

# The Complex Data on Girls in STEM

While the headlines about females excelling in science and engineering might grab the public's eye, the underlying story is more complicated.



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In an effort to measure students' understanding of basic engineering and technology principles, a new national assessment aims to move beyond multiple-choice questions and instead focus on troubleshooting in real-world scenarios. For example, students are tasked with designing a healthier habitat for a pet iguana, or building safer bike lanes in a city.

If that innovation is the good news, here is the flipside: Overall, just 43 percent of U.S. eighth graders tested met or exceeded the benchmark for proficiency on the exam, according to results released Tuesday for the first round of testing. The data also showed a gender gap, but not the one that conventional wisdom might have predicted.

The National Assessment of Educational Progress is given to a representative sampling of the nation's students to gauge their proficiency in reading, writing, math, and other core subjects including civics and science. Known as "the nation's report card," it's one of the few means of comparing student achievement among states. The first-ever Technology and Engineering Literacy (TEL) assessment was given in 2014.

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Tuesday's results reveal students' ability in "thinking through problems systematically, using technology and engineering information built into each task to arrive at the best solutions," according to the NAEP report.



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ty, as well

EP is just

one indicator of student knowledge and skills, and it's not designed to evaluate the merits of a particular educational program or intervention.

Breaking down the NAEP scores by gender, girls averaged 151 points (out of a possible 300), three points higher than for boys. Measured another way, 45 percent of females met or exceeded the proficient level, compared with 42 percent of males. The chart below highlights some of the gender gaps by race and ethnicity.

The gaps were far wider between students from low-income families and their more affluent peers—a 28-point difference in proficiency levels. And the disparity was most dramatic among racial groups: 56 percent of white students met or exceeded the benchmark for proficiency, compared with just 18 percent of their black peers.

([More on this angle](#) from Philissa Cramer of *Chalkbeat*.)

So why did so much of this week's media call with reporters focus on the relatively smaller lead girls held over boys on the new assessment? That was because "we did not expect this pattern," explained Peggy Carr, the acting commissioner of the National Center for Education Statistics. "It looks like girls have the ability and critical-thinking skills to succeed in fields of technology and engineering, and that is worth noting," said Carr, whose organization oversees NAEP, explaining the likely reaction to the latest data.

By comparison, the gaps in socioeconomic status and race have long been evidenced in NAEP scores for other core subjects: "It's sort of the same old story," Carr said.

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at boosting those numbers.

While the “Girls Outperform Boys” headlines might grab the public’s eye, the underlying story is more complicated, said Karen Peterson, the chief executive of the [National Girls Collaborative Project](#). The long-term goal, Peterson said, isn’t getting females to best their male counterparts on a particular test but to increase their persistence and resilience in STEM studies so that those early kernels of interest translate into meaningful careers.

“I worry about the knee-jerk reaction when we compartmentalize these kinds of test results by gender,” Peterson said. “Someone is going to take this headline and say ‘We need a new initiative aimed at boys.’ In reality, the training and work we do with educators around increasing girls’ interest in STEM are teaching strategies that are going to help boys, too. This is not zero-sum competition.”

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Two other nuggets in the new report caught my attention: First off, close to two-thirds of eighth graders (63 percent) said that “their family members most often taught them about building things, fixing things, or

Also worth noting: This assessment, NAEP's first new test in about a decade, was a long time coming. (When the planning began, there was no such thing as an iPhone.) Among the challenges: making sure the questions weren't predicated on technology that could become obsolete before the first group of students even got a chance to answer them.

At the same time, it's important not to over-interpret these results, said Professor Nancy Songer, the dean of Drexel University's School of Education. It's unknown whether the technology and engineering literacy skills being measured will translate into success in these fields later in a student's academic career. However, the TEL appears to be a valuable addition to the testing toolbox, Songer said.

The best assessments, said Songer, are the ones that feel less like a stand-alone test and more like extended classroom activities—reinforcing the kind of interactive learning that's increasingly being encouraged, particularly in the sciences.

“Tests that rely heavily on multiple choice are very reliable, but they're not giving you really rich information about kids' critical-thinking or problem-solving,” said Songer, who has advised other assessment developers, including the College Board. “That's why the (TEL) scenarios are so valuable – the kids have enough time and contextual information to demonstrate what they can, and cannot, do. That's exactly where tests need to go.”

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*This article appears courtesy of the [Education Writers Association](#).*

#### **ABOUT THE AUTHOR**

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