

PRESS RELEASE, April 30, CONTACT:

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Eighth-grade girls continue to outscore boys on Technology and Engineering Literacy assessment from The Nation's Report Card; overall scores improve

More eighth-graders take technology and engineering classes

WASHINGTON (April 30, 2019)—Average scores for U.S. eighth-graders increased between 2014 and 2018 on an innovative assessment designed to measure their ability to apply knowledge of technology and engineering principles to solve real-world problems, according to the newest results from the National Assessment of Educational Progress (NAEP), also known as [The Nation's Report Card](#), released today by the National Center for Education Statistics (NCES).

Average scores increased by two points on the Technology and Engineering Literacy (TEL) assessment from the first time it was administered in 2014. Girls continued to outperform boys on the assessment, and while girls scored higher in 2018 than 2014, boys' scores were unchanged.

"It's encouraging to see girls continue to perform so well on analyzing and solving real world technological problems," said Peggy G. Carr, the associate commissioner for assessments at NCES. "These results suggest that girls have the foundational abilities to be successful in STEM careers. It is encouraging that more women are now majoring in STEM disciplines; yet, they remain underrepresented in STEM careers. It is in the national interest to do more to encourage talented young women to pursue careers in STEM."

The increase in average scores for all students was driven by improvements for middle- and higher-performing students. Their scores increased by three to four points while the performance of lower-performing students remained flat.

"This increase in the average and higher-performing student scores while the nation's lower-performing students stagnate is a pattern similar to one we saw in the NAEP 2017 mathematics and reading results, as well as in other assessments," said NCES Commissioner Lynn Woodworth. "Finding consistent patterns of differing growth across several subjects warrants additional investigation by the instructional and research communities."

The TEL assessment provides new insights into how students use their understanding of technology and engineering to interact, interpret, and influence the world in which they live. As part of the assessment, students used computers to complete scenario-based tasks that measure their ability to analyze and solve real-world technology and engineering problems. The assessment framework defines “technology” as any modification of the natural world done to fulfill human needs or desires, while engineering refers to a systematic and continual approach to designing objects, processes, and systems to meet human needs and desires.

More than 15,000 eighth-grade students in approximately 600 public and private schools completed the TEL assessment in 2018. Performance is reported as scale scores and as achievement levels. Average scores rose from 150 to 152. In 2018, the average score for girls was 155, higher than the average score for boys of 150. Average scores increased for White, Black, and Asian American students between 2014 and 2018, while there was no significant change in the average score for Hispanic students. (The assessment results are reported on a 0-300 scale.)

The assessment also evaluates students’ thinking and reasoning skills in three content areas (Technology and Society, Design and Systems, and Information and Communication Technology) and three practices (Understanding Technological Principles, Developing Solutions and Achieving Goals, and Communicating and Collaborating). In 2018, girls scored significantly higher than boys in all the practice areas and in two of the three content areas. There was no significant difference between girls and boys in the Design and Systems content area.

Results on the assessment are also reported as percentages of students who reach each of the three NAEP achievement levels: *NAEP Basic*, *NAEP Proficient*, and *NAEP Advanced*. NAEP achievement levels are provisional and therefore should be interpreted with care to ensure a proper understanding of performance.

Between 2014 and 2018, the percentage of students scoring at or above *NAEP Basic* on TEL remained unchanged; and higher percentages of students scored at or above *NAEP Proficient* and *NAEP Advanced* in 2018. In 2018, 46 percent of students scored at or above *NAEP Proficient* and five percent of students scored at or above *NAEP Advanced*, compared to 43 and three percent, respectively, in 2014. (NAEP achievement levels are set by the National Assessment Governing Board.)

Since students’ opportunities to learn about and use technology and engineering happen both in and out of the classroom, the assessment included a survey asking about these experiences. A higher percentage of students reported taking at least one course related to technology or engineering in 2018 compared to 2014. Fifty-seven

percent of eighth-graders reported taking at least one class related to technology or engineering in 2018, an increase of five percentage points compared to 2014.

The National Assessment of Educational Progress (NAEP)—also known as The Nation's Report Card—is the largest nationally representative and continuing assessment of what students in the United States know and can do in various subject areas. NAEP is administered by the National Center for Education Statistics (NCES). It is considered the 'gold standard' of student assessments.

Visit http://www.nationsreportcard.gov/tel_2018/ to view the report.

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The National Assessment of Educational Progress (NAEP) is a congressionally authorized project sponsored by the U.S. Department of Education. The National Center for Education Statistics, within the Institute of Education Sciences, administers NAEP. The Commissioner of the National Center for Education Statistics is responsible by law for carrying out the NAEP project.

The National Center for Education Statistics, a principal agency of the U.S. Federal Statistical System, is the statistical center of the U.S. Department of Education and the primary federal entity for collecting and analyzing data related to education in the U.S. and other nations. NCES fulfills a Congressional mandate to collect, collate, analyze, and report complete statistics on the condition of American education; conduct and publish reports; and review and report on education activities internationally.

The National Assessment Governing Board is an independent, bipartisan board whose members include governors, state legislators, local and state school officials, educators, business representatives, and members of the general public. Congress created the 26-member Governing Board in 1988 to set policy for NAEP.

Summary of findings for April 30 NAEP Technology and Engineering Literacy (TEL) Grade 8 Report Card Release

Timeline:

- 2018 grade 8 technology and engineering literacy results will be released on April 30 at 12:01 AM Eastern
- Stories will appear online and in media outlets starting at 12:01 AM.
- A public presentation of the results is scheduled for 2PM EDT on April 30 in Raleigh, NC.

Background:

- Results are available at the national-level only (no state or district results).
- The TEL assessment examines/consist/comprises three content areas (Technology & Society, Design & Systems, and Information & Communications Technology) and three practices (Understanding Technological Principles, Developing Solutions & Achieving Goals, and Communicating & Collaborating).
- This is the second TEL data collection. The next planned TEL is scheduled for 2022.
- Eighth-graders used computers to complete scenarios that measured their ability to analyze and solve real-world technology and engineering problems.

Key Results:

- Compared to 2014, there was a 2-point increase in the overall TEL score in 2018, and 46% of eighth-graders were at or above *Proficient* in 2018, an improvement of 3 percentage points from 2014.
- Scores for girls increased by 3 points (151 to 155), while scores for boys did not change from 2014 to 2018. On average, girls scored higher than boys by 5 points in 2018 (155 to 150 on a scale of 0 to 300). A higher percentage of girls (49%) than boys (44%) scored at or above the assessment's *Proficient* level.
- In comparison to 2014, the 2018 scores increased for White, Black, Asian, female, and public school students along with students not identified as English language learners, not identified with disabilities, eligible for the National School Lunch Program, not attending charter schools, whose parents did not finish high school, and whose parents graduated college.
- Because students' opportunities to learn about and use technology and engineering happen both inside and outside the classroom, the assessment included a survey asking about these experiences.

More Detailed Results

Overall

- **Students scored higher** in all three TEL content areas and in all three practices in 2018.
- Overall TEL scores were **higher for mid-** (50th percentile) **and higher-performing students** (75th and 90th percentiles).

Select Student Groups

- For most of the student groups with average score increases since 2014, score gains only occurred at the higher end of the distribution (50th through 90th percentiles).
- **Asian and White students continued to score higher** than their Black and Hispanic peers in 2018.

Gender Differences

- White, Black and Hispanic **females outperformed their male counterparts**. No gender difference observed in Asian students
- **Girls outscored boys in two content areas** (Information & Communication Technology, Technology & Society) and **all three practices**.

Technology and Engineering Course Taking

- **More students' (57%) reported taking at least one class related to technology or engineering** compared to 2014 (52%).
- **Students who reported** taking at least one technology- or engineering-related class in 2018 **scored 7-points higher**, on average, than those who reported not taking any of those classes.