. As in many countries, socio-economically advantaged students outperformed their disadvantaged peers by 80 score points in reading. This difference was smaller than the OECD average of 89 score points. However, in spite of socio-economic disadvantage, 14% of disadvantaged students scored in the top quarter of performance in reading, indicating that disadvantage is not destiny.
- In the United Kingdom, the gender gap in reading in favour of girls (20 score points) was narrower than the average gap across OECD countries. Boys scored lower than girls in mathematics by 12 score points, which is wider than the average gender gap across OECD countries (5 score points). Girls and boys performed similarly in science.
- The proportion of students with an immigrant background in the United Kingdom increased between 2009 and 2018, from 11% to 20%. One in three of these immigrant students was socio-economically disadvantaged. Students without an immigrant background outperformed their immigrant peers by four score points in reading, after accounting for students' and schools' socio-economic profile. However, in spite of their relative socio-economic disadvantage, 21% of immigrant students scored in the top quarter of reading performance – a share 4 percentage points larger than the OECD average (17%).
- When it comes to students' well-being, 53% of students in the United Kingdom reported that they are satisfied with their lives, compared to 67% on average across OECD countries. Some 93% of students reported sometimes or always feeling happy and about 9% of students reported always feeling sad. The level of exposure to bullying at school was slightly higher than average in the United Kingdom: 27% of students reported being bullied at least a few times a month, compared to 23% on average across OECD countries.

What 15-year-old students in the United Kingdom 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 the United Kingdom scored higher than the OECD average in reading, mathematics and science.
- Compared to the OECD average, a larger proportion of students in the United Kingdom 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 all three subjects. Moreover, a smaller proportion of low achievers in reading (19%) was observed in the United Kingdom than observed on average across OECD countries (24%).

What students know and can do in reading

- In the United Kingdom, 83% of students attained at least Level 2 proficiency in reading. 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. On average across OECD countries, 77% of students attained at least Level 2 proficiency in reading. The proportions varied from 95% in Beijing, Shanghai, Jiangsu and Zhejiang (China) to 19% in the Philippines.
- Some 11% of students were top performers in reading, compared with 9% on average across OECD countries, meaning that they attained Level 5 or 6 in the PISA reading test. 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

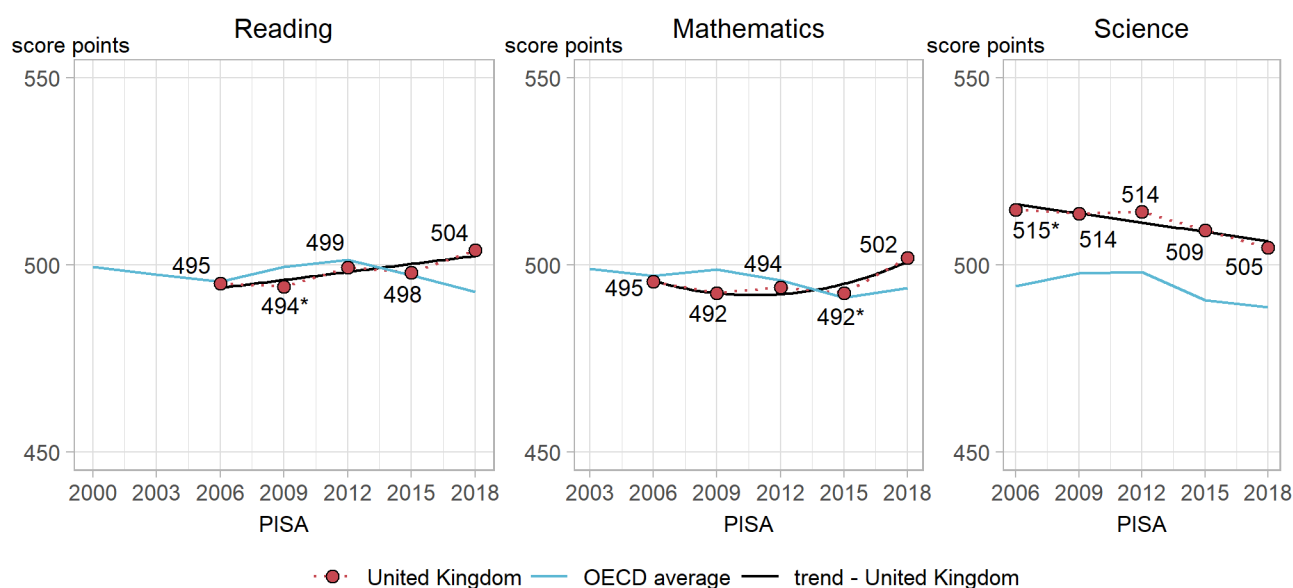
- Some 81% of students in the United Kingdom attained Level 2 or higher in mathematics. These students can interpret and recognise, without direct instructions, how a (simple) situation can be represented mathematically (e.g. comparing the total distance across two alternative routes, or converting prices 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 B-S-J-Z (China) to just 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.
- Some 13% of students scored at Level 5 or higher in mathematics. Six Asian countries and economies had the largest shares of students who did so: Beijing-Shanghai-Jiangsu-Zhejiang (China) (just over 44%), Singapore (nearly 37%), Hong Kong (China) (29%), Macao (China) (nearly 28%), Chinese Taipei (just over 23%) and Korea (just over 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 83% of students in the United Kingdom, compared with 78% on average across OECD countries, attained Level 2 or higher in science. 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. The proportions exceeded 90% in Beijing, Shanghai, Jiangsu and Zhejiang (China), Estonia, Macao (China), and Singapore
- Some 10% of students were top performers in science, compared with 7% on average across OECD countries, meaning that they were proficient at Level 5 or 6. These students can creatively and autonomously apply their knowledge of and about science to a wide variety of situations, including unfamiliar ones. The proportion of top performers ranged from 32% in Beijing, Shanghai, Jiangsu and Zhejiang (China) to nearly 0% in Kosovo.

Performance trends

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



Note:*indicates statistically mean-performance estimates that are significantly above or below PISA 2018 estimates.

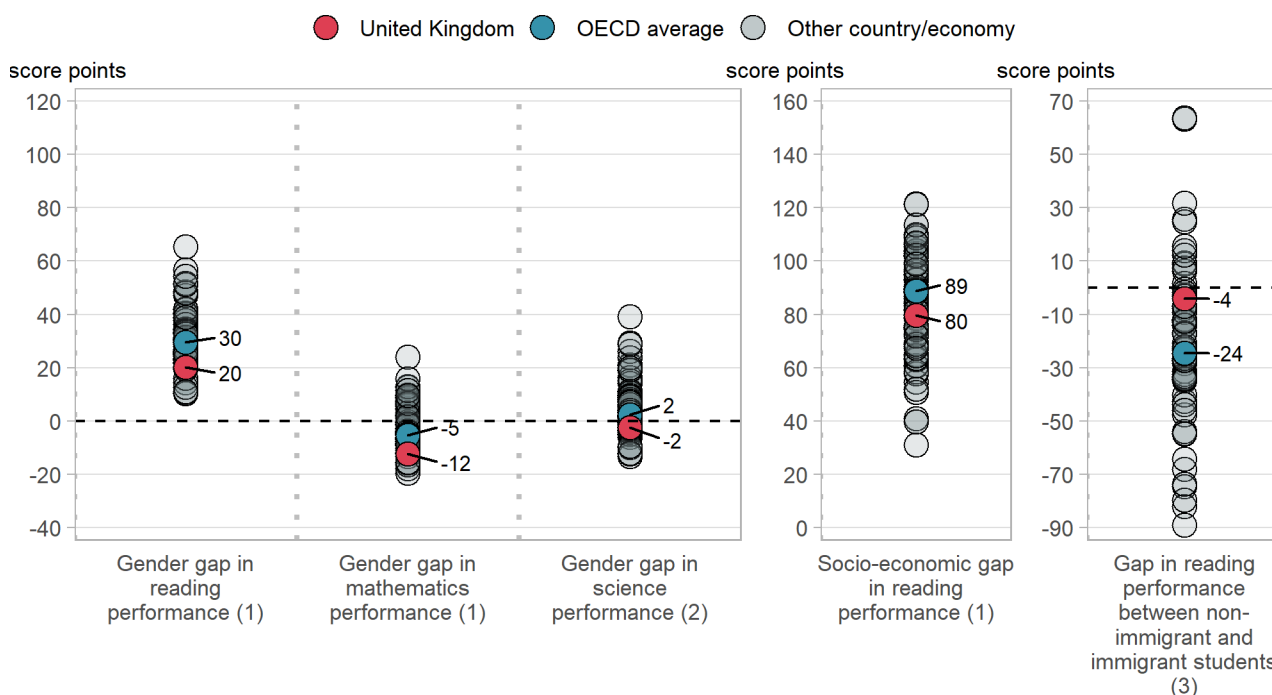
The blue line indicates the average mean performance across OECD countries with valid data in all PISA assessments. The red dotted line indicates mean performance in the United Kingdom. The black line represents a trend line for the United Kingdom (line of best fit).

Source: OECD, PISA 2018 Database, Tables I. B1.10, I. B1.11 and I. B1.12.

- Mean performance in reading and science in the United Kingdom remained stable since 2006, with no significant improvement or decline. This apparent stability hides changes in the performance of high- and low-scoring students. There was a 3.4 percentage-point increase in the share of top performers in reading between 2009 and 2018 but a 4.1 percentage-point decrease in the percentage of top performers in science between 2006 and 2018. Mean performance in mathematics was mostly flat but with a significant 9 score-point improvement between 2015 and 2018. In 2018, for the first time, the United Kingdom performed statistically significantly above the OECD average in mathematics.

Where All Students Can Succeed

Figure 3. Differences in performance and expectations related to personal characteristics



Note: 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.

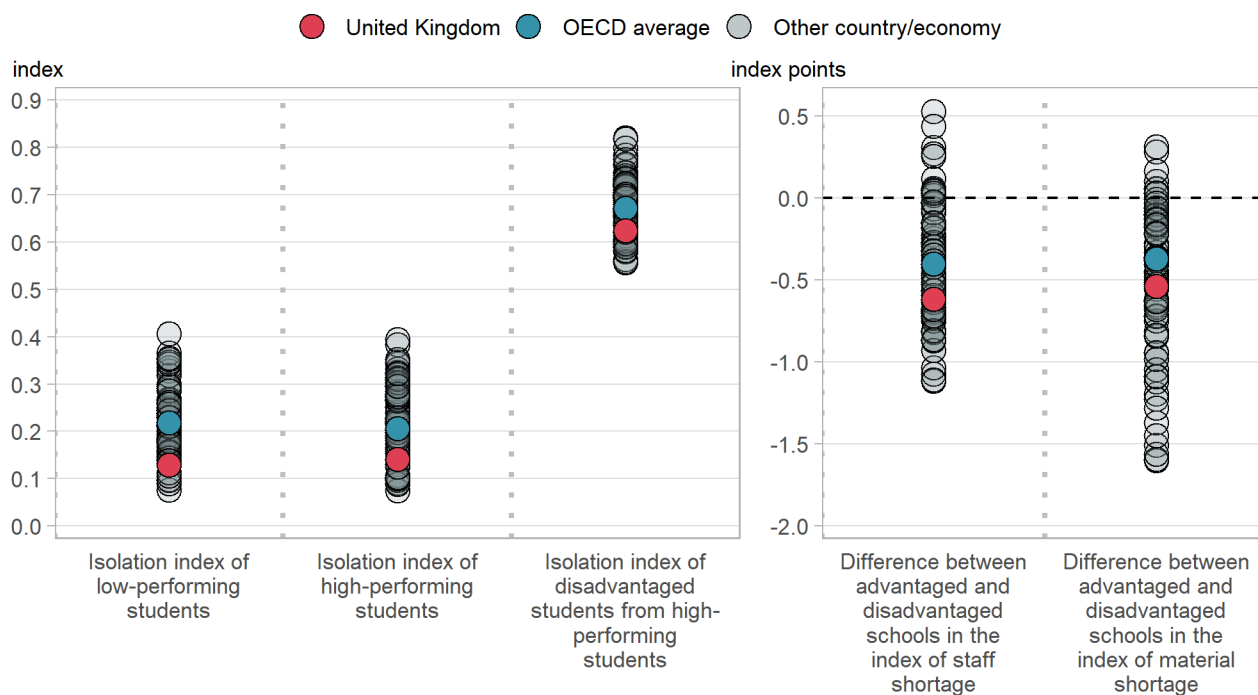
Source: OECD, PISA 2018 Database, Tables II.B1.2.3, II.B1.7.1, II.B1.7.3, II.B1.7.5 and II.B1.9.3.

Equity related to socio-economic status

- In the United Kingdom, advantaged students outperformed disadvantaged students in reading by 80 score points in PISA 2018. This is not significantly different than the average difference between the two groups (89 score points) across OECD countries. In PISA 2009, the performance gap related to socio-economic status was 92 score points in the United Kingdom (and 87 score points on average across OECD countries).

- Some 23% of advantaged students in the United Kingdom, but only 5% 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 also a strong predictor of performance in mathematics and science in all PISA participating countries. It explained 12% of the variation in mathematics performance in PISA 2018 in the United Kingdom (compared to 14% on average across OECD countries), and 11% of the variation in science performance (compared to the OECD average of 13% of the variation).
- Some 14% of disadvantaged students in the United Kingdom scored in the top quarter of reading performance, 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. In the OECD countries Canada, Estonia, Ireland and the United Kingdom the average reading score was higher than 500 points and more than 13% of students were resilient.
- In the United Kingdom, low- and high-performing students are clustered in certain schools less often as the OECD average.
- School principals in the United Kingdom reported a lower level of staff and a similar level of material shortage, compared to the OECD average; and school principals of disadvantaged schools more often reported staff shortage than principals of advantaged schools. In the United Kingdom, 30% of students enrolled in a disadvantaged school and 13% of students enrolled in an advantaged school attend a school whose principals 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 the United Kingdom, 91% of teachers in advantaged schools and 97% in disadvantaged schools are “fully certified”. The proportion of teachers with at least a master’s degree is 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 the United Kingdom, about one in three high-achieving disadvantaged students – but fewer than one in ten high-achieving advantaged students – do not expect to complete tertiary education.

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



Note: Only countries and economies with available data are shown.

Source: OECD, PISA 2018 Database, Tables II.B1.4.1, II.B1.4.8, II.B1.5.13 and II.B1.5.14.

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 the United Kingdom, the gender gap in reading (20 score points) was lower than the average gap. The gap was similar to that observed in 2009 (25 score points), as boys' performance improved and girls' performance remained stable over the period.
- In the United Kingdom, boys outperformed girls in mathematics by 12 score points, which is wider than 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 the United Kingdom, girls and boys performed similarly in science.
- Amongst high-performing students in mathematics or science, about three in ten boys in the United Kingdom expects to work as an engineer or science professional at the age of 30, while only one in five girls expect to do so. About one in four high-performing girls expects to work in health-related professions, while only one in nine high-performing boys expects to do so. Only 7% of boys, and 1% of girls in the United Kingdom expect to work in ICT-related professions.

Equity related to immigrant background

- In 2018, some 20% of students in the United Kingdom had an immigrant background, up from 11% in 2009. Amongst these immigrant students, one in three were socio-economically disadvantaged.
- The average difference in reading performance between immigrant and non-immigrant students in the United Kingdom was 20 score points in favour of non-immigrant students. The difference shrank to 4 score points after accounting for students' and schools' socio-economic profile.

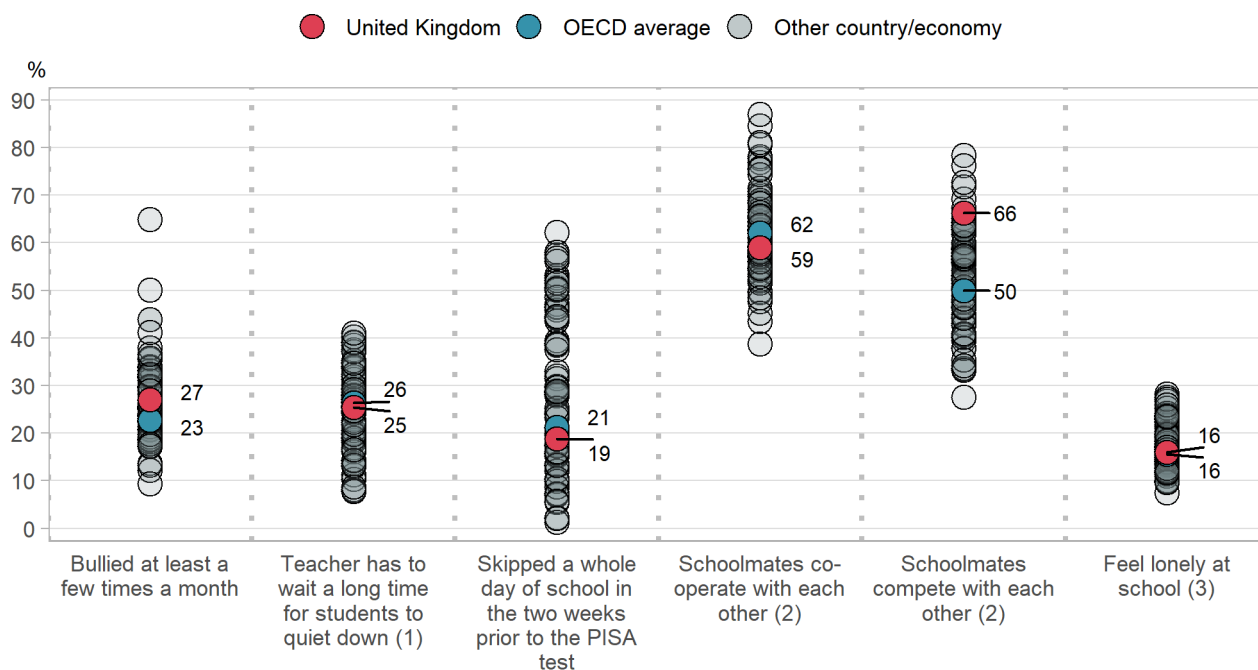
- Even though immigrant students tend to be disadvantaged, some are able to attain academic excellence. Some 21% of immigrant students scored in the top quarter of reading performance in the United Kingdom. Across OECD countries, 17% of immigrant students performed at that level.

What School Life Means for Students' Lives

How is the school climate in the United Kingdom?

- In the United Kingdom, 27% of students reported being bullied at least a few times a month, compared to 23% on average across OECD countries. Yet, 94% of students in the United Kingdom (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 25% of students in the United Kingdom (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 the United Kingdom, students who reported that, in every or most lessons, the teacher has to wait a long time for students to quiet down scored 30 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 the United Kingdom, 19% of students had skipped a day of school and 39% 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 value school enjoyed a better disciplinary climate, scored higher in the reading assessment and received greater emotional support from parents were less likely to have skipped school.
- Some 81% of students in the United Kingdom (OECD average: 74%) agreed or strongly agreed that their teacher shows enjoyment in teaching. In most countries and economies, including in the United Kingdom, 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 the United Kingdom, 59% of students reported that their schoolmates co-operate with each other (OECD average: 62%) and 66% reported that they compete with each other (OECD average: 50%).
- Some 16% of students in the United Kingdom (OECD average: 16%) agreed or strongly agreed that they feel lonely at school.

Figure 5. School climate



Note: 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

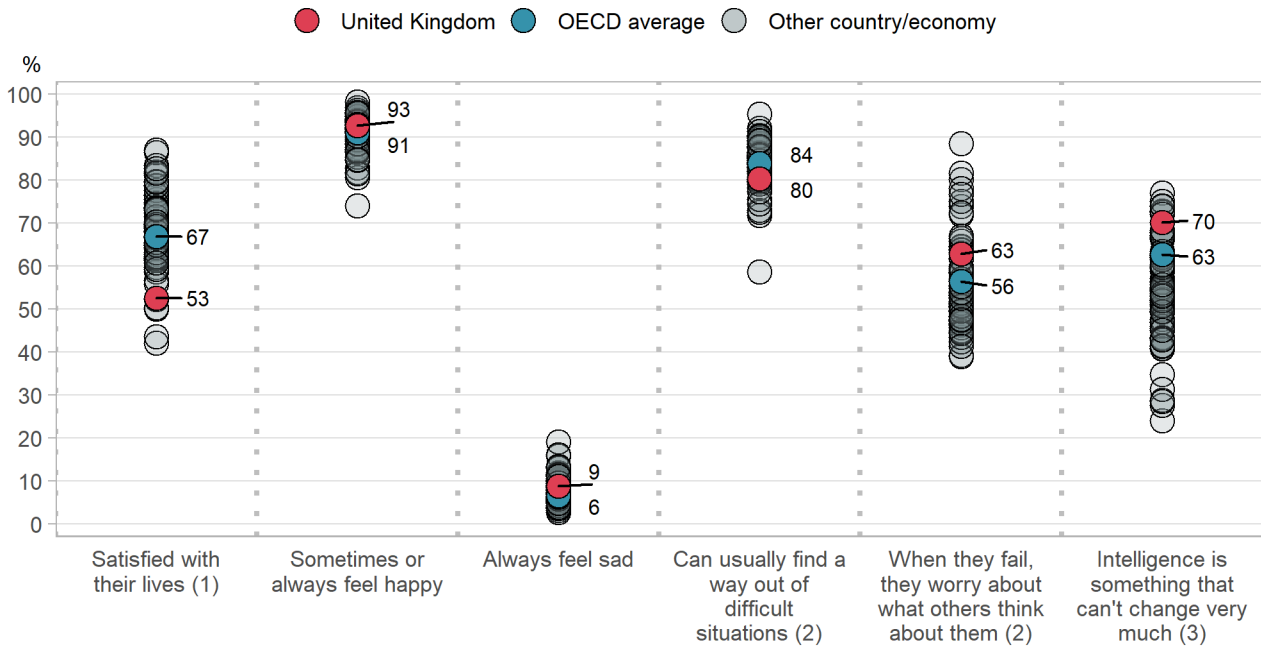
How do students in the United Kingdom feel about their lives?

- In the United Kingdom, 53% of students (OECD average: 67%) reported that they are satisfied with their lives (students who reported between 7 and 10 on the 10-point life-satisfaction scale).
- Some 93% of students in the United Kingdom reported sometimes or always feeling happy and about 9% of students reported always feeling sad. In most countries and economies, including the United Kingdom, students were more likely to report positive feelings when they reported a stronger sense of belonging at school and greater student co-operation. Students were more likely to express sadness when they were bullied more frequently.
- In the United Kingdom, 80% of students agreed or strongly agreed that they can usually find a way out of difficult situations (OECD average: 84%), and 63% 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 in the United Kingdom, girls expressed greater fear of failure than boys, and this gender gap was considerably wider amongst top-performing students.

Do students in the United Kingdom hold a growth mindset?

- A majority of students across OECD countries 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"). In the United Kingdom, 70% of students hold a growth mindset.

Figure 6. Student well-being and growth mindset



Note: 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. PISA 2018 also included an assessment of young people's financial literacy, which was optional for countries and economies.

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 the United Kingdom, 13 818 students, in 538 schools, completed the assessment, representing 597 240 of the 15-year-old students (85% 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 choose 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.

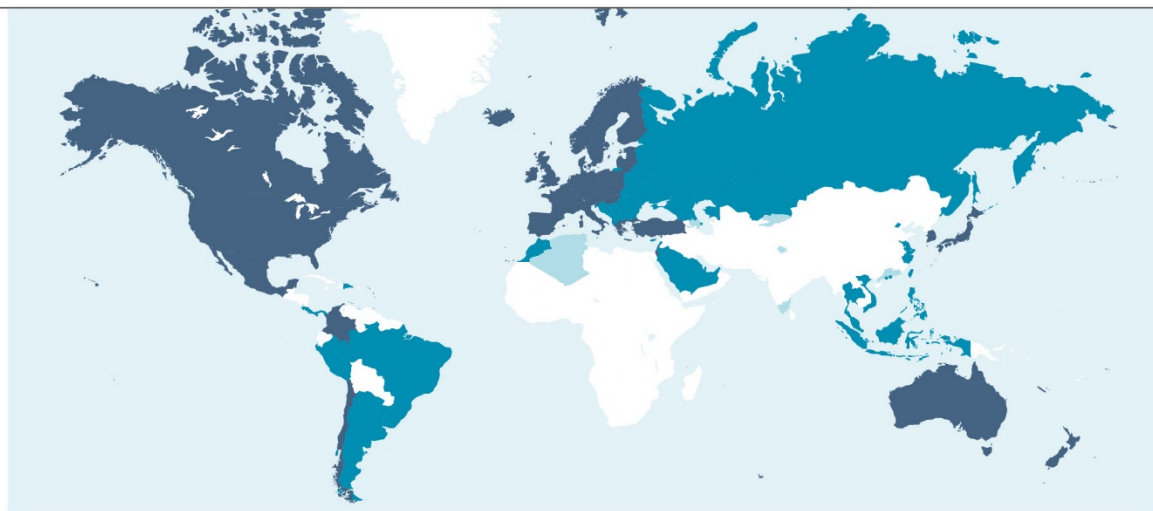
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OECD (2019), *PISA 2018 Results (Volume III): What School Life Means for Students' Lives*, PISA, OECD Publishing, Paris, <https://doi.org/10.1787/acd78851-en>

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
Cyprus¹
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.


1. **Note by Turkey:** The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

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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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