

# Global study of student scores a mixed bag for US (Update 3)

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American fourth-graders are performing better than they were four years ago in math and reading, but students four years older show no such progress, a global study released Tuesday revealed.

Although the U.S. remains in the top dozen or so countries in all subjects tested, the gap between the U.S. and the top-performing nations is much wider at the eighth-grade level, especially in math.

"When you start looking at our older students, we see less improvement over time," said Jack Buckley, commissioner of the National Center for Education Statistics, which coordinated the U.S. portion of the international exam.

Even where U.S. student scores have improved, many other nations have improved much faster, leaving American students far behind many of their peers—especially in Asia and Europe.

With an eye toward global competitiveness, U.S. education officials are sounding the alarm over what they describe as a recurring theme when American students are put to the test. Lamenting what he described as "sober cautionary notes," Education Secretary Arne Duncan said it was unacceptable that eighth-grade achievement in math and science are stagnant, with U.S. students far less likely than many Asian counterparts to reach advanced levels in science.

"If we as a nation don't turn that around, those nations will soon be out-

competing us in a knowledge-based, global economy," Duncan said.

American students still perform better than the global average in all subject areas, the study found, although students from the poorest U.S. schools fall short.

But the U.S. is far from leading the pack, a distinction now enjoyed by kids in countries like Finland and Singapore who outperformed American fourth-graders in science and reading. By eighth grade, American students have fallen behind their Russian, Japanese and Taiwanese counterparts in math, and trail students from Hong Kong, Slovenia and South Korea in science.

The results of the study, conducted every four years in nations around the world, show mixed prospects for delivering on that promise. A nation that once took pride in being at the top of its game can no longer credibly call itself the global leader in student performance. Wringing their hands about what that reality portends for broader U.S. influence, policymakers worry it could have ripple effects on the economy down the line, with Americans increasingly at a competitive disadvantage in the international marketplace.

Elevating the skills needed to compete with emerging countries has been a priority for President Barack Obama, who has pledged to train 100,000 new math and science teachers over the next decade. "Think about the America within our reach: a country that leads the world in educating its people. An America that attracts a new generation of high-tech manufacturing and high-paying jobs," he said this year in his State of the Union address.

Asia continues to dominate the top echelon of scores across subject fields. The tiny city-state of Singapore takes first place in eighth-grade science and fourth-grade math, with South Korea scoring nearly as high.

Singapore takes second place to South Korea in eighth-grade math, with Taiwan in third.

The results also lean toward Asian nations when it comes to advanced levels of learning. In Singapore, 4 in 10 eighth-graders achieved the "advanced benchmark" in science, which requires an understanding of complex and abstract concepts in physics, chemistry, biology and other sciences. About 2 in 10 make the grade in Japan, South Korea and Taiwan. In the U.S., it's about 1 in 10.

Reading skills are a major strength for American students. Only a few points separate American students from the top-scoring students in the world. In Florida, which took part in the study separately, reading scores are second only to Hong Kong.

"We cannot rest until every child has gained the power that comes through reading," said former Florida Gov. Jeb Bush, a prominent education advocate. "If Florida can do it, every state can and must."

The Trends in International Mathematics and Science Study and its sister test, the Progress in International Reading Literacy Study, are used to measure knowledge, skills and mastery of curricula by elementary and middle school students around the world. Students in rich, industrialized nations and poor, developing countries alike are tested. In 2011, 56 educational systems—mostly countries, but some states and subnational entities like Hong Kong—took part in math and science exams. Fifty-three systems participated in the reading exam, which included almost 13,000 American fourth-graders.

"These kinds of tests are very good at telling us who's ahead in the race. They don't have a lot to say about causes or why countries are where they are," said Brookings Institution senior fellow Tom Loveless, who in previous years represented the U.S. in the international group that

administers the test.

Other findings released Tuesday:

— Some U.S. states that were measured separately were clear standouts, performing on par with or better than some top-performing Asian countries. Eighth-graders in Massachusetts and Minnesota score far better in math and science than the U.S. average. But in California and Alabama, eighth-graders fell short of the national average.

— Racial and class disparities are all too real. In eighth grade, Americans in the schools with the highest poverty—those with 75 percent or more of students on free or reduced-price lunch—performed below both the U.S. average and the lower international average. Students at schools with fewer poor kids performed better. In fourth-grade reading, all ethnic groups outperformed the international average, but white and Asian students did better than their black and Hispanic classmates.

— Boys in the U.S. do better than girls in fourth-grade science and eighth-grade math. But girls rule when it comes to reading.

— On a global level, the gender gap appears to be closing. About half of the countries showed no statistically meaningful gap between boys and girls in math and science.

The tests are carried out by the International Association for Evaluation of Educational Achievement, a coalition of research institutions. The U.S. portion of the exams is coordinated by the Education Department's National Center for Education Statistics.

**More information:** Trends in International Mathematics and Science Study: [nces.ed.gov/timss/](https://nces.ed.gov/timss/)

Progress in International Reading Literacy Study:

[nces.ed.gov/surveys/pirls/](https://nces.ed.gov/surveys/pirls/)

Reports assess global student achievement in math, science and reading literacy: [phys.org/wire-news/116690700/r ... -science-and-re.html](https://phys.org/wire-news/116690700/r...-science-and-re.html)

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