PISA

IN FOCUS 31

education policy education policy education policy education policy education policy education policy education policy

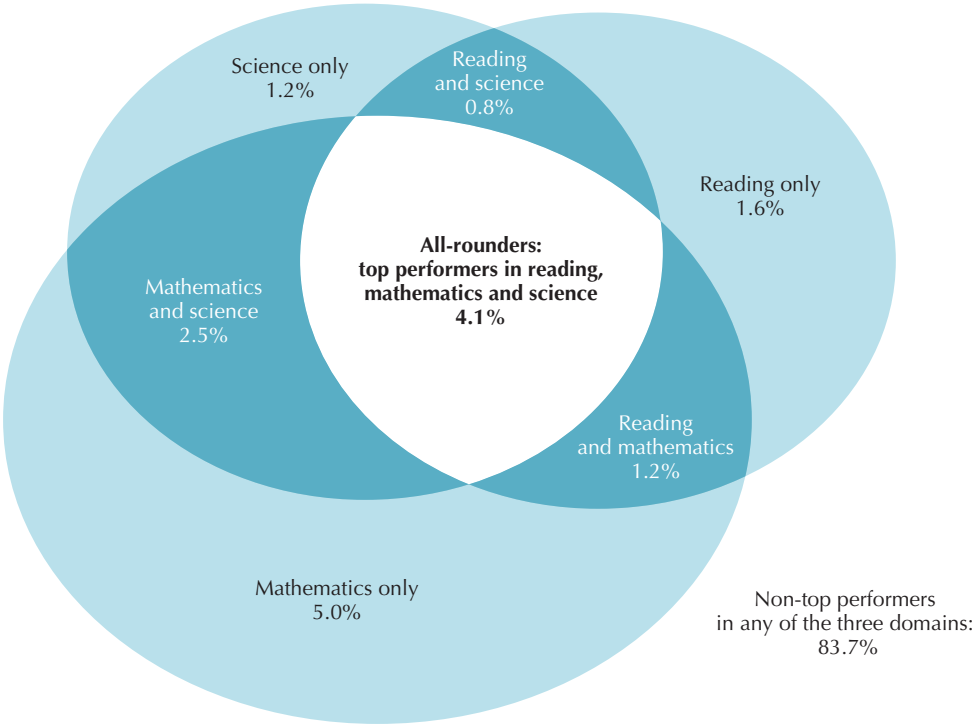
Who are the academic all-rounders?

- On average across OECD countries, around 4% of students are top performers in reading, mathematics and science (all-rounders).
- Australia, Finland, Hong Kong-China, Japan, New Zealand, Shanghai-China and Singapore have larger proportions of these students than any other country or economy.

Meeting the growing demand for high-skilled workers starts early.

The rapidly growing demand for highly skilled workers has led to a global competition for talent. High-level skills are critical for creating new knowledge and technologies and for sparking innovation; as such, they are key to economic growth and social development. Considering students who excel in all the subjects that are measured in PISA – reading, mathematics and science – allows countries to estimate the depth of their future talent pool. These are PISA's academic all-rounders: students who attain proficiency Level 5 or 6 – the highest levels of proficiency in PISA – in the three subjects.

Excellence in all subjects is rare



Source: OECD (2010), PISA 2009 Results: *What Students Know and Can Do: Student Performance in Reading, Mathematics and Science,* Volume I, PISA, OECD Publishing, Table I.3.7.

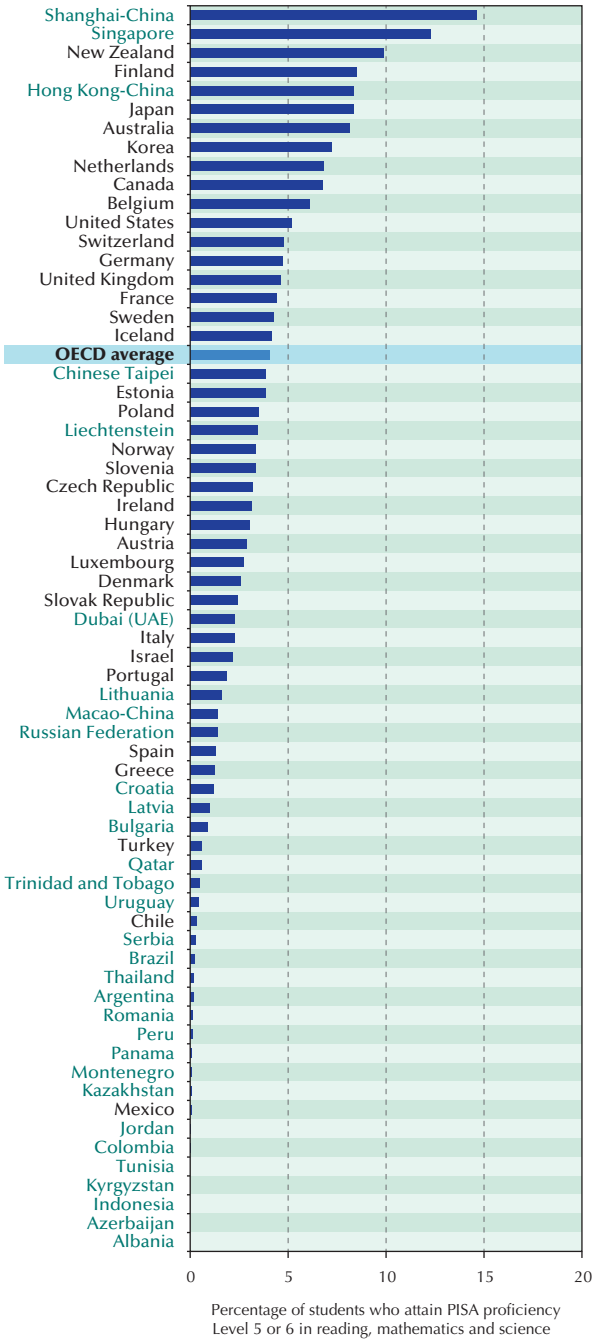
On average across OECD countries, 16.3% of students are top performers in at least one of the subject areas of science, mathematics or reading. But just because a student is a top performer in one subject does not necessarily mean that the student excels in all subjects. Switzerland, for example, has one of the highest shares of top performers in mathematics (24.1%), but only an average share of top performers in reading (8.1%) and science (10.7%). The same is true for many Southeast Asian countries and economies, notably Hong Kong-China, Korea, Macao-China, Shanghai-China, Singapore and Chinese Taipei, where the likelihood of finding top performers in mathematics is considerably higher than that of finding top performers in reading or science.

Some countries are more successful than others in producing all-rounders.

That's why all-rounders are so rare. Only 4.1% of 15-year-old students are top performers in all three assessment subjects. On average across OECD countries, the proportion of girls who are all-rounders (4.4%) is similar to the proportion of boys who are (3.8%).

While all-rounders can be found in many countries and economies, the proportion of these students varies considerably across school systems. Between 8% and 10% of 15-year-old students in Australia, Finland, Hong Kong-China, Japan and New Zealand are all-rounders; and the proportions are even larger in Shanghai-China (14.6%) and Singapore (12.3%). By contrast, fewer than 1% of students in Chile, Mexico, Turkey and 21 other countries and economies are all-rounders.

Where are the students who are excellent in reading, mathematics *and* science?



Countries are ranked in descending order of the percentage of top performers in reading, mathematics and science. OECD countries are shown in black.

Note: Estimates for Albania, Azerbaijan, Indonesia, Kyrgyzstan and Tunisia are equal to zero.

Source: OECD (2010), *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science*, Volume I, PISA, OECD Publishing, Table I.3.7.

Among countries with similar mean scores in PISA, there are remarkable differences in the percentage of academic all-rounders. For example, Korea and Singapore have relatively similar average levels of performance in mathematics, reading and science; but while 12% of students in Singapore are all-rounders, 7% of students in Korea are top performers in all three subjects. Similarly, around 5% of students in Estonia, France, Sweden and the United States are all-rounders, but the average performance in France, Sweden and the United States is lower than that in Estonia.

Top-performers are students who perform at proficiency Level 5 or 6 in the PISA mathematics, reading *or* science assessments. This means that they score higher than 626 points in reading, 607 points in mathematics or 633 points in science.

All-rounders are students who perform at proficiency Level 5 or 6 in the PISA mathematics, reading *and* science assessments. This means that they score higher than 626 points in reading, 607 points in mathematics and 633 points in science.

The bottom line: To satisfy the growing demand for high-level skills in knowledge-based 21st-century economies, school systems need to increase the proportion of their students who are top performers. As PISA results show, countries that have similar average performance are not equally able to produce all-rounders.

For more information

Contact Guillermo Montt *(Guillermo.MONTT@oecd.org)*

See OECD (2012), *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science*, Volume I, PISA, OECD Publishing.

Visit
www.pisa.oecd.org
www.oecd.org/pisa/infocus

Coming next month
Do students perform better in schools with orderly classrooms?