COUNTRY NOTE

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

SWEDEN

Key findings

- After years of declining performance, Sweden is now showing first improvements. Student performance has improved significantly in mathematics and reading, and a declining trend has been reversed in science. The results are now at or above the OECD average in all three subjects.

- It is particularly encouraging that Sweden has been able to reduce the share of low performers in mathematics, while at the same time raise excellence with an increased number of top performers.

- Sweden shows one of the highest levels of efficiency in education with strong academic results compared to the number of hours students receive instruction or do homework. Only five other school systems have a more positive ratio between learning time and academic outcomes.

- Students in Sweden have positive attitudes towards science. They agree with current views about the nature of science and scientific methods. They also believe that science is important for their own future career – more so today than around a decade ago. However, when asked about their own career expectations, few students in Sweden expect to be working in a science-related occupation.

- There are signs of growing inequalities in the distribution of learning outcomes in Sweden. The gap between the highest- and lowest-performing students has increased over the last decade and is now wider than the OECD average. The performance gap between socio-economically advantaged and disadvantaged students is also increasing.

- Sweden is facing a difficult challenge with immigrant students. The share of immigrant students in Sweden (first- and second-generation) is growing, and the performance gap between immigrant and non-immigrant students in science is larger than the average across OECD countries.

- The share of 15-year-old students in Sweden who are enrolled in private schools more than doubled from 8% in 2006 to 18% in 2015. Yet after accounting for the socio-economic profile of students and schools, students in public schools show better results than students in private schools.

Student performance in science

- Students in Sweden score 493 points, on average, in science – around the OECD average and comparable with the performance of students in Austria, the Czech Republic, France, Latvia, Norway, Poland, Portugal, the Russian Federation, Spain and the United States.

- Among the Nordic countries, Finland scores highest in science (531 points), followed by Denmark (502 points) and Norway (498 points). Iceland's score of 473 points is significantly below the mean scores of the other Nordic countries.

- Sweden's mean performance in PISA 2015 shows a non-significant improvement of nine points since PISA 2012. This reflects a deceleration, or perhaps inversion, of the negative trend observed over the longer period.

- Swedish students show relatively strong performance in questions relating to content knowledge in science, but relatively weak performance in questions relating to how scientific ideas are produced (procedural knowledge) and the underlying rationale behind science (epistemic knowledge).

Top performers and low performers in science

- Some 9% of students in Sweden are top performers in science, a share not significantly different from the OECD average of 8%. Top-performing students 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-performers in Sweden has not changed significantly compared with PISA 2006.

- Around 22% of students in Sweden are low performers in science, a proportion not significantly different from the OECD average of 21%; but this proportion increased from 16% in 2006. Low-performing students perform at Level 1 or below in PISA. These students do not reach the baseline level of proficiency at which students demonstrate the ability to 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.

Gender differences in science performance

- Girls and boys in Sweden perform similarly in science. On average across OECD countries, boys outperform girls, but the difference is minimal – only four points on the PISA scale.

- Even though boys' and girls' average performance is similar, more boys than girls are found at both ends of the performance spectrum: 10% of boys are top performers in Sweden, compared with 7% of girls; and 23% of boys are low performers, compared with 20% of girls. A similar pattern is found on average across OECD countries.

Student performance in reading

- Students in Sweden score 500 points, on average, in reading – above the OECD average of 493 points and comparable with the mean reading score in Australia, Beijing-Shanghai-Jiangsu-Guangdong (China), Belgium, Denmark, France, Germany, the

Netherlands, Poland, Portugal, the Russian Federation, Slovenia, Spain, Switzerland, Chinese Taipei, the United Kingdom and the United States.

- Among the Nordic countries, Finland scores highest in reading (526 points), followed by Norway (513 points). Denmark scores the same as Sweden (500 points), while Iceland's score of 482 points is significantly below the scores in the other Nordic countries.

- Sweden's average reading score increased by 17 points since PISA in 2012, but it is lower than the scores attained in 2000 and 2003.

Top performers and low performers in reading

- Some 18% of students in Sweden are low performers in reading, a share not significantly different from the OECD average of 20%. Low-performing students do not reach the baseline level of proficiency in reading at which students begin to demonstrate the reading skills that will enable them to participate effectively and productively in life.

- Around 10% of students in Sweden are top performers in reading, above the OECD average of 8%. Top-performing students are proficient at Level 5 or 6. They 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.

- The shares of top and low performers in reading have remained unchanged since 2009.

Gender differences in reading performance

- In Sweden, girls outperform boys by 39 points in reading – a gender gap wider than the average (27 points) across OECD countries. The gender gap in reading performance has not changed since 2009 in Sweden, while it has narrowed, on average across OECD countries, during the same period.

- Twice as many boys (24%) as girls (12%) in Sweden do not reach the baseline level of proficiency in. The gender gap is wider than the average across OECD countries, where 24% of boys and 15% of girls do not reach the baseline level of proficiency.

Student performance in mathematics

- Students in Sweden score 494 points, on average, in mathematics – similar to the OECD average of 490 points and comparable with the performance of students in Australia, Austria, the Czech Republic, France, Iceland, Italy, New Zealand, Portugal, the Russian Federation, the United Kingdom and Viet Nam.

- Among the Nordic countries, Denmark and Finland score highest (both with 511 points). Norway follows with 502 points. Iceland is the lowest-performing Nordic country (488 points), but Sweden's score is not statistically significantly different from that of Iceland.

- Sweden's average score in mathematics increased by 16 points since 2012, but is still 15 points lower than its score in 2003.

- Some 21% of students in Sweden are low performers in mathematics, a share not significantly different from the OECD average of 23% and one that has not changed significantly since 2003. Low-performing students do not reach the baseline level of proficiency in mathematics at which students start solving the kinds of problems that are routinely faced by adults in their daily lives.

- Around 10% of students in Sweden are top performers in mathematics, similar to the OECD average. Even though the share of top performers has grown since 2012, the long-term trend since 2003 shows a decline in the share of these students.

Gender differences in mathematics performance

- On average, girls and boys in Sweden score at the same level in mathematics. But across OECD countries, boys score slightly higher than girls, on average.

Students' engagement with science and school

Disposition towards the scientific method of enquiry

- Most Swedish students agree with current views about the nature of science knowledge and the validity of scientific methods of enquiry (collectively known as epistemic beliefs). Swedish students report slightly stronger epistemic beliefs than on average across OECD countries.

- Nearly nine out of ten students in Sweden report that ideas in science sometimes change, that experiments are a good way to know if something is true, and that good answers are based on evidence from many different experiments.

Students' expectations of a career in science

- One in five 15-year-old students in Sweden expects to be working in a science-related occupation at the age of 30. This is less than the OECD average of around one in four students.

- Students in Sweden who expect to pursue a science-related career most often cite health (9%), science and engineering (6%), science-related technician and associate (3%) and information and communications technology (3%) as their future occupation. On average across OECD countries, 12% of students expect to become a health professional and 9% expect to work in science and engineering.

- In almost all countries, the expectation of pursuing a career in science is strongly related to proficiency in science. On average across OECD countries, only 13% of students who score below the PISA baseline level of proficiency in science (Level 2) hold such expectations, but that percentage more than triples among top performers in science (those who score at Level 5 or 6). In Sweden, 11% of low achievers expect to pursue a science-related career, compared with 37% of top performers in science.

- In Sweden, boys are only slightly more likely than girls to expect a science-related career. Yet, there are wide differences in the fields of science in which girls and boys expect to work. Girls are more likely than boys to want to become health professionals (doctor,

nurse or veterinarian), whereas boys are much more likely than girls to expect careers in engineering and in information and communications technology. Similar gender differences are found, on average, across all OECD countries.

Motivation towards science

- Swedish students show rising levels of instrumental motivation towards learning science. For instance, 74% of students in Sweden agree that making an effort in science classes in school will help them in the work they want to do later in life, compared with 62% in PISA 2006. Today, Swedish students are more likely to believe that learning science in school is useful to their future lives and career than students on average across OECD countries.

Self-efficacy in science

- Swedish students show the same level of confidence in their own abilities in science (self-efficacy) as students across OECD countries. However, gender differences in science self-efficacy are larger than average in Sweden. Almost twice as many boys as girls are confident that they can recognise the science question that underlies a newspaper report on a health issue, or discuss how new evidence can lead one to change his or her understanding about the possibility of life on Mars.

Student truancy

- Sweden has one of the largest proportions of students who arrive late for school among OECD countries. More than one in two 15-year-old students in Sweden – 54% – reported that they had arrived late for school at least once in the two weeks prior to the PISA test, compared with 44% on average across OECD countries. While in Sweden this proportion has not changed since 2012, the number of students who had arrived late increased in other countries during the period, thus reducing the gap between Sweden and the international average.

- By contrast, students in Sweden are less likely than students in other countries to skip a whole day of school. Some 9% of students in Sweden skipped a day of school in the two weeks prior to the PISA test, compared with 20% of students on average across OECD countries.

- Student truancy – skipping classes or arriving late for school – can have serious adverse effects on the lives of young people; it can also cut into school learning time and distract other students. If students who arrive late or skip classes fall far behind in their classwork and require extra assistance, the flow of instruction is disrupted and all students in the class may suffer.

- On average across OECD countries, students who had skipped a day of school at least once in the two weeks prior to the PISA assessment score 33 points lower in science than students who had not skipped a day of school, after accounting for the socio-economic profile of students and schools. In Sweden, students who reported that they had skipped a day of school show score 55 points lower than students who had not.

Context for student achievement

Expenditure on education

- Sweden spends USD 110 733 on education per student from the age of 6 to 15 years. This is the seventh highest level of expenditure per student among OECD countries, close to the level of expenditure per student in Belgium, Iceland, the Netherlands and United Kingdom, above the level in Denmark and Finland, but below the level in Norway.

- Expenditure per student accounts for 55% of the variation in mean performance between countries/economies (38% of the variation in OECD countries). However, among countries that spend more than USD 50 000 on education per student – which includes Sweden and most other OECD countries – there is no clear correlation between expenditure and performance. For example, Estonia, which spends about USD 66 000 per student, scores higher than Austria, Luxembourg, Norway and Switzerland – all of which spend more than double this amount.

Equity in education outcomes

- Education systems share the goal of equipping students, irrespective of their socio-economic status, with the skills necessary to achieve their full potential in social and economic life. But PISA shows that in many countries, no matter how well the education system, as a whole, performs, socio-economic status continues to have an impact on students' opportunities to benefit from education and develop their skills.

- The difference between advantaged and disadvantaged students in Sweden is increasing. While in 2006 a socio-economically advantaged student scored 37 points higher in science than a disadvantaged student, the difference has increased to 44 points in 2015. Today, the gap between advantaged and disadvantaged students in Sweden is wider than the average across OECD countries.

- The gap between the highest- and lowest-performing students in Sweden is increasing similarly. The difference between the highest-performing 10% and lowest-performing 10% has increased by 27 points in science since 2006. The gap is now wider than the OECD average.

- There are also less discouraging results. The share of the variation in student performance that can be attributed to students' socio-economic background – another measure of equity – is 12% in Sweden, similar to the OECD average and not significantly changed since PISA 2006.

- PISA shows that high levels of performance and equity can be achieved at the same time. Canada, Estonia, Finland and Japan achieve both high levels of performance and high levels of equity in education outcomes: in these countries, 10% or less of the variation in student performance is attributed to differences in students' socio-economic status.

Students with an immigrant background

- Immigrant students in Sweden (first- or second-generation) score 70 points lower in science than non-immigrant students, before accounting for differences in the students' socio-economic status. After taking socio-economic status into account, the difference is

49 points. This gap is wider than the OECD average (43 points lower before, and 31 points lower after accounting for socio-economic status).

- These results should be viewed in light of the difficult challenge that Sweden is tackling with a growing number of immigrants. The proportion of students with an immigrant background (first- or second-generation) in Sweden increased from 11% in 2006 to 17% in 2015, compared with a smaller increase from 9% to 12% on average across OECD countries.

Public and private schools

- The share of 15-year-old students in Sweden who are enrolled in private schools more than doubled from 8% in 2006 to 18% in 2015. The share is now around the OECD average.

- Students in private schools score higher in science than students in public schools; but after accounting for the socio-economic profile of students and schools, students in public schools score higher than students in private schools. This is the case in Sweden as well as on average across OECD countries.

Education policies and practices

Learning time and efficiency

- PISA 2015 indicates that learning time – in and outside of schools – is spent relatively efficiently in Sweden. Students in Sweden devote less time to learning in relation to their PISA score than students in most other countries.

- The average learning time in Sweden is 40 hours per week, when counting both the time in school and outside of school for homework and additional instruction. This is below the OECD average of 44 hours.

- The ratio between learning time and PISA score is 12.4 points on the science scale per hour spent learning in Sweden, above the OECD average of 12.4 points. Only five other school systems have a more positive ratio between learning time and learning outcomes: Finland, Germany, Switzerland, Japan and Estonia.

- When looking across the world, school systems differ widely in how learning time translates into academic performance. For instance, while Japanese and Korean students score similarly in science, on average, Japanese students spend about 41 hours per week learning, whereas Korean students spend 50 hours.

- Even though learning time is spent efficiently in Sweden, the amount of learning time is also in itself important to ensure that students have sufficient opportunity to learn. It is worth noting that school lesson time is relatively low in Sweden, in particular in the core subjects. 15-year-old students spend on average 3.0 hours in science lessons, below the OECD average of 3.5 hours.

Science resources at school

- PISA asked school principals to provide information about the resources available to their school's science department. Around 7 in 10 school principals in Sweden reported that the science department in their school is well-equipped and -staffed, not significantly different from the OECD average. Yet only 23% of principals in Sweden (compared with 39% of principals on average across OECD countries) reported that a large share of extra funding, if available, goes into improving the school's science teaching.

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 Sweden, 51% of students say that their teachers explain scientific ideas in many or all lessons, and these students score 20 points higher in science than students who say that their teachers explain scientific ideas only in some lessons or never, even after accounting for the students' socio-economic status.

- In almost all school systems, students who say that their teachers adapt the lesson to the students' needs and knowledge more frequently score higher in science. In Sweden, 48% of students say that their teachers adapt most or every lesson to the class's needs and knowledge, and these students score 30 points higher in science, after accounting for the students' socio-economic status, than students who say that their teachers never or only sometimes adapt lessons to the class's needs and knowledge.

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, including Sweden, advantaged schools are better equipped than disadvantaged schools. Principals of disadvantaged schools in Sweden are more concerned about the material resources in their schools than principals of advantaged schools. How concerned principals are about the material resources at the school explains 16% of the variation in science performance, after accounting for socio-economic status.

Student tracking and grade repetition

- PISA shows that 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.

- Some OECD countries, including Austria and Germany, start selecting students into different programmes as early as age 10. In Sweden, schools start selecting students at age 16, later than the OECD average of 14.

- Grade repetition is more prevalent in school systems where students score lower on the PISA science assessment and where performance is less equitably distributed. 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.

- In Sweden, 4% of students had repeated a grade at least once in primary or secondary school before the age of 15. This is below the OECD average of 11%. In 13 countries and economies, including Belgium and Spain, at least 30% of students had repeated a grade at least once in primary or secondary education.

- Across OECD countries, the percentage of students who had repeated a grade decreased by almost 3 percentage points between 2009 and 2015. In Sweden, this share decreased by 2 percentage points during the same period.

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

		Beliefs about the nature and origin of scientific knowledge		Share of students with science-related career expectations				Motivation for learning science		
	Mean science score	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.

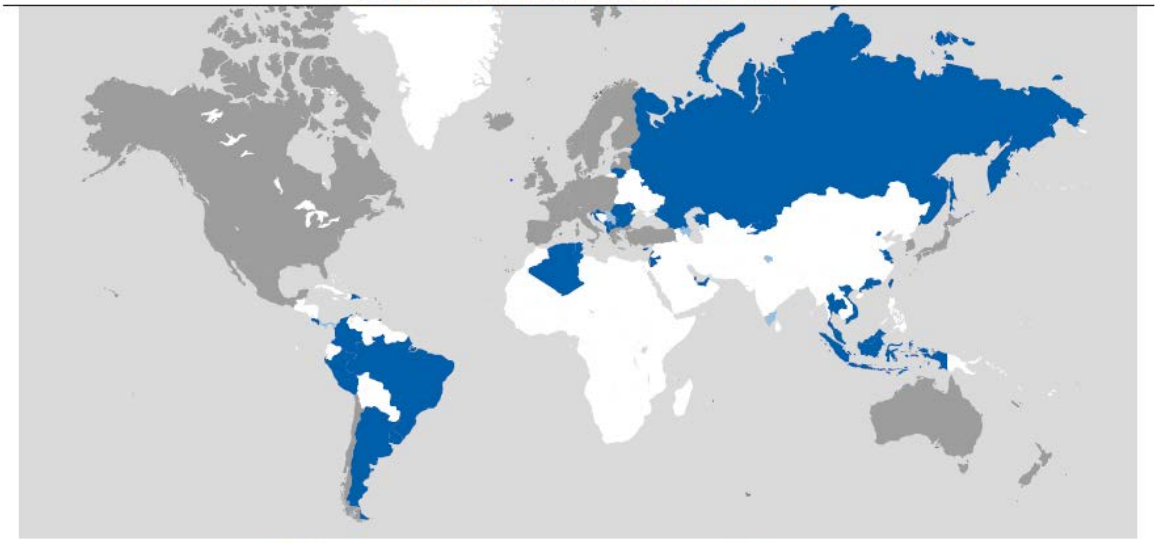
The students

- 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

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

Partner countries and economies in PISA 2015

Albania, Algeria, Argentina, Brazil, B-S-J-G (China)*, Bulgaria, Colombia, Costa Rica, Croatia, Cyprus[1], Dominican Republic, Former Yugoslav Republic of Macedonia, Georgia, Hong Kong (China), Indonesia, Jordan, Kazakhstan, Kosovo, Lebanon, Lithuania, Macao (China), Malaysia, Malta, Moldova, Montenegro, Peru, Qatar, Romania, Russian Federation, Singapore, Chinese Taipei, Thailand, Trinidad and Tobago, Tunisia, United Arab Emirates, Uruguay, Viet Nam

Partner countries and economies in previous cycles

Azerbaijan, Himachal Pradesh-India, Kyrgyzstan, Liechtenstein, Mauritius, Miranda-Venezuela, Panama, Serbia, Tamil Nadu-India

* 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:

www.oecd.org.edu/pisa