

INTERNATIONAL STUDENT ASSESSMENT

How effective are school systems at providing young people with a solid foundation of knowledge and skills that will equip them for life and learning beyond school? OECD's Programme for International Student Assessment (PISA) assesses student knowledge and skills at age 15, i.e. towards the end of compulsory education. PISA 2006 also assesses the attitudes that students have towards science and the environment, their interest in science, the extent to which they are aware of the life opportunities that science competencies may open, and the science learning opportunities and environment which their schools offer.

Definition

The PISA survey covers science, mathematics and reading. For the 2006 round of PISA, three and a half hours of testing time was in science, two hours for mathematics and one hour for reading. Each student spent two hours on the assessment items.

Scientific literacy is the capacity to use scientific knowledge, to identify questions, to acquire new knowledge, to explain scientific phenomena, and to draw evidence-based conclusions about science-related issues. Mathematical literacy is the capacity to identify and understand the role that mathematics plays in the world, to make well-founded judgments and to use and engage with mathematics in ways that meet the needs of that individual's life as a constructive, concerned and reflective citizen. Reading literacy is the capacity to understand, use and reflect on written texts in order to achieve one's goals, to develop one's knowledge and potential and to participate in society.

Overview

The graph shows the results for science in terms of differences from the OECD average score (500, on the left-hand axis). As in the 2003 PISA, Finland is the country topping the league. For Hungary, Sweden, Poland, Denmark and France the science scores are not significantly different from the OECD average. The graph also shows results for reading relative to the OECD average score (492). Cross-country correlations in scores across the two domains are high, but there are also countries displaying significant differences, as in the case of Korea (with better scores in reading than science) and Russia (where the opposite pattern prevails).

The table presents scores by gender. In the case of science, on average, boys are doing slightly better than girls, significantly so in Denmark, Luxembourg, Mexico, the Netherlands, Switzerland and United Kingdom. Girls achieve better results than boys in Greece and Turkey. In the case of mathematics, girls remain at a disadvantage in many countries, with an average gap of 11 score points relative to boys. Conversely, girls report higher reading scores than boys in all countries: on average, across OECD countries, girls are 38 score points ahead of their male counterparts.

Comparability

Leading experts in countries participating in PISA advise on the scope and nature of the assessments, with final decisions taken by OECD governments. Substantial efforts and resources are devoted to achieving cultural and linguistic breadth and balance in the assessment materials. Stringent quality assurance mechanisms are applied in translation, sampling and data collection.

Over 400 000 15-year-old students in 57 participating countries were assessed for PISA 2006. Because the results are based on probability samples, standard errors are shown in the tables.

Sources

- OECD (2001), *PISA Knowledge and Skills for Life – First Results from PISA 2000*, OECD, Paris.
- OECD (2004), *PISA Learning for Tomorrow's World: First Results from PISA 2003*, OECD, Paris.
- OECD (2007), *PISA 2006: Science Competencies for Tomorrow's World: Volume 1 Analysis*, OECD, Paris.

Further information

Analytical publications

- OECD (2009), *Top of the Class: High Performers in Science in PISA 2006*, OECD, Paris.
- OECD (2009), *Equally Prepared for Life?: How 15-Year-Old Boys and Girls Perform in School*, OECD, Paris.
- OECD (2009), *Green at Fifteen?: How 15-Year-Olds Perform in Environmental Science and Geoscience in PISA 2006*, OECD, Paris.

Methodological publications

- OECD (2006), *Assessing Scientific, Reading and Mathematical Literacy: A Framework for PISA 2006*, OECD, Paris.

Online databases

- OECD PISA Database.

Web sites

- PISA Web site, www.pisa.oecd.org.



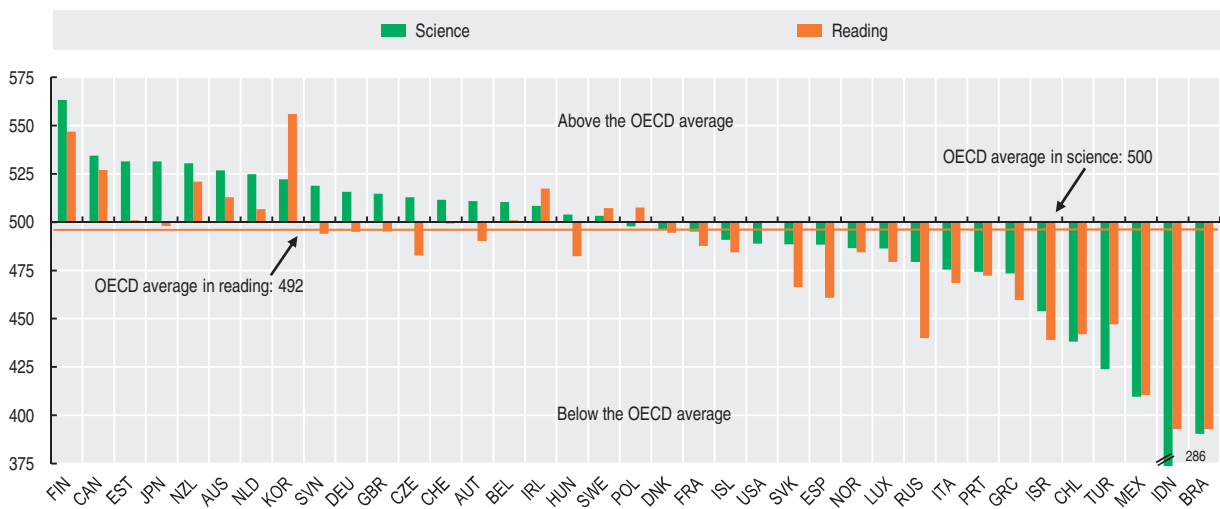
Mean scores and gender differences in PISA 2006

	Science scale				Mathematics scale				Reading scale			
	Males		Females		Males		Females		Males		Females	
	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
Australia	527	3.2	527	2.7	527	3.2	513	2.4	495	3.0	532	2.2
Austria	515	4.2	507	4.9	517	4.4	494	4.1	468	4.9	513	5.5
Belgium	511	3.3	510	3.2	524	4.1	517	3.4	482	4.1	522	3.5
Canada	536	2.5	532	2.1	534	2.4	520	2.0	511	2.8	543	2.5
Czech Republic	515	4.2	510	4.8	514	4.2	504	4.8	463	5.0	509	5.4
Denmark	500	3.6	491	3.4	518	2.9	508	3.0	480	3.6	509	3.5
Finland	562	2.6	565	2.4	554	2.7	543	2.6	521	2.7	572	2.3
France	497	4.3	494	3.6	499	4.0	492	3.3	470	5.2	505	3.9
Germany	519	4.6	512	3.8	513	4.6	494	3.9	475	5.3	517	4.4
Greece	468	4.5	479	3.4	462	4.3	457	3.0	432	5.7	488	3.5
Hungary	507	3.3	501	3.5	496	3.5	486	3.7	463	3.7	503	3.9
Iceland	488	2.6	494	2.1	503	2.6	508	2.2	460	2.8	509	2.3
Ireland	508	4.3	509	3.3	507	3.7	496	3.2	500	4.5	534	3.8
Italy	477	2.8	474	2.5	470	2.9	453	2.7	448	3.4	489	2.8
Japan	533	4.9	530	5.1	533	4.8	513	4.9	483	5.4	513	5.2
Korea	521	4.8	523	3.9	552	5.3	543	4.5	539	4.6	574	4.5
Luxembourg	491	1.8	482	1.8	498	1.7	482	1.8	464	2.0	495	2.1
Mexico	413	3.2	406	2.6	410	3.4	401	3.1	393	3.5	427	3.0
Netherlands	528	3.2	521	3.1	537	3.1	524	2.8	495	3.7	519	3.0
New Zealand	528	3.9	532	3.6	527	3.1	517	3.6	502	3.6	539	3.6
Norway	484	3.8	489	3.2	493	3.3	487	2.8	462	3.8	508	3.3
Poland	500	2.7	496	2.6	500	2.8	491	2.7	487	3.4	528	2.8
Portugal	477	3.7	472	3.2	474	3.7	459	3.2	455	4.4	488	3.5
Slovak Republic	491	3.9	485	3.0	499	3.7	485	3.5	446	4.2	488	3.8
Spain	491	2.9	486	2.7	484	2.6	476	2.6	443	2.6	479	2.3
Sweden	504	2.7	503	2.9	505	2.7	500	3.0	488	4.0	528	3.5
Switzerland	514	3.3	509	3.6	536	3.3	523	3.6	484	3.2	515	3.3
Turkey	418	4.6	430	4.1	427	5.6	421	5.1	427	5.1	471	4.3
United Kingdom	520	3.0	510	2.8	504	2.6	487	2.6	480	3.0	510	2.6
United States	489	5.1	489	4.0	479	4.6	470	3.9
OECD average	501	0.7	499	0.6	503	0.7	492	0.6	473	0.7	511	0.7
Brazil	395	3.2	386	2.9	380	3.4	361	3.0	376	4.3	408	3.7
Chile	448	5.4	426	4.4	424	5.5	396	4.7	434	6.0	451	5.4
Estonia	530	3.1	533	2.9	515	3.3	514	3.0	478	3.2	524	3.1
Indonesia	399	8.2	387	3.7	399	8.3	382	4.0	384	8.7	402	4.2
Israel	456	5.6	452	4.2	448	6.6	436	4.3	417	6.5	460	4.6
Russian Federation	481	4.1	478	3.7	479	4.6	473	3.9	420	4.8	458	4.3
Slovenia	515	2.0	523	1.9	507	1.8	502	1.8	467	1.9	521	1.4

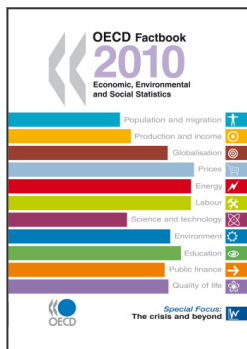
StatLink <http://dx.doi.org/10.1787/826022780458>

Performance on the science and reading scales in PISA 2006

Mean score



StatLink <http://dx.doi.org/10.1787/821466523110>



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