NATIONAL
MATH + SCIENCE
INITIATIVE

Why STEM Education Matters

Proficiency in science, technology, engineering, and math is critical for economic growth and prosperity in the United States.

While STEM education is widely recognized as a critical component[1] in preparing students for future success, long-standing disparities[2], and a growing teacher shortage[3] have created opportunity gaps across the country.

Every student deserves access to excellent and equitable STEM education.

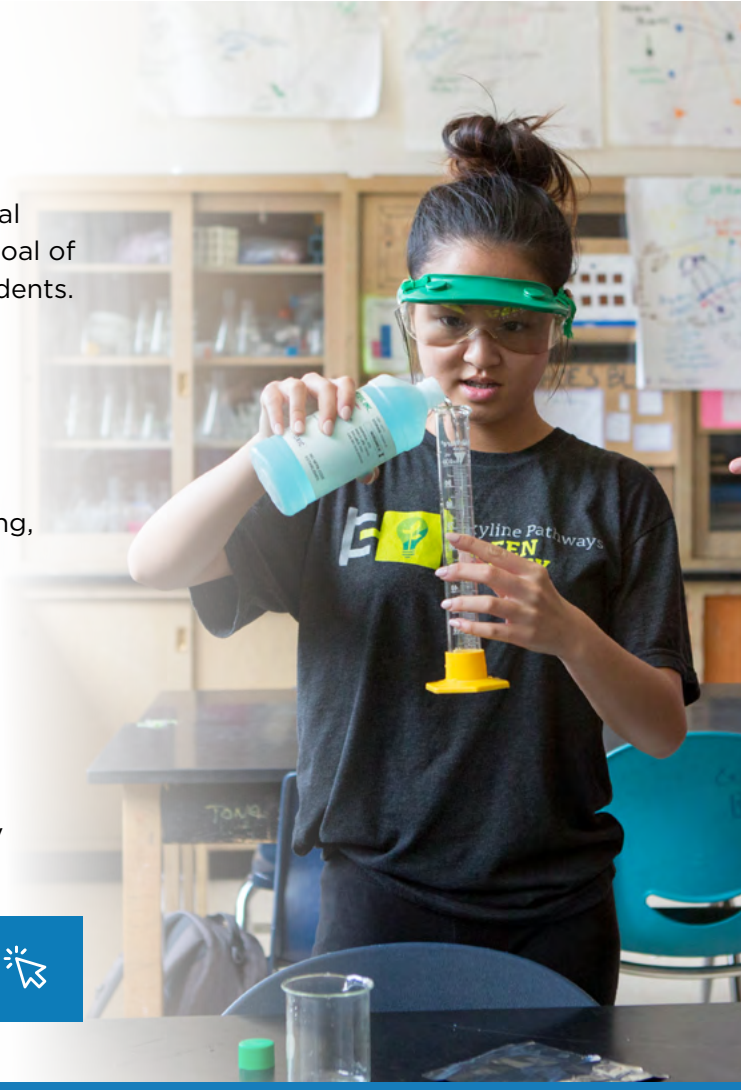
Editor's Note: Much has happened since we published this resource in 2013; we've updated the document to include the most recent details regarding STEM achievement in the U.S.

Factors Driving the Need

While other countries have made dramatic improvements in STEM education over the last decade, data[4] from the National Science Board indicate that the U.S. has yet to achieve the goal of ensuring equal educational opportunities in STEM for all students.

- Average scores for U.S. fourth and eighth graders on a national assessment of mathematics improved from 1990 to 2007, but there was no overall measurable improvement in mathematics scores from 2007 to 2019.
- Differences persist in U.S. science, technology, engineering, and mathematics (STEM) achievement scores by socioeconomic status (SES) and race or ethnicity.
- Less experienced STEM teachers (as measured by years of teaching) are more prevalent in schools with high-minority enrollment or high-poverty enrollment.
- Preexisting teacher shortages in STEM have only been further exacerbated by the COVID-19 pandemic—directly impeding student access to educational opportunity[5].

FREE TOOL: VIEW LOCAL AND NATIONAL STEM EDUCATION PROGRESS WITH THE STEM OPPORTUNITY INDEX



STEM Education Broadens Access To...

Growing Job Markets

The number of STEM jobs continues to rise, outpacing other career paths.

- As scientific and technical expertise becomes increasingly critical for sustained economic growth, occupations that require this expertise can also be expected to grow[6].
- STEM careers are projected[7] to grow **10.5 percent between 2020 and 2030**, outpacing employment in non-STEM occupations.

Higher Salaries and Job Security

Careers in STEM typically offer higher salaries than non-STEM occupations.

- The median salary for STEM workers of all education levels is higher than those in non-STEM fields **($55,000 vs. $33,000)**[8].
- While unemployment rates spiked during the onset of the pandemic, the unemployment rate for those with at least a bachelor's degree in the STEM labor force **never rose above 6%**[9].

Digital Literacy

Technology is pervasive across all professions — especially in STEM. Digital skills are essential.

- To close digital skill gaps and improve technology literacy, schools must provide all students with early, consistent contact with technology and technological concepts[10].
- STEM education provides an avenue for educators to close technological and digital literacy gaps[11].

Building STEM Educator Capacity

Highly skilled educators have an unmatched impact on student success and are estimated to have two to three times the effect of any other school support on student achievement[12].

Quality STEM education begins with effective teachers who are confident and prepared— and preparation calls for quality support and resources. The National Math and Science Initiative offers evidence-based professional development to equip educators with the skills and expertise needed to create outstanding STEM classrooms that encourage all students to succeed.

Learn more about NMSI's impact:

Buyer's Guide: How to Find Evidence-based STEM Professional Development
Case Study: California School District Rethinks STEM Education to Set Every Student Up for Success
Report: Increasing Student Access to Rigorous STEM Learning

Interested in bringing NMSI to your district?

LET'S CONNECT

About the National Math and Science Initiative

NMSI works with communities and local school systems to increase access and achievement in rigorous education, particularly in STEM and especially for students most often underserved and underrepresented in STEM careers. Recent high school graduates who participated in NMSI's flagship College Readiness Program were more likely than their peers to enroll in four-year college, persist in college, graduate in four years and pursue STEM or teaching careers.

Learn more at www.nms.org.

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LEARN MORE at nms.org

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6. https://ncses.nsf.gov/pubs/nsb20212/u-s-stem-workforce-definition-size-and-growth
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