The National Imperative to Develop STEM Talent: Why the Investment in Education Matters
June 21, 2023

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House Republicans Plan Massive Cuts to Education Bill and other Non-defense Funding Bills for FY 2024

Percent Change from Current Funding Level

Levels reflect new discretionary budget authority vs FY 2023 funding

$60 Bil
Education Funding was Cut or Stagnant under NDD caps from 2013-2021, is Still Below the 2011 Inflation-Adjusted Level

(Department of Education Discretionary Funding in Billions of Dollars)

Education Funding was Cut or Stagnant under NDD caps from 2013-2021, is Still Below the 2011 Inflation-Adjusted Level

2017, 2019, 2020, 2021, 2022 & 2023 totals reflect rescissions of Pell Grant funds
Two thirds of public want more funding for education – the top category where they think spending is too low

Percent who think federal spending for an area is too little, about right, or too much, in priority order of wanting more spending

- #1: Education 65% Too little, 21% About right, 12% Too much
- Education (just Republicans) 52% Too little, 24% About right, 24% Too much
- Education (just Democrats) 79% Too little, 8% About right, 3% Too much
- #2: Health Care 77% Too little, 8% About right, 5% Too much
- #3: Social Security 71% Too little, 10% About right, 19% Too much
- #8: Assistance for Childcare 58% Too little, 11% About right, 31% Too much

Source: AP-NORC poll on March 20-26, 2023
CES/CNSF Briefing: Developing United States STEM Talent

June 21, 2023

National Center for Science and Engineering Statistics
Social, Behavioral and Economic Sciences
National Science Foundation
U.S. workforce, by STEM occupational group and education level: 2019

Source(s): U.S. Census Bureau, American Community Survey (ACS), 2019, Public Use Microdata Sample (PUMS), data as of 25 October 2020 and The STEM Labor Force of Today: Scientists, Engineers, and Skilled Technical Workers 2021. U.S. STEM Workforce: Definition, Size, and Growth, Figure LBR-2.

STEM = science, technology, engineering, and mathematics.
Women’s share of S&E degrees has increased at the associate’s level and remained stable at other degree levels.

S&E degrees awarded to women, by degree level: 2011–20

Source(s): National Center for Education Statistics, Integrated Postsecondary Education Data Systems, Completions Survey. *Diversity and STEM*, Figure 7-2.
Hispanics or Latinos, Blacks or African Americans, and American Indians or Alaska Natives are underrepresented among S&E degree recipients at the bachelor’s level and above.

U.S. population ages 18–34 and S&E degree recipients, by degree level and race and ethnicity: 2020

Average NAEP science scores increased by 1 and 4 points for grades 4 and 8, respectively, and did not change for grade 12: 2009 and 2019.
Percentage of students scoring proficient or above on the NAEP science assessment varies by race or ethnicity for each grade tested.

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Grade 4</th>
<th>Grade 8</th>
<th>Grade 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>55%</td>
<td>51%</td>
<td>40%</td>
</tr>
<tr>
<td>White</td>
<td>48%</td>
<td>46%</td>
<td>40%</td>
</tr>
<tr>
<td>Two or more races</td>
<td>43%</td>
<td>39%</td>
<td>28%</td>
</tr>
<tr>
<td>Native Hawaiian or Other Pacific Islander</td>
<td>26%</td>
<td>21%</td>
<td>14%</td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>24%</td>
<td>20%</td>
<td>13%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>21%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Black</td>
<td>14%</td>
<td>14%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source(s): National Center for Education Statistics, National Assessment of Educational Progress (NAEP) science assessment, 2019. Student Achievement in Science: Selected Results from the National Assessment of Educational Progress, InfoByte, 2022.
Percentage of students scoring NAEP Proficient or above in science is lower for students who qualify for free or reduced-priced lunch.

Students with scores at the NAEP Proficient level or above on the NAEP science assessment, by free or reduced-price lunch eligibility: 2019.

Source(s): National Center for Education Statistics, National Assessment of Educational Progress (NAEP) science assessment, 2019. Student Achievement in Science: Selected Results from the National Assessment of Educational Progress, InfoByte, 2022.
Public middle and high school mathematics and science teachers with 3 years or fewer of teaching experience, by school poverty level: 2017–18

Source(s): National Center for Science and Engineering Statistics, special tabulations (2020) of the 2017–18 National Teacher and Principal Survey, National Center for Education Statistics. Elementary and Secondary STEM Education, 2021, Figure K12-15
NCSES website: https://ncses.nsf.gov/
For data and information questions: ncsesweb@nsf.gov
Discussion and Q&A
International Comparisons of Mathematics and Science Performance

Average scores of 15-year-old students on the PISA mathematics and science literacy scales, by OECD education system: 2018.


* p < 0.05. Significantly different from the U.S. estimate at the 0.05 level of statistical significance.

OECD = Organisation for Economic Co-operation and Development; PISA = Program for International Student Assessment.
International Comparisons of Mathematics and Science Performance

Average scores of 15-year-old students on the PISA mathematics and science literacy scales, by OECD education system: 2018


* p < 0.05. Significantly different from the U.S. estimate at the 0.05 level of statistical significance.

OECD = Organisation for Economic Co-operation and Development; PISA = Program for International Student Assessment.
Increasing S&E graduate enrollment of underrepresented minorities is driven by Hispanic students.

S&E graduate students from underrepresented minority groups, by race and ethnicity: 2017–21

Source(s): National Center for Science and Engineering Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering. *Diversity and STEM*, Figure 8-4.
Women have slightly increased representation in many broad S&E degree fields. Large differences in representation persist between fields.

### S&E degrees awarded to women, by field and degree level: 2011 and 2020

**Source(s):** National Center for Education Statistics, Integrated Postsecondary Education Data Systems, Completions Survey. *Diversity and STEM*, Figure 7-3.

<table>
<thead>
<tr>
<th>Field</th>
<th>Bachelor's 2011</th>
<th>Bachelor's 2020</th>
<th>Master's 2011</th>
<th>Master's 2020</th>
<th>Doctoral 2011</th>
<th>Doctoral 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social and behavioral sciences</td>
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<tr>
<td>Agricultural and biological sciences</td>
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<td>Physical and earth sciences</td>
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<tr>
<td>Mathematical and computer sciences</td>
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<tr>
<td>Engineering</td>
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**Diversity and STEM, Figure 7-3.**

[Image of bar charts showing representation of women in various fields and levels of study.]
NCSES: NSF’s Federal Statistical Agency

**Mission**: Policy-neutral, policy-relevant statistical data on the U.S. science and engineering enterprise

Federal clearinghouse for data that provides key insights on the American economy

- Science and engineering education
- The science and engineering workforce
- Research and development
- U.S. competitiveness in science and engineering
Underrepresentation in STEM

*Diversity and STEM 2023* presents key statistics about three groups—women, minorities, and persons with disabilities—whose representation in STEM employment and science and engineering (S&E) education is smaller than their representation in the U.S. population.

Underrepresented minorities include
1. Hispanics or Latinos
2. Blacks or African Americans
3. American Indians or Alaska Natives

Note: Whenever possible, statistical estimates are presented for all racial and ethnic groups discussed in the report.

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Public middle and high school mathematics and science teachers who entered teaching through an alternative certification program, by school minority enrollment: 2017–18

Source(s): National Center for Science and Engineering Statistics, special tabulations (2020) of the 2017–18 National Teacher and Principal Survey, National Center for Education Statistics. Elementary and Secondary STEM Education, 2021, Figure K12-14
Expanded Definition of the STEM Workforce

The STEM workforce is made up of individuals at all education levels who work in S&E, S&E-related, and middle-skill occupations.

**S&E occupations:** Typically require a bachelor’s degree for entry and employ workers in five broad occupation categories—computer and mathematical scientists; biological, agricultural, and environmental life scientists; physical scientists; social scientists; and engineers.

**S&E-related occupations:** Require STEM skills and expertise but do not fall into the five primary S&E occupational categories. They primarily include health-related occupations, S&E managers, S&E precollege teachers, and technologists and technicians.

**Middle-skill occupations:** Require significant STEM skills and expertise but do not typically require a bachelor’s degree. These positions are primarily in the areas of construction; installation, maintenance, and repair; and production.
Billy Mawhiney (he/him)
Executive Director
South Dakota Afterschool Network

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Our Work

**INDIGENOUS ENGAGEMENT**
Increase number of programs.
Work with community members and key stakeholders to increase the number of accessible programs near or on tribal entities.

**ASSIST WITH GROWTH**
Provide assistance through a variety of services to existing programs who wish to expand and serve more families.

**MOBILE LAB OUTREACH**
Provide additional outreach events and STEM activities with TMC Mobile Labs at Indigenous events and programs.

**STEM & ENTREPRENEURSHIP PROGRAMS**

**EXPAND MOBILE LABS**
Grow the TMC Mobile Labs by providing additional programs and resources that are included in each of the three mobile units.

**ADD BIN KITS**
Continue adding specialized program-in-a-bin kits to TMC Mobile Labs that pair expand on and enhance curriculum.

**PITCH EVENT**
Host a pitch event to promote STEM and entrepreneurial ambitions of middle school students.

**YOUTH VOICE**
**ESTABLISH YOUTH COUNCIL**
Grow the Youth Opportunity Project council to create a sustainable model of middle and high school aged youth advocates from across the state.

**ADVOCATE**
Lean on the firsthand experience of our youth to advocate for afterschool and summer programs through storytelling.

**PROGRAM QUALITY**
**PROGRAM EVALUATIONS**
Assist programs through conducting thorough program evaluations that fulfill grant requirements and give them the insight necessary to fine tune quality outcomes.

**QUALITY STANDARDS**
Introduce program quality standards that serve as a blueprint for programs to evaluated services.
Not only are our TMC Mobile Labs visiting a record number of programs this summer but you can find them at a variety of community events across the state as well.
THINK, MAKE, CREATE
MOBILE LAB
Summer Tour

June 3
Levitt | Sioux Falls

July 22
Levitt | Sioux Falls

June 17
Levitt | Sioux Falls

August 5
Og Nation Wacipi | Pine Ridge

July 1
Sisseton Wacipi

August 5
Levitt | Sioux Falls

July 8
Levitt | Sioux Falls

August 26
Rosebud Wacipi

July 15
Flandreau Wacipi

Join Us!

Brought to you by
SOUTH DAKOTA AFTERSCHOOL NETWORK

SDAfterschoolNetwork.org
Focus Funds in South Dakota

Expansion Grants

Dept. of Education Awarded: $2,400,000

20 - Summer programs
16 - School year program

Total of 22 unique programs. Average award $109,091
Focus Funds in South Dakota

**STEM Focused Grants**

Dept. of Education Awarded: $2,500,000

13 programs

Average award $192,308
21st CCLC Grant Need

demand has nearly doubled in SD

Only 25% of applicants were awarded

Previous years range from 40-50%
MEET THE TEAM

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Boys & Girls Club of Rosebud

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EmBe

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SDSU Extenion/4-H

Dr. Sherry Johnson
Sisseton Wahpeton Sioux Tribe

Sue Burgard
Community Volunteer

Chad Ronish
Black Hills State University

Louis Canfield
Boys & Girls Club of Watertown

Kathleen Slocum
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