

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

MEXICO

Key findings

- Mexico performs below the OECD average in science (416 score points), reading (423 score points) and mathematics (408 score points). In all three domains, less than 1% of students in Mexico are top performers.
- The average science performance of 15-year-old students in Mexico did not change significantly since 2006, when science was the main domain assessed. In reading, performance has remained stable since 2009. Mathematics performance improved by 5 score points every three years, on average, between 2003 and 2015.
- Mexico spends USD 27 848 per student between ages 6 to 15 years. This level of expenditure is 31% of the OECD average, whereas Mexico's per capita GDP (USD 17 315) is 44% of the OECD average.
- In Mexico, boys perform better in science than girls, on average, but similar percentages of boys and girls are low and top performers in science. About 45% of boys and 36% of girls expect to work in a science-related occupation at age 30 – in both cases, significantly above the OECD average.
- Students in Mexico reported high levels of engagement with science compared to their peers in other OECD countries – whether measured as expectations of a science-related career, their beliefs in the value of scientific enquiry, or their motivation to learn science; but these positive dispositions are weakly associated with student performance in science.
- In Mexico, 11% of the variation in student performance in science is attributed to differences in students' socio-economic status, and disadvantaged students are about two-and-a-half times more likely than their more advantaged peers to be low performers in science. By both indicators, the relationship between socio-economic status and performance is weaker in Mexico than on average across OECD countries.

Student performance in science

- Students in Mexico score 416 points in science, on average (Table I.2.3a). Mean performance in Mexico lies below the OECD average of 496 points and is comparable with that of Colombia, Costa Rica, Georgia, Montenegro, Qatar and Thailand. Mexico's 15-year-old students score more than 70 points below students in Portugal and Spain, and between 20 and 60 points below students in Chile and Uruguay, but above students in Brazil, the Dominican Republic and Peru (Figure I.2.13).

- Mexico's mean performance in science has remained unchanged since 2006, when science was the main domain assessed. However, among low-performing students, performance improved by 7 score points every three years, on average, between 2006 and 2015 (Table I.2.4b).
- On average across OECD countries, just over 20% of students in 2015 do not reach the baseline level of proficiency in science, Level 2. 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 Mexico is 48%, the highest among OECD countries. This share has decreased by 3 percentage points since 2006, not a significant change (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. The share of top-performing students in Mexico, 0.1%, has not changed significantly since 2006 (Table I.2.2a).

Gender differences in science performance

- Boys outperform girls in science by an average of 8 score points, above the OECD average. The gender gap in science is not significant among low-achieving students, but it is larger, 20 score points, among the highest-achieving students, and above the OECD average. The average gender gap has remained unchanged since 2006 (Tables I.2.8a and I.2.8d).
- In Mexico, the shares of top and low performers are similar among boys and girls, and have not changed significantly since 2006 (Tables I.2.6a and I.2.6d).

Student performance in reading

- Students in Mexico score 423 points in reading, on average, below the OECD average of 493 points (Table I.4.3) and comparable with the mean performance of students in Bulgaria, Colombia, Costa Rica, Moldova, Montenegro, Trinidad and Tobago, and Turkey (Figure I.4.1). Mexico's 15-year-old students score more than 70 points below students in Portugal and Spain, and between 15 and 35 points below students in Chile and Uruguay, but above students in Brazil, the Dominican Republic and Peru (Figure I.4.1).
- Mexico's mean performance in reading is close to that observed in 2000 (422 points) and in 2009 (425 points), when reading was last assessed as a major domain in PISA, but significantly higher than in 2003 (400 points) (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 Mexico, 42% of students perform below Level 2 in reading, significantly above the percentage in Chile, similar to the percentage in Colombia, Costa Rica and Uruguay, and smaller than the share in Brazil and Peru. In Mexico, the share of low performers in reading has remained unchanged 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 0.3% of students in Mexico are top performers in reading, below the percentage in Brazil, Chile, Colombia, Costa Rica and Uruguay. In Mexico, the share of top performers in reading has remained unchanged since 2009 (Table I.4.2a).

Gender differences in reading performance

- In Mexico, girls outperform boys in reading by an average of 16 score points, below the OECD average of 27 points. This gender gap in reading shrank by 9 points since 2009, a reduction similar to the OECD average decrease (Tables I.4.8a and I.4.8d).
- As a reflection of gender differences in average performance, a larger share of boys (46%) than of girls (37%) are low performers in reading; and this gender gap has not changed since 2009 (I.4.6a and I.4.6d).

Student performance in mathematics

- Students in Mexico score 408 points in mathematics, on average, below the OECD average of 490 points (Table I.5.3) and comparable with the mean performance of students in Albania and Georgia (see Figure I.5.1). Mexico's 15-year-old students score about 80 points below students in Portugal and Spain, and between 10 and 15 points below students in Chile and Uruguay, but above students in Brazil, Colombia, the Dominican Republic and Peru (Figure I.5.1).
- Mexico's mean performance in mathematics has improved by 5 score points every three years, on average, between 2003 and 2015. However, in 2015, Mexico's mean score is lower than the score attained in 2009 (419 points) (Table I.5.4a).
- On average across OECD countries, almost one in four students (23%) does not reach the baseline Level 2 of proficiency. In mathematics, students who do not reach this level can sometimes carry out a routine procedure, such as an arithmetic operation, in situations where all the instructions are given to them, but have difficulty recognising how a (simple) real-world situation can be represented mathematically (e.g. comparing the total distance across two alternative routes, or converting prices into a different currency). In Mexico, 57% of students are low achievers, above the level in Chile and Uruguay, and below the level in Brazil, Colombia, the Dominican Republic and Peru. In Mexico, the share of low achievers in mathematics remained stable between 2003 and 2015 (Tables I.5.2a).
- Around one in ten students in OECD countries (10.7%) is a top performer in mathematics, on average. In Mexico, 0.3% of students are top performers, below the percentages in Brazil, Chile and Uruguay. In 2015, Mexico has a similar share of top performers in mathematics as in 2003, but a smaller share than in 2006, 2009 and 2012 (Tables I.5.2a).

Gender differences in mathematics performance

- In Mexico, boys outperform girls in mathematics by an average of 7 score points; this difference is larger, 16 score points, among high-achieving students. At both levels, the gender gap in mathematics is similar to the OECD average. There was no significant change in the size of the gender gap in mathematics performance between 2003 and 2015 (Tables I.5.8a and I.5.8d).
- Some 59% of girls and 54% of boys do not reach the baseline level of proficiency (Level 2) in mathematics. At the other end of the performance spectrum, there are no significant gender differences in the share of top performers (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.

In Mexico, students' dispositions towards the scientific method of enquiry are somewhat less positive than those observed, on average, across OECD countries. For instance, 75% of students reported that scientists sometimes change their minds about what is true in science, compared to an OECD average of 80%; and 80% of students in Mexico agreed that trying experiments more than once is a good way to check one's findings, compared to an OECD average of 85% (Table I.2.12a). As in all countries, in Mexico, stronger agreement with these and similar statements is associated with better performance on the PISA science test (Figure I.2.34).

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. Even though many 15-year-olds are undecided about their future, almost one in four students (24%) across OECD countries reported that they expect to work in an occupation that requires further science training beyond compulsory education. In Mexico, 41% of students hold such expectations, the largest share among OECD countries. This contrasts with the small share of students who score at or above proficiency Level 4 in science. Even among students who score below PISA proficiency Level 2 in science, 36% hold such expectations, compared to the OECD average of 13% among students at that level of performance (Figures I.3.2 and I.3.3).

Between 2006 and 2015, the share of students in Mexico who expect to be working in a science-related occupation at age 30 increased by 9 percentage points – largely because of an increase in the share of students who expect to be working as health professionals, from 12% to 19%. The shares of students who expect to be working as in science-related occupations grew more among boys (by 11 percentage points) than girls (by 7 percentage points), and more among low achievers in science (by 12 percentage points) than among students with higher levels of proficiency (Tables I.3.10a and I.3.10e).

Gender-related differences in students' engagement with science

Even when equal shares of boys and girls expect a science-related career, boys and girls tend to think of working in different fields of science. In all countries, girls envisage themselves as health professionals more than boys do; and in almost all countries, boys see themselves as becoming ICT professionals, scientists or engineers more than girls do. Boys are more than twice as likely as girls to expect to work as engineers, scientists or architects (science and engineering professionals), on average across OECD countries; by contrast, girls are almost three times as likely as boys to expect to work as doctors, veterinarians or nurses (health professionals).

In Mexico, gender differences are similar to those observed on average across OECD countries, with 28% of boys reporting that they expect to pursue a career as science and engineering professionals, compared with 9% of girls; and with 26% of girls reporting that they expect to pursue a career as health professionals, compared with 13% of boys (Tables 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. Students in Mexico report

some of the highest levels of self-efficacy across all OECD countries (Table I.3.4a). And while in many countries and economies, boys reported significantly greater self-efficacy than girls, Mexico is one of the five OECD countries where there are no significant gender differences in self-efficacy. In Mexico, students' self-efficacy in science increased significantly between 2006 and 2015. In 2006, only 15% of students reported that they could easily explain the role of antibiotics in the treatment of disease; by 2015, that share had increased to 20% (Figure I.3.20 and Tables I.3.4a, c, e, f).

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**).

A majority of students who participated in PISA 2015 reported that they enjoy and are interested in learning science, but boys tended to report so more than girls, on average across OECD countries. In Mexico, by contrast, there is no significant gender difference in levels of enjoyment of science, which are the highest among OECD countries (Table 1.3.1a,c). Similarly, there is no difference between boys and girls in their levels of instrumental motivation to learn science, which are also the highest among OECD countries (Table 1.3.3a,c).

Despite the high levels of motivation to learn science reported by both girls and boys in Mexico, compared to their peers in other OECD countries, both enjoyment of science and instrumental motivation to learn science are weakly associated with student performance in science. For instance, the difference in science performance between students who enjoy science the most and those who enjoy science the least is 33 score points in Mexico, compared to the OECD average of 75 score points; and there is no difference in science performance between students in Mexico who reported the most and the least instrumental motivation to learn science, while on average across OECD countries there is a performance difference of 25 score points (Tables 1.3.1b and 1.3.3b).

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, while in Mexico, 26% of students so reported. Moreover, in Mexico, 49% of students reported having arrived late for school over the same period while 44% of students 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 most PISA-participating countries and economies, including Mexico, skipping a whole day of school is more common in disadvantaged schools than in advantages schools.

On average across OECD countries, students who had skipped a whole day of school at least once in the two weeks prior to the PISA assessment score 33 points lower in the science assessment than students who had not skipped a day of school, after accounting for the socio-economic profile of students and schools. This represents the equivalent of almost one full year of schooling. In Mexico, students who reported skipping days of school score 23 points lower in science than students who reported that they had not skipped school (Table II.3.4).

Between 2012 and 2015, the percentage of students in Mexico who had skipped a day of school in the two weeks prior to the PISA test increased by 5 percentage points, similar to the OECD average, signalling that students' engagement with school deteriorated somewhat during the period (Table II.3.3).

Context for student achievement

In 2014, Mexico's per capita GDP was USD 17 315, or 44% of the OECD average. The country's cumulative expenditure per student between the ages of 6 and 15 was USD 27 848, or 31% of the

OECD average. The ratio of the cumulative expenditure to the country's GDP is lower in Mexico (1.6) than in many other Latin American countries, including Costa Rica (3.1), Brazil (2.4), Chile (1.8), Colombia (1.8), the Dominican Republic (1.7) and Peru (1.7), but higher than that in Uruguay (1.5) (Table I.2.11).

In Mexico, 18% of 35-44 year-olds have completed tertiary education, compared to 38% on average across OECD countries, 24% in Chile, 23% in Colombia, 18% in Costa Rica, and 14% in Brazil (Table I.2.11).

In Mexico, 62% of the national population of 15-year-olds are represented in the country's PISA sample, compared to 80% in Chile, 75% in Colombia, 74% in Peru, 72% in Uruguay, 71% in Brazil and 63% in Costa Rica. This implies that a smaller share of 15-year-olds in Mexico than in other Latin American countries are enrolled in school in grade 7 or above and eligible to take the PISA test (Table I.6.1). PISA results need to be carefully interpreted when considering countries/economies where PISA samples cover a limited percentage of the target population of 15-year-olds. However, if students are not covered by PISA, it does not necessarily mean they are not enrolled. According to UNESCO, in 2014 the net school enrolment rate for youth of lower secondary age in Mexico was 81%.

The impact of socio-economic status on performance and immigration flows

- 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, compared with 13% across OECD countries. In Mexico, socio-economic status accounts for 11% of the variation in student performance in science, statistically comparable to the OECD average of 13% (Figure I.6.6 and Table I.6.3a).
- Across OECD countries, a more socio-economically advantaged student scores 38 points higher in science – the equivalent of more than one year of schooling – than a less-advantaged student. In Mexico, the difference is 19 score points – the smallest among OECD countries – while in other Latin American countries it ranges between 25 and 35 score points (Table I.6.3a).
- Across OECD countries, 29% of disadvantaged students can be considered “resilient”, meaning that they beat the socio-economic odds against them and perform among the top 25% of students with the same socio-economic status across all countries. In Hong Kong (China), Macao (China) and Viet Nam, more than one in two disadvantaged students are resilient. In Mexico, 13% of disadvantaged students are resilient, similar to the percentages in Chile (15%), Uruguay (14%) and Colombia (11%), and above the percentages in Costa Rica (9%), Peru (3%) and the Dominican Republic (0.4%). There was no significant change in the share of resilient students in Mexico between 2006 and 2015 (Figure I.6.10 and Table I.6.7).
- The share of immigrant students in OECD countries increased from 9% in 2006 to 13% in 2015. In Mexico, the proportion of students with an immigrant background decreased from 2% to 1% over this period (Figure I.7.13).

Education policies and practices

Opportunity to learn science at school

Inequalities in opportunities to learn are mainly reflected in the time education systems, schools and teachers allocate to learning. If time is a necessary condition for learning, students who do not attend science lessons are probably those who enjoy the fewest opportunities to acquire competencies in science. On average across OECD countries, 6% of students reported that they are not required to attend at least one science course per week. This means that at least one million 15-year-old students

in OECD countries are not required to attend any science lesson. In Mexico, 4% of students in 2015 were not required to attend any science lessons (Table II.2.3).

Students who reported not attending school science classes are more likely to be in schools that are socio-economically disadvantaged, and in schools located in rural areas. On average across OECD countries, students who are not required to attend science lessons score lower in science than students who take at least one science lesson per week. However, in Mexico, there are no differences in the percentage of students taking at least one science course per week between schools of different profiles. And there are no significant differences in performance between students who take at least once science course per week and those who do not (Figure II.2.5 and Table II.2.3).

PISA asked school principals to provide information about the resources available to their school's science department. In Mexico, 39% of students attend schools whose principals reported that the science department is well-equipped compared to other departments (the OECD average is 74%), 50% of students attend schools whose principals agreed that the material for hands-on activities for science is in good shape, compared to an OECD average of 78%; and 36% of students attend schools whose principals reported that enough laboratory material was available for all courses to regularly use it, compared to an OECD average of 66% (Table II.2.5). In addition, advantaged, urban and private schools in Mexico tend to have better science-specific resources than disadvantaged, rural and public schools. These differences are among the largest across all OECD countries, although their association with student science performance and attitudes towards science are similar to the OECD average (Table II.2.6).

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 reported that their teachers explain and demonstrate scientific ideas and discuss students' questions as part of most of their lessons score higher in science. In Mexico, and after accounting for their socio-economic status, students who reported that their teachers explain and demonstrate scientific ideas in many or every lesson score 26 and 21 points higher, respectively, than students who reported that their teachers engage in these practices less frequently (Table II.2.18).

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.

Principals in disadvantaged schools, rural schools and public schools in Mexico are more concerned about the material resources in their schools than their peers in advantaged, urban and private schools. In Mexico, the relationship between schools' socio-economic profile and principals' concerns about educational materials in their schools is the second strongest among all countries and economies that participated in PISA 2015. And the relationship between the shortage of educational materials and student performance is also strong. A one-unit increase on the PISA index of shortage of educational materials is associated with a 15-point drop in science scores, compared to the OECD average drop of 6 points; after accounting for socio-economic status, scores decrease by 3 points (Tables II.6.2 and II.6.3).

Selecting and sorting students

On average across OECD countries, 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 level of equity in performance, even after accounting for schools' mean score in science and the variation in student performance (Figure 5.13).

The most common age at which school systems of OECD countries begin selecting students for different programmes is 14; in Mexico, at first selection in the education system takes place one year later. In PISA 2015, about 75% of 15-year-old students in Mexico were enrolled in programmes with a general curriculum, and the remaining 25% were enrolled in programmes with a vocational curriculum, as compared OECD averages of 84% and 14%, respectively. The percentage of students enrolled in vocational programmes in Mexico grew by 3 percentage points between 2009 and 2015; by contrast, across OECD countries it decreased by 2 percentage points, on average.

In countries and economies with large enrolments in pre-vocational or vocational programmes, these enrolments tend to vary markedly according to schools' socio-economic profiles. On average across OECD countries, the proportion of 15-year-old students enrolled in a vocational programme is 21 percentage points smaller among students in advantaged schools than among students in disadvantaged schools. However, in Mexico, there is no significant difference in the propensity to enrol in a vocational track between different types of schools, although enrolment in vocational programmes is much more common among students in urban and public schools than among their peers in rural and private schools (Table II.5.17).




When considering the performance of students enrolled in general and vocational programmes, on average across OECD countries, students in general programmes score 22 points higher on the PISA 2015 science assessment, after accounting for students' and schools' socio-economic profile. Among countries and economies where enrolment rates in vocational programmes are higher than 10%, these performance differences can be up to four times larger. However, Mexico is one of the countries where the opposite association is observed: after accounting for students' and schools' socio-economic profile, students in vocational programmes score 20 points higher in science than students in academic programmes. A positive association is also observed in other Latin American countries including Brazil, Colombia, Costa Rica and the Dominican Republic, but also in OECD countries Japan, Luxembourg and Switzerland (Table II.5.17).

Grade repetition

Grade repetition is more prevalent in school systems with a lower mean score on the PISA science assessment and where students' socio-economic status is most strongly associated with science performance. Students might have been kept back to repeat course content that they had not fully mastered; or they might have been invited to skip a grade when their teachers felt they were capable of taking on more challenging schoolwork. On average across OECD countries, 11% of students had repeated a grade in either primary or secondary school by the time they sat the PISA 2015 test; in Mexico, 16% of students had repeated a grade. However, the percentage of 15-year-olds who had repeated a grade shrank by 11 points between 2009 and 2015, whereas across OECD countries, this share decreased by only 3 points, on average.

Meanwhile, after accounting for socio-economic status, students in Mexico who had repeated a grade score 45 points lower in science, on average, than those who had not repeated a grade – a smaller difference than the OECD average of 63 points.

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".


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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


	<div> <div>Countries/economies with values above the OECD average</div> <div>Countries/economies with values not significantly different from the OECD average</div> <div>Countries/economies with values below the OECD average</div> </div>									
	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, I.2a-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.

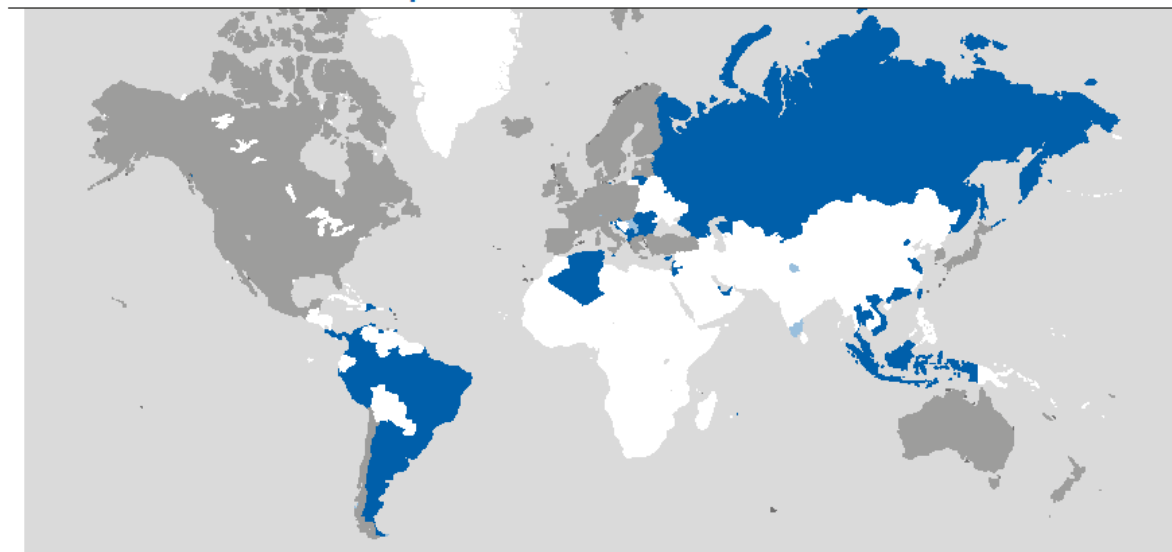
The students

- 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".

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Note regarding data from Israel

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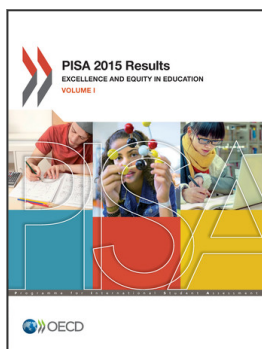
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For more information on the Programme for International Student Assessment and to access the full set of PISA 2015 results, visit:

www.oecd.org/edu/pisa





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