EDUCATION WEEK
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Summing Up Results From TIMSS, PISA

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Students in the United States are by and large treading water in the two largest international benchmarking tests in math, science, and reading, which both released 2015 results in recent weeks.

U.S. 15-year-olds did not perform significantly differently in science or reading on the Program for International Student Assessment in 2015 compared with their showing in previous years, and their math performance significantly declined since 2012 and 2009, the last two times PISA was given. That put the United States roughly in the middle of education systems in reading and science on PISA, but below average in math.

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In the Trends in International Mathematics and Science Study, the nation's 4th graders scored in the top quarter of all participating countries in those two subjects, though they showed no improvement since 2011, when TIMSS was last held. U.S. 8th graders likewise performed in the top quarter of countries in math and science; they had significantly improved in math but not in science since 2011. TIMSS, run by the International Association for the Evaluation of Educational Achievement, tracks math and science skills in 4th and 8th grades in 55 countries and education systems. PISA, run by the Organization for Economic Cooperation and Development, measures critical-thinking and problem-solving skills in math, science, and reading of 15-year-olds in 77 countries and education systems.

The United States also took part in TIMSS Advanced in 2015, for the first time in 20 years. That test gauges 18-year-olds in nine countries and education systems on the most challenging math and science, including calculus and physics. U.S. students showed no improvement in advanced math or science since 1995. They performed above average among the participating countries in math, but below average in physics.

Singapore led the world across all subjects and grade levels in both TIMSS and PISA. Its students did not take part in TIMSS Advanced.

U.S. Teenagers Stall on International Math Tests

Math results were mixed for American students on two major global benchmarking tests released in recent weeks. While 8th graders posted their highest average score ever on TIMSS, 15-year-olds declined on PISA.

2015 TIMSS RESULTS (8TH GRADE)

EDUCATION SYSTEM	Mean	10th Percentile	90th Percentile
Canada	527	434	613
Chile	427	323	531
Chinese Taipei-China	599	459	714
United Kingdom-England	498	414	624
Hong Kong-China	594	489	686
Japan	586	470	699
Republic of Korea	606	491	711
Lebanon	442	345	539
Lithuania	511	409	608
Russian Federation	538	429	641
Singapore	621	505	715
Sweden	501	406	590
Turkey	458	324	599
United States	518	408	624
Average	**493**	**364**	**613**

SOURCE: National Center for Education Statistics, International Association for the Evaluation of Educational Achievement

2015 PISA RESULTS (15 YEAR OLDS)

EDUCATION SYSTEM	Mean	10th Percentile	90th Percentile
Canada	516	400	627
Chile	423	313	534
Chinese Taipei-China	542	404	670
United Kingdom	493	371	610
Hong Kong-China	548	426	659
Japan	532	416	643
Republic of Korea	524	391	649
Lebanon	396	268	531
Lithuania	478	365	590
Russia	494	387	601
Singapore	564	436	682
Sweden	494	376	609
Turkey	420	317	529
United States	470	355	585
Average	490	373 ↑	605 ↓

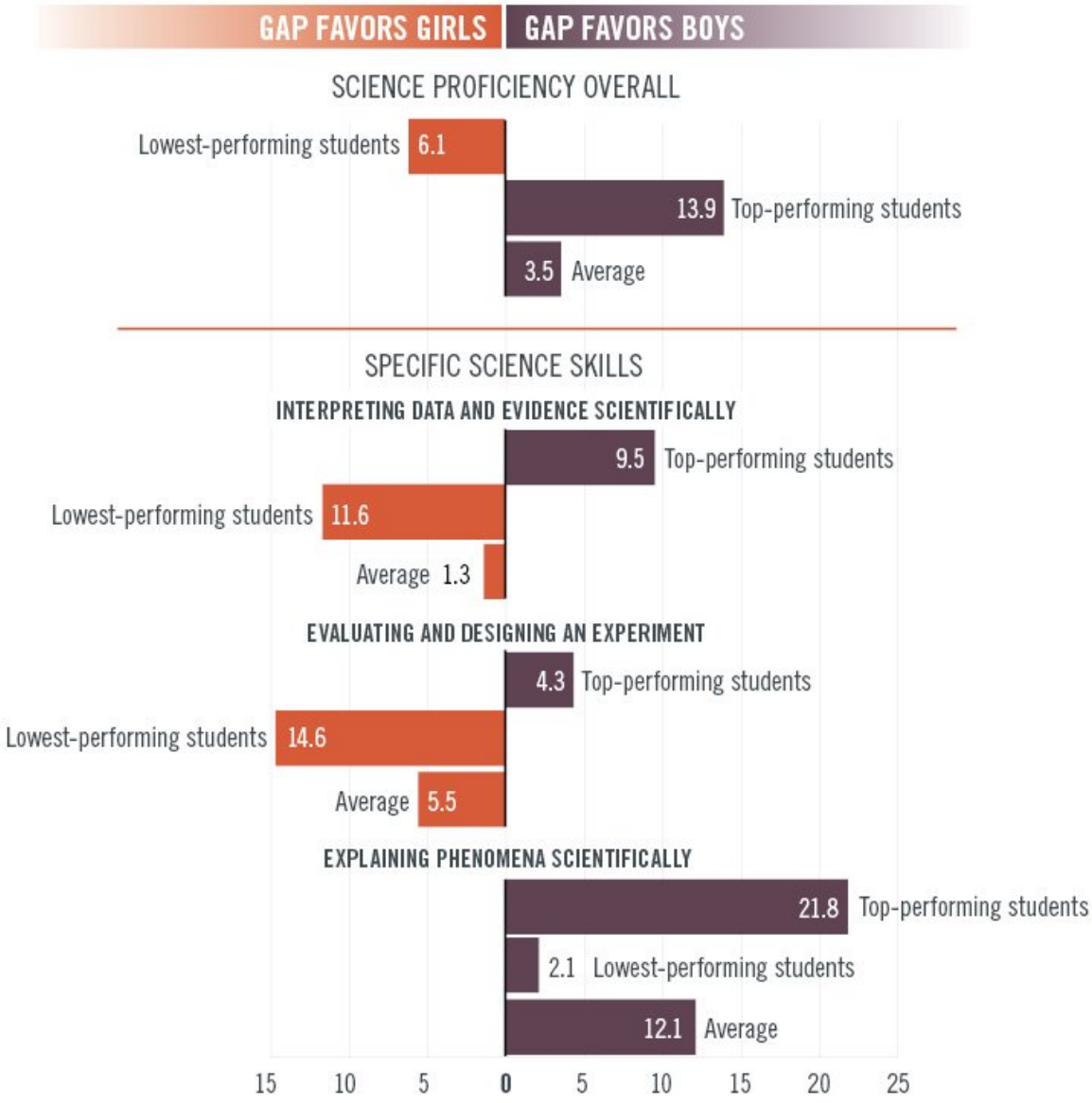
↑ Percentile cut score is higher than U.S. percentile cut score at the .05 level of statistical significance. ↓ Percentile cut score is lower than U.S. percentile cut score at the .05 level of statistical significance.

Sources: National Center for Education Statistics, Organization for Economic Cooperation and Development

As in prior years, Asian education systems—including Singapore, Japan, and the Republic of Korea—led the world in math on both TIMSS and PISA.

Science Gender Gaps Differ for Top Students

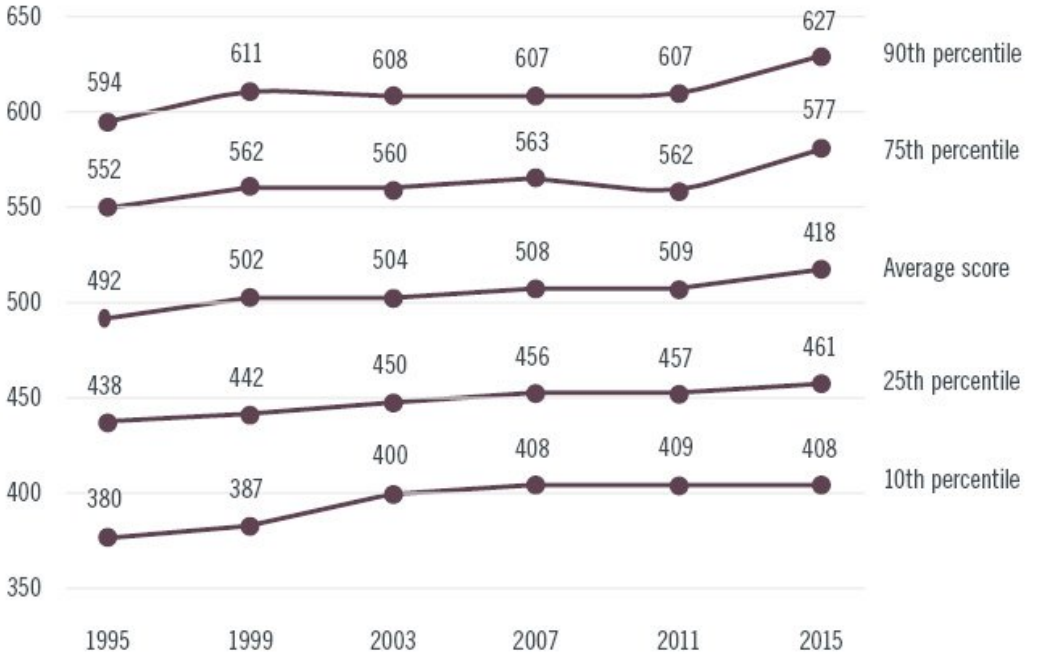
Gender gaps have been closing among students taking part in PISA for science. While boys still strongly outperform girls among top students, the reverse is often true among low performers.



At all proficiency levels, boys outperformed girls at scientific explanations, while girls showed strong data interpretation and experiment design.

Struggling Students Falter on TIMSS

Overall, U.S. 8th graders have significantly improved in the past 20 years on TIMSS math, but the gaps between high- and low-performing students have widened over time.



SOURCE: IEA

The lowest-performing quarter of 8th graders have not significantly improved their performance on TIMSS math in nearly a decade.

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