PROGRAMME FOR INTERNATIONAL
STUDENT ASSESSMENT (PISA)
RESULTS FROM PISA 2015

BRAZIL

Key findings

- The average performance of students in Brazil is significantly below the OECD average in science (401 points, compared to the average of 493 points), reading (407 points, compared to the average of 493 points) and mathematics (377 points, compared to the average of 490 points) (Figures I.2.13, I.4.1 and I.5.1).

- Brazil's average performance in science has remained stable since 2006, the last time science was the major domain assessed in PISA (the approximate 10-point increase in scores, from 390 in 2006 to 401 in 2015, is not a statistically significant change). These results are similar to trends observed across OECD countries: the small decline from 498 points in 2006 to 493 points in 2015 is not statistically significant (Table I.2.4a and Figure I.2.21).

- Brazil's per capita GDP (USD 15 893) is less than half that of the OECD average (USD 39 333). Similarly, the cumulative expenditure per student between the ages of 6 and 15 in Brazil (USD 38 190) corresponds to 42% of the average spending per student across OECD countries (USD 90 294), compared to 32% in PISA 2012 (Table I.2.11, Fig. I.2.8). Increases in spending still need to translate into better learning outcomes. Other low-spending countries, such as Colombia, Mexico and Uruguay, spend less per student than Brazil does, and perform better in science. Chile, whose expenditure per student is similar to that of Brazil (USD 40 607), also score significantly higher in science (447 points).

- In Brazil, 71% of 15-year-olds are enrolled in school, in grade 7 or above, 15 percentage points higher than in 2003, a remarkable improvement (Figure I.6.4). The fact that Brazil has managed to integrate newly enrolled students without a decline in its overall performance over time is a very positive development. In fact, while results have remained stable in science since 2006 and in reading since 2000, the country's performance in mathematics has improved by 21 score points since 2003.

- As in most countries, socio-economically disadvantaged students in Brazil are less likely to succeed at school than their more advantaged peers. Students at the bottom decile on PISA's international index of economic, social, and cultural status (ECSC) score 360 points in science, compared to 491 points, on average, among students at the top decile (Table I.6.4a and Figure I.6.7).

- Less than 10% of students who participated in PISA 2015 in Brazil have an immigrant background. As in many other countries, these students do not perform as well as non-immigrant students: after accounting for students' socio-economic status, immigrant

students (first or second generation) score, on average, 66 points below their non-immigrant peers in science (Figure I.7.4).

- In Brazil, less than 1% of boys are top performers in science (i.e. perform at or above Level 5 in PISA) compared to 8.9% of boys across the OECD countries. Only 0.5% of girls perform at the same level compared to 6.5% of girls across the OECD countries (Table I.2.6a). Among low-achievers in science (students performing below Level 2), girls are more likely than boys to expect to work in a science-related occupation (Table I.3.10c).

Student performance in science

- Students in Brazil score 401 points in science, on average – below the OECD average and comparable with students in Indonesia and Peru.

- Brazil's mean performance has remained unchanged since 2006. The difference in scores from 390 points in 2006 to 401 points in 2015 (an average increase of 2.7 score points every three years) does not represent a statistically significant change (Table I.2.4a).

- On average across OECD countries, just over 20% of students do not reach the baseline level of proficiency in science, Level 2 (Figure I.2.26). At this level, students can draw on their knowledge of basic science content and procedures to identify an appropriate explanation, interpret data, and identify the question being addressed in a simple experiment. All students should be expected to attain Level 2 by the time they leave compulsory education. The share of low-performing students in Brazil is nearly three times as high as the OECD average, a proportion that has remained unchanged since 2006 (Table I.2.2a).

- Some 8% of students across OECD countries are top performers in science, meaning that they are proficient at Level 5 or 6. At these levels, students can creatively and autonomously apply their scientific knowledge and skills to a wide variety of situations, including unfamiliar ones. In Brazil, less than 1% of students are top performers in science, significantly below the OECD average. The share of top performers has remained the same since 2006 (Table I.2.2a).

Gender differences in science performance

- Boys outperformed girls by 9 score points in 2006 and by 4 score points in 2015. While there was no significant improvement in performance among boys during this period, the mean score of girls is 13 points higher in 2015 than it was in 2006. The gender gap in science performance in Brazil is now similar to the OECD average gap (Tables I.2.7, I.2.8a and I.2.8d).

- Even though gender differences in science performance tend to be small, on average, in 33 countries and economies, the share of top performers in science is larger among boys than among girls. In Brazil, the share of top performers – although very small in the overall population of students (less than 1%) – is nearly twice as large among boys than among girls (Tables I.2.6a, I.2.6b and I.2.6d).

Student performance in reading

- Students in Brazil score, on average, 407 points in reading (Table I.4.3 or b), below the OECD average and comparable with students in Albania, Georgia, Jordan, Qatar and Thailand (Figure I.4.1).

- Mean reading performance in Brazil has remained unchanged since 2000. The difference from 396 points in 2000 to 407 score points in 2015 (an average increase of 2.5 score points every three years) does not represent a statistically significant change (Table I.4.4a).

- About 20% of students in OECD countries, on average, do not attain the baseline level of proficiency in reading, considered the level of proficiency at which students begin to demonstrate the reading skills that will enable them to participate effectively and productively in life. In Brazil, one in two students performs below Level 2 in reading, more than twice the OECD average. The share of low performers in reading has remained the same since 2009 (Table I.4.2a).

- Across OECD countries, 8.3% of students are top performers in reading, meaning that they are proficient at Level 5 or 6. At these levels students can find information in texts that are unfamiliar in form or content, demonstrate detailed understanding, and infer which information is relevant to the task. They are also able to critically evaluate such texts and build hypotheses about them, drawing on specialised knowledge and accommodating concepts that may be contrary to expectations. Only 1.4% of students in Brazil are top performers in reading, significantly below OECD average. The country's share of top performers has not changed since 2009 when reading was the major domain assessed in PISA (Table I.4.2a).

Gender differences in reading performance

- Girls outperform boys in reading by an average of 23 points (the OECD average is 27 points). Although in 2009 this gender gap was equivalent to 29 points, changes in the average performance of boys and girls during this period do not represent significant improvements (Tables 1.4.8a and I.4.8d).

- In Brazil, the share of low performers in reading is 9 percentage points larger among boys than among girls. There is no gender difference in the percentage of top performers in reading (Table I.4.6a).

Student performance in mathematics

- Students in Brazil score, on average, 377 points in mathematics (Table I.5.3), below the OECD average and comparable with students in the Former Yugoslav Republic of Macedonia and Jordan (see Figure I.5.1).

- Even though the average mathematics score increased by 21 score points between 2003 and 2015 (a significant increase of 6.2 score points every three years), the most recent period (2012-2015) has seen a decline in mean performance in mathematics by 11 score points (Table I.5.4a) . This recent trend is driven, in particular, by widening inequalities in achievement: while the best-performing 10% of students score, as in the past, close to the OECD average, the lowest-performing 10% of students fell farther behind over the most recent period (online Table I.5.4c). A similar widening of achievement gaps is also observed in science and reading (online Tables I.2.4c and I.4.4c). The widening of the achievement gap may underline the significant challenges faced by Brazil in integrating the weakest students in a fast-changing society, where opportunities are increasingly shaped by knowledge, skills, and technology.

- On average across OECD countries, almost one in four students does not reach the baseline Level 2 of proficiency in mathematics. At this level, students can interpret and recognise situations in contexts that require no more than direct inference and literal interpretation of results. They can extract relevant information from a single source, make use of a single

representational mode, and apply some basic knowledge of mathematics to solve simple problems. In Brazil, 70% of students fail to achieve this most basic level of proficiency in mathematics. No OECD country has such a large proportion of low performers in mathematics, and only three other Latin American countries come close or surpass Brazil's staggering percentages of low performers: Colombia and Peru (both near 66%) and the Dominican Republic, where more than 90% of students fail to reach the baseline level of proficiency in mathematics.

- Even though the share of low achievers has dropped slightly since 2003, the first time mathematics was the major domain assessed, the five percentage-point decrease observed during this period does not represent a statistically significant change (Table I.5.2a).

- Around one in ten students in OECD countries is a top performer in mathematics, on average; but in Singapore, more than one in three students are top performers in the subject. By contrast, in Brazil, fewer than one in one hundered students is a top performer. This proportion, 10 times below the OECD average, has remained unchanged since 2003 (Tables I.5.2a).

Gender differences in mathematics performance

- In Brazil, boys outperform girls in mathematics by an average of 15 points (the OECD average is 8 points). Although this gender gap is close to the 16 score-point difference observed in 2003, the average performance of boys and girls is significantly better in 2015. During this period, boys improved their performance by 20 score points and girls, by 21 points (Tables I.5.8a, I.5.8b and I.5.8d).

- In Brazil, the share of low performers is 7 percentage points larger among girls than among boys. Conversely, the share of top performers among boys (1.2%) is almost twice that of girls (0.6%) (Table I.5.6a).

Students' engagement with science

Disposition towards the scientific method of enquiry

PISA 2015 asked students about their beliefs about the nature of science knowledge and the validity of scientific methods of enquiry (collectively known as epistemic beliefs). Students whose epistemic beliefs are in agreement with current views about the nature of science can be said to value scientific approaches to enquiry.

While Brazil's average performance in science is well below the OECD average, its students' beliefs about the nature of science are well aligned with those of students across OECD countries and sometimes slightly stronger. For example, in Brazil, 84% of students agreed or strongly agreed that ideas in science sometimes change (the OECD average is 81%), and 88% reported that it is good to try experiments more than once to make sure of [your] findings (the OECD average is 85%) (Table I.2.12a).

Students' expectations of a career in science

- PISA 2015 asked students what occupation they expect to be working in when they are 30 years old. This revealed a considerable level of interest in science as a career among 15-year-old students in Brazil. In fact, nearly 40% of students reported that they expect to work in a science-related career, above the OECD average of 25% (Figure I.3.3 and Table I.3.10b). Unlike what is observed across OECD countries, where slightly more boys than girls expect a career in science, in Brazil, girls are more likely than boys to report so.

- In almost all countries/economies, the expectation of pursuing a career in science is strongly related to proficiency in science. However, in Brazil, strong levels of interest in science as a career stand in contrast with students' proficiency in science. In Brazil, more than 33% of low achievers (those who score below Level 2 in science) expect to pursue a career in science (the OECD average is 13%). Among top performers (those who score at or above Level 5), more than 1 in 2 students reported having the same expectation (the OECD average is 41%).

Gender-related differences in students' engagement with science

Boys and girls tend to think of working in different fields of science. In Brazil, the shares of students who expect to work as science and engineering professionals (16%) and as health professionals (21%) are nearly twice the OCDE average. As in most countries, girls envisage themselves as health professionals more than boys do, while boys see themselves as becoming ICT professionals, scientists or engineers more than girls do (Table I.3.10b, I.3.11a-c).

When a student is confident in his or her ability to accomplish particular goals in the context of science, he or she is said to have a greater sense of **self-efficacy** in science. Better performance in science leads to a greater sense of self-efficacy, through positive feedback received from teachers, peers and parents, and the positive emotions associated with that feedback.

In 39 countries and economies, boys show significantly greater self-efficacy than girls. In Brazil, these differences are not as pronounced: slightly more boys than girls reported feeling confident when asked to "identify the better of two explanations for the formation of acid rain" or to "discuss how new evidence can lead you to change your understanding about the possibility of life on Mars". Girls feel as confident as boys when asked to "recognise the science question that underlies a newspaper report on a health issue" (Figure I.3.20 and Table I.3.4c).

PISA distinguishes between two forms of motivation to learn science: students may learn science because they enjoy it (**intrinsic motivation**) and/or because they perceive learning science to be useful for their future plans (**instrumental motivation**).

Overall levels of enjoyment of science and the share of students who perceive learning science as useful for their future are much higher than the OECD average among both boys and girls. Unlike in the majority of OECD countries, girls in Brazil are more likely than boys to agree with the statements "I enjoy acquiring new knowledge in science" and reporting that "studying my <school science> subject(s) is worthwhile for me because what I learn will improve my career prospects" (Tables I.3.1c and I.3.3c).

Student truancy

- On average across OECD countries, 20% of students reported that they had skipped a day of school or more in the two weeks prior to the PISA test; in Brazil, 48% of students so reported. Moreover, in Brazil, 40% of students reported that they had arrived late for school over the same period, compared with 44% of students who so reported across OECD countries (Table II.3.1). Students who arrive late or play truant miss learning opportunities. They also disrupt class, creating a disciplinary climate that is not conducive to learning for their fellow students. In PISA-participating countries and economies, skipping a whole day of school is more common in disadvantaged schools than in advantaged schools.

- Between 2012 and 2015, the percentage of students who had skipped a day of school once or twice in the two weeks prior to the PISA test increased by 21 percentage points, signalling a deterioration in students' engagement with school during the period (Figure II.3.2).

Context for student achievement

Spending on education has increased since 2012, but Brazil still faces the challenge of translating the additional expenditure into better learning outcomes. Brazil's per capita GDP (USD 15 893) is less than half that of the OECD average (USD 39 333). The cumulative expenditure per student between the ages of 6 and 15 in Brazil (USD 38 190) corresponds to 42% of the average spending per student across OECD countries (USD 90 294), compared to 32% in 2012 (Figure I.2.8, Table I.2.11). Still, other low-spending countries, such as Colombia, Mexico and Uruguay, spend less per student than Brazil, while performing better in science. Chile, whose expenditure per student is similar to that of Brazil (USD 40 607), also score significantly higher in science (447 points).

More 15-year-old students are now in school, a remarkable improvement. In Brazil, 71% of 15-year-olds are enrolled in school, in grade 7 or above, 15 percentage points higher than in 2003 (Figure I.6.4). This needs to be taken into consideration when interpreting PISA results as they cannot fully represent the target population of 15-year-olds in Brazil. That being said, Brazil's increases in coverage are remarkable. The fact that Brazil has managed to integrate newly enrolled students without a decline in its overall performance over time is a very positive development. In fact, while results have remained stable in science since 2006 and in reading since 2000, the country's performance in mathematics has improved by 21 score points since 2003.

A small percentage of parents in Brazil have attained tertiary education. Less than 15% of 35-44 year-old adults in Brazil have a tertiary education. This is much lower than the OECD average of 37% and the second lowest proportion of tertiary-educated adults among all PISA-participating countries/economies with available data, and second only to Indonesia, where less than 9% of adults have attained this level of education. This age group corresponds roughly to that of the parents of the 15-year-olds assessed in PISA 2015 (Table I.2.11).

Brazil has a large percentage of disadvantaged students. Some 43% of students in Brazil are at the bottom two deciles on PISA's international index of economic, social, and cultural status (ESCS), a much higher percentage than the OECD average (12%). Compared to other Latin American countries, the share of disadvantaged students is somewhat similar to that in Colombia and smaller than that in only two other coutries, Mexico and Peru (Table I.6.4a).

The impact of socio-economic status on performance

- Canada, Estonia, Finland and Japan achieve high levels of performance and equity in education outcomes as assessed in PISA 2015, with 10% or less of the variation in student performance attributed to differences in students' socio-economic status. In Brazil, 13% of the variation in student performance in science is attributed to differences in students' socio-economic statues, similar to the average across OECD countries (Figure I.6.6 and Table I.6.3a).

- Across OECD countries, a more socio-economically advantaged student scores 38 points higher in science than a less-advantaged student. In Brazil, a more advantaged student scores 27 points higher in science, a difference that is below the OECD average, but still equivalent to approximately one year of schooling.

- Across OECD countries, 29% of disadvantaged students are "**resilient**", meaning that they beat the socio-economic odds against them and perform among the top 25% of students worldwide. In Hong Kong (China), Macao (China) and Viet Nam, more than one in two disadvantaged students are resilient (Figure I.6.10). In Brazil, 9% of disadvantaged students are resilient (Table I.6.7).

Education policies and practices

Opportunity to learn science at school

On average across OECD countries, 94% of students reported that they attend at least one science course per week. But that means that at least one million 15-year-old students are not required to attend any science lesson (Table II.2.3). In Brazil, 8% of students are not required to attend any science lessons.

Students who reported not attending school science classes are more likely to be in schools that are socio-economically disadvantaged (Figure II.2.5). In Brazil, the percentage of students required to attend at least one science course is four percentage points higher in advantaged schools than in disadvantage schools, a difference similar to the OECD average.

Across OECD countries, students who are not required to attend science lessons score 25 points lower in science than students who are required to attend at least one science lesson per week, after accounting for the socio-economic profile of students and schools. In Brazil, students who are not required to attend science classes score 11 points lower in science (Figure II.2.4).

Teaching strategies

How teachers teach science is more strongly associated with science performance and students' expectations of working in a science-related career than the material and human resources of science departments, including the qualifications of teachers or the kinds of extracurricular science activities offered to students. Almost everywhere students who say that their teachers explain scientific ideas more frequently score higher in science, even after accounting for socio-economic status. In Brazil, less than one in two students reported that their teachers explain scientific ideas in many or all lessons, and these students score 23 points higher in science than students who reported that their teachers explain scientific ideas only in some lessons or never, after accounting for the socio-economic profile of students and schools (Tables II.2.16 and II.2.18).

In almost all school systems, students who say that their teachers adapt the lesson to the class's needs and knowledge more frequently score higher in science, even after accounting for socio-economic status. In Brazil, 44% of students say that their teachers adapt most or every lesson to the class's needs and knowledge, and these students score 25 points higher in science than students who say that their teachers never or only sometimes adapt lessons to the students' needs and knowledge, after accounting for the economic profile of students and schools (Tables II.2.22 and II.2.24).

Resource allocation

Equitable resource allocation means that the schools attended by socio-economically disadvantaged students are at least as well-equipped as the schools attended by advantaged students, to compensate for inequalities in the home environment. Based on school principals' reports, in 26 countries and economies, advantaged schools are better equipped than disadvantaged schools.

With the exception of Ciudad Autónoma de Buenos Aires (Argentina) and Macao (China), all school systems where principals of disadvantaged schools are considerably more concerned about the material resources at their school than principals of advantaged schools score below 450 score points in science. In Brazil, principals of disadvantaged schools are more concerned about the material resources in their school than principals of advantaged schools (Tables II.6.2 and II.6.3).

Selecting and sorting students

On average across OECD countries, school systems begin selecting students for different programmes at the age of 14. Some OECD countries, including Austria and Germany, start selecting students as

early as age 10. In Brazil, schools start selecting students at age 15, later than than the OECD average. The later students are selected into different academic programmes/schools and the lower the percentage of students who had repeated a grade, the greater the equity in science performance, even after accounting for the school's mean score in science and the variation in student performance (Figure II.5.8 and Table II.5.27).

Moreover, in countries and economies with large enrolments in pre-vocational or vocational programmes, these enrolments vary markedly according to schools' socio-economic profiles. On average across OECD countries, the proportion of 15-year-old students enrolled in a vocational track is 21 percentage points smaller among students in advantaged schools than among students in disadvantaged schools. In Brazil, the opposite pattern is observed: enrolment in a vocational track is nearly 10 percentage points higher among students in advantaged schools (10.4%) than among students in disadvantaged schools (0.6%) (Figure II.5.9).

When considering the performance of students enrolled in general and vocational programmes, students in general programmes score 22 points higher on the PISA 2015 science assessment, on average across OECD countries. This is in contrast with the findings in Brazil, where students in vocational programmes score 58 points higher than those in general programmes, after accounting for the socio-economic profile of schools and students. This is the largest advantage in favour of students in vocational programmes among all PISA-participating countries and economies. In only a handful of other countries, namely Colombia, Costa Rica, the Dominican Republic, Japan, Luxembourg, Mexico and Switzerland, do students in vocational tracks score higher in science than those in general or academic programmes (Figure II.5.10).

Grade repetition

In 13 countries and economies, at least 30% of students had repeated a grade at least once in primary or secondary education; in Brazil, 36% of students had done so, a proportion similar to that observed in Uruguay. Among Latin-American countries, only Colombia has a higher rate of grade repetition (43%) than Brazil (Table II.5.9). Grade repetition is negatively associated with performance in science and with equity.

The pervasiveness of grade repetition in Brazil has been linked to high dropout rates, high levels of student disengagement, and the additional years that it takes students to complete compulsory education. One promising finding is that, across OECD countries, the percentage of students who reported that they had repeated a grade at least once decreased by almost 3 percentage points between 2009 and 2015 (Table II.5.11 and Figure II.5.5). In Brazil, the percentage of students who reported that they had repeated a grade at least once decreased by 6 percentage points between 2009 and 2015, a decline largely observed among students in secondary school (Table II.5.13).

Snapshot of performance in science, reading and mathematics

Countries/economies with a mean performance/share of top performers above the OECD average
Countries/economies with a share of low achievers below the OECD average

Countries/economies with a mean performance/share of top performers/
share of low achievers not significantly different from the OECD average

Countries/economies with a mean performance/share of top performers below the OECD average
Countries/economies with a share of low achievers above the OECD average

	Science		Reading		Mathematics		Science, reading and mathematics	
	Mean score in PISA 2015	Average three-year trend	Mean score in PISA 2015	Average three-year trend	Mean score in PISA 2015	Average three-year trend	Share of top performers in at least one subject (Level 5 or 6)	Share of low achievers in all three subjects (below Level 2)
	Mean	Score dif.	Mean	Score dif.	Mean	Score dif.	%	%
OECD average	493	-1	493	-1	490	-1	15.3	13.0
Singapore	556	7	535	5	564	1	39.1	4.8
Japan	538	3	516	-2	532	1	25.8	5.6
Estonia	534	2	519	9	520	2	20.4	4.7
Chinese Taipei	532	0	497	1	542	0	29.9	8.3
Finland	531	-11	526	-5	511	-10	21.4	6.3
Macao (China)	529	6	509	11	544	5	23.9	3.5
Canada	528	-2	527	1	516	-4	22.7	5.9
Viet Nam	525	-4	487	-21	495	-17	12.0	4.5
Hong Kong (China)	523	-5	527	-3	548	1	29.3	4.5
B-S-J-G (China)	518	m	494	m	531	m	27.7	10.9
Korea	516	-2	517	-11	524	-3	25.6	7.7
New Zealand	513	-7	509	-6	495	-8	20.5	10.6
Slovenia	513	-2	505	11	510	2	18.1	8.2
Australia	510	-6	503	-6	494	-8	18.4	11.1
United Kingdom	509	-1	498	2	492	-1	16.9	10.1
Germany	509	-2	509	6	506	2	19.2	9.8
Netherlands	509	-5	503	-3	512	-6	20.0	10.9
Switzerland	506	-2	492	-4	521	-1	22.2	10.1
Ireland	503	0	521	13	504	0	15.5	6.8
Belgium	502	-3	499	-4	507	-5	19.7	12.7
Denmark	502	2	500	3	511	-2	14.9	7.5
Poland	501	3	506	3	504	5	15.8	8.3
Portugal	501	8	498	4	492	7	15.6	10.7
Norway	498	3	513	5	502	1	17.6	8.9
United States	496	2	497	-1	470	-2	13.3	13.6
Austria	495	-5	485	-5	497	-2	16.2	13.5
France	495	0	499	2	493	-4	18.4	14.8
Sweden	493	-4	500	1	494	-5	16.7	11.4
Czech Republic	493	-5	487	5	492	-6	14.0	13.7
Spain	493	2	496	7	486	1	10.9	10.3
Latvia	490	1	488	2	482	0	8.3	10.5
Russia	487	3	495	17	494	6	13.0	7.7
Luxembourg	483	0	481	5	486	-2	14.1	17.0
Italy	481	2	485	0	490	7	13.5	12.2
Hungary	477	-9	470	-12	477	-4	10.3	18.5
Lithuania	475	-3	472	2	478	-2	9.5	15.3
Croatia	475	-5	487	5	464	0	9.3	14.5
CABA (Argentina)	475	51	475	46	456	38	7.5	14.5
Iceland	473	-7	482	-9	488	-7	13.2	13.2
Israel	467	5	479	2	470	10	13.9	20.2
Malta	465	2	447	3	479	9	15.3	21.9
Slovak Republic	461	-10	453	-12	475	-6	9.7	20.1
Greece	455	-6	467	-8	454	1	6.8	20.7
Chile	447	2	459	5	423	4	3.3	23.3
Bulgaria	446	4	432	1	441	9	6.9	29.6
United Arab Emirates	437	-12	434	-8	427	-7	5.8	31.3
Uruguay	435	1	437	5	418	-3	3.6	30.8
Romania	435	6	434	4	444	10	4.3	24.3
Cyprus[1]	433	-5	443	-6	437	-3	5.6	26.1
Moldova	428	9	416	17	420	13	2.8	30.1
Albania	427	18	405	10	413	18	2.0	31.1
Turkey	425	2	428	-18	420	2	1.6	31.2
Trinidad and Tobago	425	7	427	5	417	2	4.2	32.9
Thailand	421	2	409	-6	415	1	1.7	35.8
Costa Rica	420	-7	427	-9	400	-6	0.9	33.0
Qatar	418	21	402	15	402	26	3.4	42.0
Colombia	416	8	425	6	390	5	1.2	38.2
Mexico	416	2	423	-1	408	5	0.6	33.8
Montenegro	411	1	427	10	418	6	2.5	33.0
Georgia	411	23	401	16	404	15	2.6	36.3
Jordan	409	-5	408	2	380	-1	0.6	35.7
Indonesia	403	3	397	-2	386	4	0.8	42.3
Brazil	401	3	407	-2	377	6	2.2	44.1
Peru	397	14	398	14	387	10	0.6	46.7
Lebanon	386	m	347	m	396	m	2.5	50.7
Tunisia	386	0	361	-21	367	4	0.6	57.3
FYROM	384	m	352	m	371	m	1.0	52.2
Kosovo	378	m	347	m	362	m	0.0	60.4
Algeria	376	m	350	m	360	m	0.1	61.1
Dominican Republic	332	m	358	m	328	m	0.1	70.7

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.
Notes: Values that are statistically significant are marked in bold (see Annex A3).
The average trend is reported for the longest available period since PISA 2006 for science, PISA 2009 for reading, and PISA 2003 for mathematics.
Countries and economies are ranked in descending order of the mean science score in PISA 2015.
Source: OECD, PISA 2015 Database, Tables I.2.4a, I.2.6, I.2.7, I.4.4a and I.5.4a.
StatLink ⟐⟐ http://dx.doi.org/10.1787/888933431961

Snapshot of students' science beliefs, engagement and motivation

Countries/economies with values **above** the OECD average
Countries/economies with values not significantly different from the OECD average
Countries/economies with values **below** the OECD average

	Mean science score	Beliefs about the nature and origin of scientific knowledge		Share of students with science-related career expectations				Motivation for learning science		
		Index of epistemic beliefs (support for scientific methods of enquiry)	Score-point difference per unit on the index of epistemic beliefs	All students	Boys	Girls	Increased likelihood of boys expecting a career in science	Index of enjoyment of learning science	Score-point difference per unit on the index of enjoyment of learning science	Gender gap in enjoyment of learning science (Boys - Girls)
	Mean	Mean index	Score dif.	%	%	%	Relative risk	Mean index	Score dif.	Dif.
OECD average	493	0.00	**33**	24.5	25.0	23.9	**1.1**	0.02	**25**	**0.13**
Singapore	556	0.22	**34**	28.0	31.8	23.9	**1.3**	0.59	**35**	**0.17**
Japan	538	-0.06	**34**	18.0	18.5	17.5	1.1	-0.33	**27**	**0.52**
Estonia	534	0.01	**36**	24.7	28.9	20.3	**1.4**	0.16	**24**	0.05
Chinese Taipei	532	0.31	**38**	20.9	25.6	16.0	**1.6**	-0.06	**28**	**0.39**
Finland	531	-0.07	**38**	17.0	15.4	18.7	**0.8**	-0.07	**30**	0.04
Macao (China)	529	-0.06	**26**	20.8	22.0	19.6	1.1	0.20	**21**	**0.16**
Canada	528	0.30	**29**	33.9	31.2	36.5	0.9	0.40	**26**	**0.15**
Viet Nam	525	-0.15	**31**	19.6	21.2	18.1	**1.2**	0.65	**14**	0.06
Hong Kong (China)	523	0.04	**23**	23.6	22.9	24.2	0.9	0.28	**20**	**0.26**
B-S-J-G (China)	518	-0.08	**37**	16.8	17.1	16.5	1.0	0.37	**28**	**0.14**
Korea	516	0.02	**38**	19.3	21.7	16.7	**1.3**	-0.14	**31**	**0.32**
New Zealand	513	0.22	**40**	24.8	21.7	27.9	**0.8**	0.20	**32**	0.03
Slovenia	513	0.07	**33**	30.8	34.6	26.8	**1.3**	-0.36	**22**	-0.03
Australia	510	0.26	**39**	29.2	30.3	28.2	1.1	0.12	**33**	**0.16**
United Kingdom	509	0.22	**37**	29.1	28.7	29.6	1.0	0.15	**30**	**0.18**
Germany	509	-0.16	**34**	15.3	17.4	13.2	**1.3**	-0.18	**29**	**0.43**
Netherlands	509	-0.19	**46**	16.3	16.9	15.7	1.1	-0.52	**30**	**0.25**
Switzerland	506	-0.07	**34**	19.5	19.8	19.1	1.0	-0.02	**30**	**0.17**
Ireland	503	0.21	**36**	27.3	28.0	26.6	1.1	0.20	**32**	0.09
Belgium	502	0.00	**34**	24.5	25.3	23.6	**1.1**	-0.03	**28**	**0.20**
Denmark	502	0.17	**32**	14.8	11.8	17.7	**0.7**	0.12	**26**	0.09
Poland	501	-0.08	**27**	21.0	15.4	26.8	**0.6**	0.02	**18**	**-0.10**
Portugal	501	0.28	**33**	27.5	26.7	28.3	0.9	0.32	**23**	0.08
Norway	498	-0.01	**35**	28.6	28.9	28.4	1.0	0.12	**29**	**0.27**
United States	496	0.25	**32**	38.0	33.0	43.0	**0.8**	0.23	**26**	**0.21**
Austria	495	-0.14	**36**	22.3	26.6	18.0	**1.5**	-0.32	**25**	**0.23**
France	495	0.01	**30**	21.2	23.6	18.7	**1.3**	-0.03	**30**	**0.31**
Sweden	493	0.14	**38**	20.2	21.8	18.5	**1.2**	0.08	**27**	**0.22**
Czech Republic	493	-0.23	**41**	16.9	18.6	15.0	**1.2**	-0.34	**27**	-0.06
Spain	493	0.11	**30**	28.6	29.5	27.8	1.1	0.03	**28**	**0.11**
Latvia	490	-0.26	**27**	21.3	21.1	21.5	1.0	0.09	**18**	0.03
Russia	487	-0.26	**27**	23.5	23.2	23.8	1.0	0.00	**16**	0.07
Luxembourg	483	-0.15	**35**	21.1	24.3	18.0	**1.4**	0.10	**26**	**0.14**
Italy	481	-0.10	**34**	22.6	24.7	20.6	**1.2**	0.00	**22**	**0.24**
Hungary	477	-0.36	**35**	18.3	23.9	12.8	**1.9**	-0.23	**20**	-0.02
Lithuania	475	0.11	**22**	23.9	22.5	25.4	**0.9**	0.36	**20**	**-0.14**
Croatia	475	0.03	**32**	24.2	26.8	21.8	**1.2**	-0.11	**22**	0.05
CABA (Argentina)	475	0.09	**28**	27.8	26.2	29.3	0.9	-0.20	**15**	**-0.14**
Iceland	473	0.29	**28**	23.8	20.1	27.3	**0.7**	0.15	**24**	**0.26**
Israel	467	0.18	**38**	27.8	26.1	29.5	0.9	0.09	**20**	0.06
Malta	465	0.09	**54**	25.4	30.2	20.4	**1.5**	0.18	**48**	**0.11**
Slovak Republic	461	-0.35	**36**	18.8	18.5	19.0	1.0	-0.24	**25**	-0.02
Greece	455	-0.19	**36**	25.3	25.7	24.9	1.0	0.13	**27**	**0.12**
Chile	447	-0.15	**23**	37.9	36.9	39.0	0.9	0.08	**15**	**-0.09**
Bulgaria	446	-0.18	**34**	27.5	28.8	25.9	1.1	0.28	**17**	**-0.16**
United Arab Emirates	437	0.04	**33**	41.3	39.9	42.6	0.9	0.47	**22**	-0.02
Uruguay	435	-0.13	**27**	28.1	23.8	31.9	**0.7**	-0.10	**16**	**-0.07**
Romania	435	-0.38	**27**	23.1	23.3	23.0	1.0	-0.03	**17**	-0.05
Cyprus*	433	-0.15	**33**	29.9	29.3	30.5	1.0	0.15	**29**	0.06
Moldova	428	-0.14	**37**	22.0	22.5	21.3	1.1	0.33	**22**	**-0.17**
Albania	427	-0.03	m	24.8	m	m	m	0.72	m	m
Turkey	425	-0.17	**18**	29.7	34.5	24.9	**1.4**	0.15	**12**	0.01
Trinidad and Tobago	425	-0.02	**28**	27.8	24.6	31.0	**0.8**	0.19	**24**	-0.01
Thailand	421	-0.07	**35**	19.7	12.4	25.2	**0.5**	0.42	**18**	-0.05
Costa Rica	420	-0.15	**16**	44.0	43.8	44.2	1.0	0.35	**4**	-0.03
Qatar	418	-0.10	**33**	38.0	36.3	39.9	0.9	0.36	**25**	0.00
Colombia	416	-0.19	**21**	39.7	37.1	42.0	0.9	0.32	**7**	-0.02
Mexico	416	-0.17	**17**	40.7	45.4	35.8	**1.3**	0.42	**12**	0.01
Montenegro	411	-0.32	**23**	21.2	20.1	22.4	0.9	0.09	**14**	**-0.07**
Georgia	411	0.05	**42**	17.0	16.4	17.7	0.9	0.34	**23**	**-0.13**
Jordan	409	-0.13	**28**	43.7	44.6	42.8	1.0	0.53	**23**	**-0.25**
Indonesia	403	-0.30	**16**	15.3	8.6	22.1	**0.4**	0.65	**6**	-0.06
Brazil	401	-0.07	**27**	38.8	34.4	42.8	**0.8**	0.23	**19**	-0.04
Peru	397	-0.16	**23**	38.7	42.7	34.6	**1.2**	0.40	**9**	0.01
Lebanon	386	-0.24	**35**	39.7	41.0	38.5	1.1	0.38	**32**	-0.04
Tunisia	386	-0.31	**18**	34.4	28.5	39.5	**0.7**	0.52	**15**	**-0.12**
FYROM	384	-0.18	**30**	24.2	20.0	28.8	**0.7**	0.48	**17**	**-0.29**
Kosovo	378	0.03	**22**	26.4	24.7	28.1	0.9	0.92	**14**	**-0.16**
Algeria	376	-0.31	**16**	26.0	23.1	29.2	**0.8**	0.46	**14**	**-0.12**
Dominican Republic	332	-0.10	**13**	45.7	44.7	46.8	1.0	0.54	**6**	-0.05

* See note 1 under Figure I.1.1.
Note: Values that are statistically significant are indicated in bold (see Annex A3).
Countries and economies are ranked in descending order of the mean science score in PISA 2015.
Source: OECD, PISA 2015 Database, Tables I.2.12a-b, I.3.1a-c and I.3.10a-b.
StatLink ⟨⟩ http://dx.doi.org/10.1787/888933431979

What is PISA?

The Programme for International Student Assessment (PISA) is an ongoing triennial survey that assesses the extent to which 15-year-olds students near the end of compulsory education have acquired key knowledge and skills that are essential for full participation in modern societies. The assessment does not just ascertain whether students can reproduce knowledge; it also examines how well students can extrapolate from what they have learned and apply that knowledge in unfamiliar settings, both in and outside of school. This approach reflects the fact that modern economies reward individuals not for what they know, but for what they can do with what they know.

PISA offers insights for education policy and practice, and helps monitor trends in students' acquisition of knowledge and skills across countries and in different demographic subgroups within each country. The findings allow policy makers around the world to gauge the knowledge and skills of students in their own countries in comparison with those in other countries, set policy targets against measurable goals achieved by other education systems, and learn from policies and practices applied elsewhere.

Key features of PISA 2015

- The PISA 2015 survey focused on science, with reading, mathematics and collaborative problem-solving as minor areas of assessment. For the first time, PISA 2015 delivered the assessment of all subjects via computer. Paper-based assessments were provided for countries that chose not to test their students by computer, but the paper-based assessment was limited to questions that could measure trends in science, reading and mathematics performance.

The students

- Around 540 000 students completed the assessment in 2015, representing about 29 million 15-year-olds in the schools of the 72 participating countries and economies.

The assessment

- Computer-based tests were used, with assessments lasting a total of two hours for each student.

- 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. About 810 minutes of test items were covered, with different students taking different combinations of test items.

- Students also answered a background questionnaire, which took 35 minutes to complete. The questionnaire sought information about the students themselves, their homes, and their school and learning experiences. School principals completed a questionnaire that covered the school system and the learning environment. For additional information, some countries/economies decided to distribute a questionnaire to teachers. It was the first time that this optional teacher questionnaire was offered to PISA-participating countries/economies. In some countries/economies, optional questionnaires were distributed to parents, who were asked to provide information on their perceptions of and involvement in their child's school, their support for learning in the home, and their child's career expectations, particularly in science. Countries could choose two other optional questionnaires for students: one asked students about their familiarity with and use of information and communication technologies (ICT); and the second sought information about students' education to date, including any interruptions in their schooling, and whether and how they are preparing for a future career.

Map of PISA countries and economies

■		■		■	
OECD countries		**Partner countries and economies in PISA 2015**		**Partner countries and economies in previous cycles**	
Australia	Korea	Albania	Lithuania	Azerbaijan	
Austria	Latvia	Algeria	Macao (China)	Himachal Pradesh-India	
Belgium	Luxembourg	Argentina	Malaysia	Kyrgyzstan	
Canada	Mexico	Brazil	Malta	Liechtenstein	
Chile	The Netherlands	B-S-J-G (China)*	Moldova	Mauritius	
Czech Republic	New Zealand	Bulgaria	Montenegro	Miranda-Venezuela	
Denmark	Norway	Colombia	Peru	Panama	
Estonia	Poland	Costa Rica	Qatar	Serbia	
Finland	Portugal	Croatia	Romania	Tamil Nadu-India	
France	Slovak Republic	Cyprus[1]	Russian Federation		
Germany	Slovenia	Dominican Republic	Singapore		
Greece	Spain	Former Yugoslav Republic of Macedonia	Chinese Taipei		
Hungary	Sweden	Georgia	Thailand		
Iceland	Switzerland	Hong Kong (China)	Trinidad and Tobago		
Ireland	Turkey	Indonesia	Tunisia		
Israel	United Kingdom	Jordan	United Arab Emirates		
Italy	United States	Kazakhstan	Uruguay		
Japan		Kosovo	Viet Nam		
		Lebanon			

* B-S-J-G (China) refers to the four PISA participating China provinces: Beijing, Shanghai, Jiangsu, 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 on the Programme for International Student Assessment and to access the full set of PISA 2015 results visit:

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