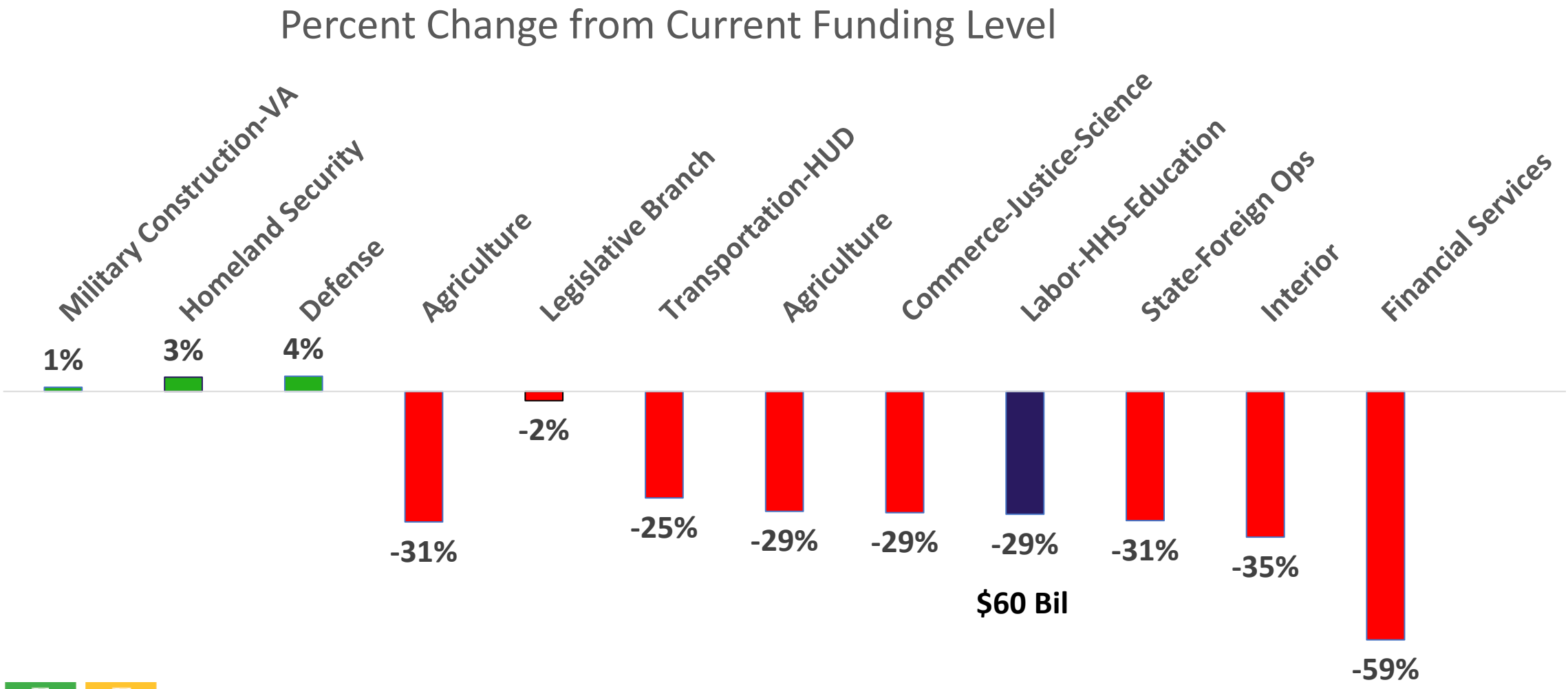
The National Imperative to Develop STEM Talent: Why the Investment in Education Matters

June 21, 2023

Follow CEF @edfunding

www.cef.org – budget book, fact sheets, charts, tables

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

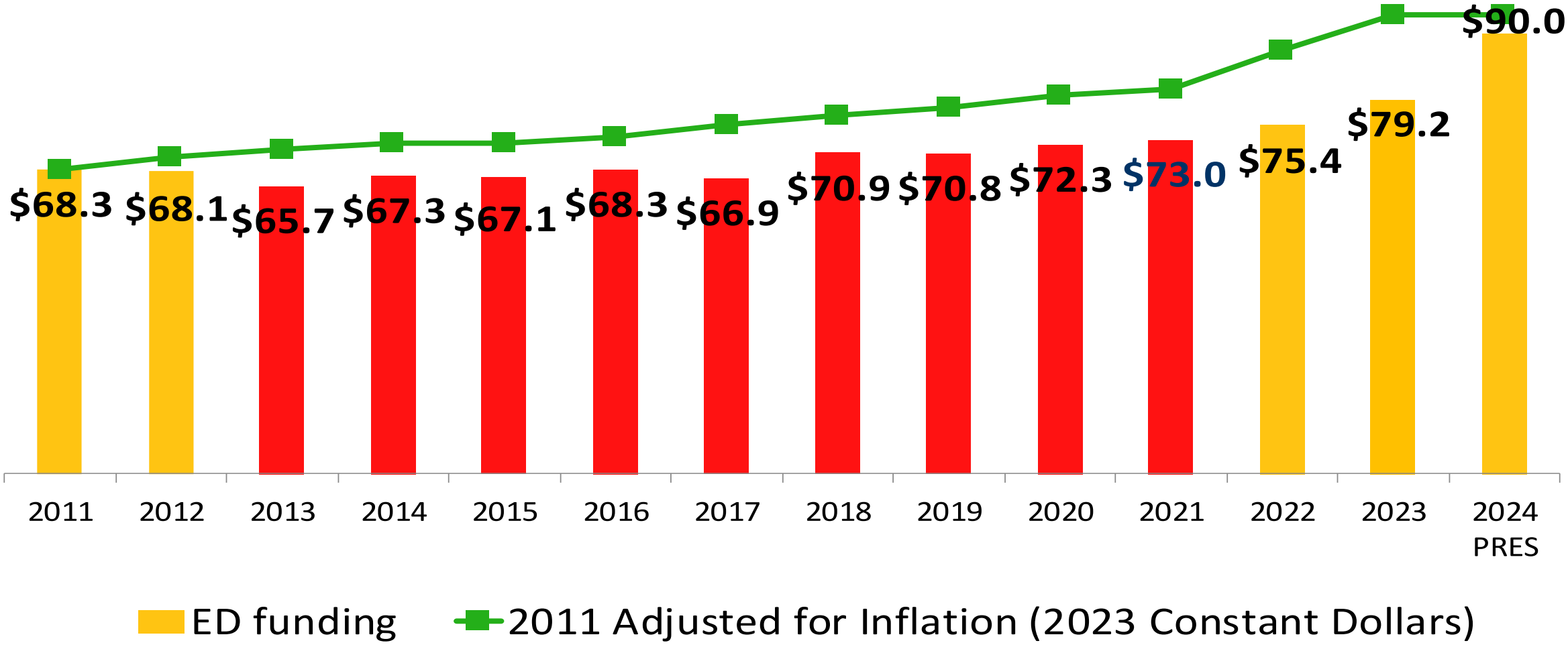


C E F
COMMITTEE FOR EDUCATION FUNDING

Levels reflect new discretionary budget authority vs FY 2023 funding

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

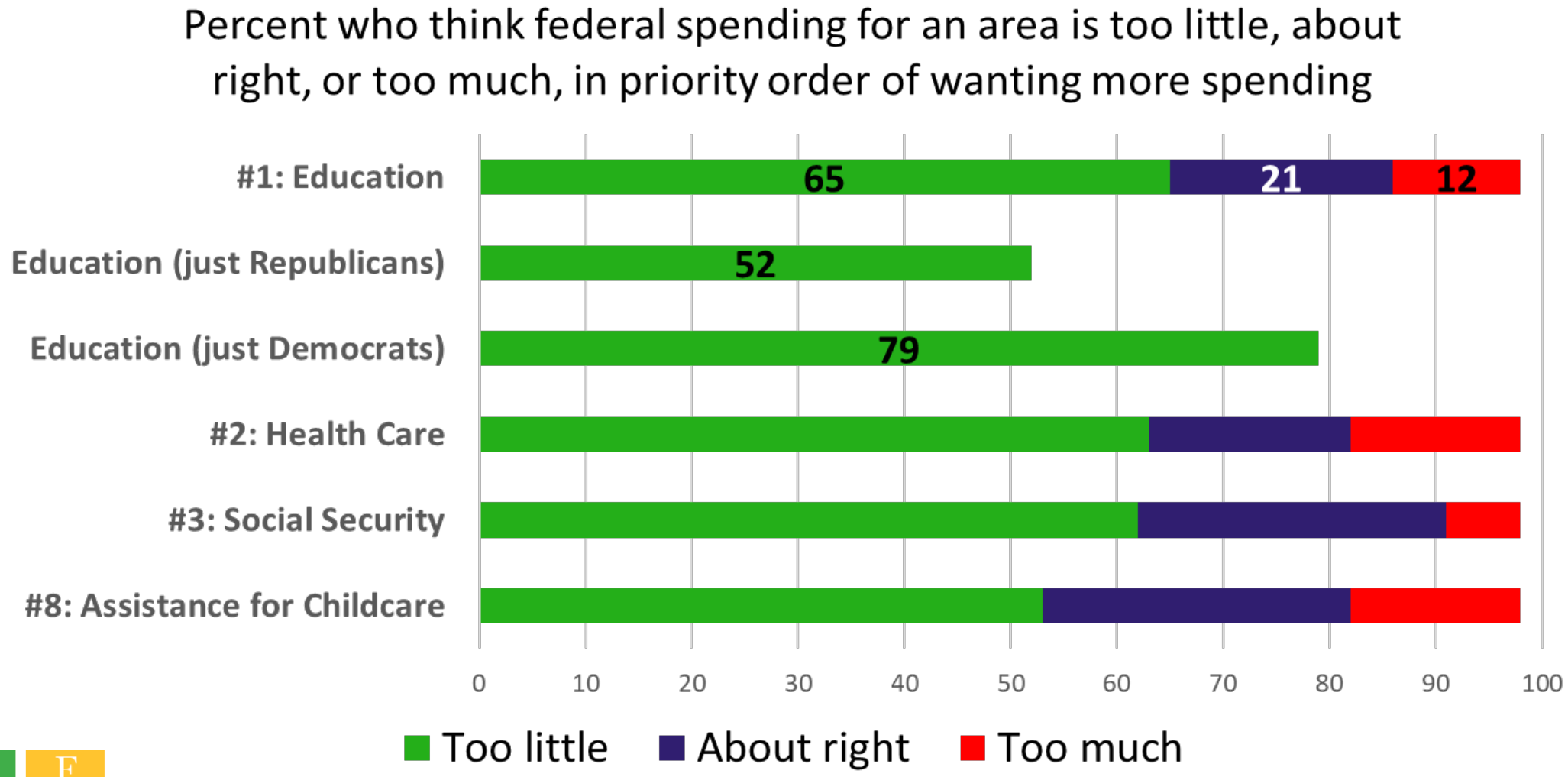
(Department of Education Discretionary Funding in Billions of Dollars)



2017, 2019, 2020, 2021, 2022 & 2023 totals reflect rescissions of Pell Grant funds

C E F
COMMITTEE FOR EDUCATION FUNDING

Two thirds of public want more funding for education – the top category where they think spending is too low



C E F
COMMITTEE FOR EDUCATION FUNDING

Source: AP-NORC poll on March 20-26, 2023

CES/CNSF Briefing: Developing United States STEM Talent

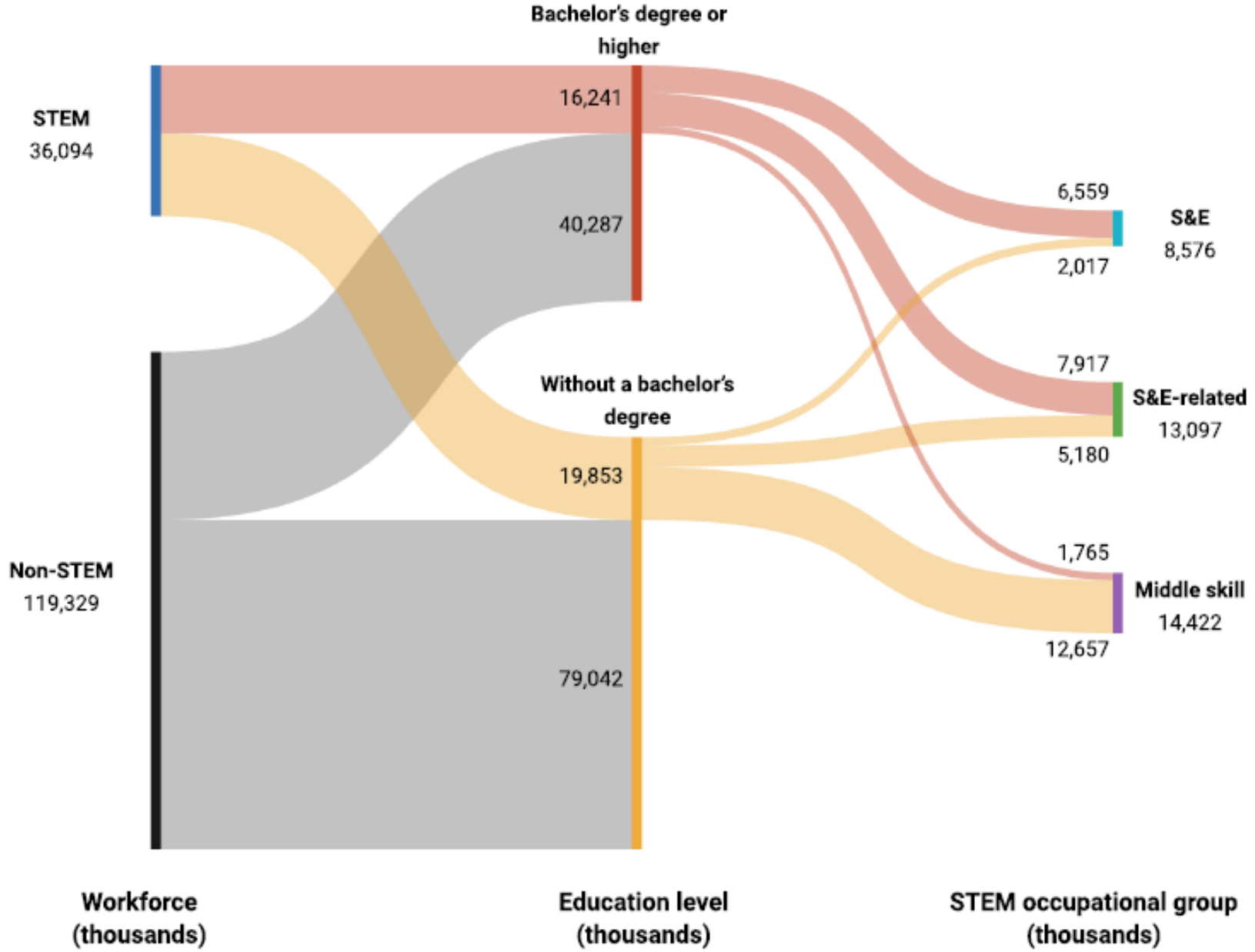
June 21, 2023

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

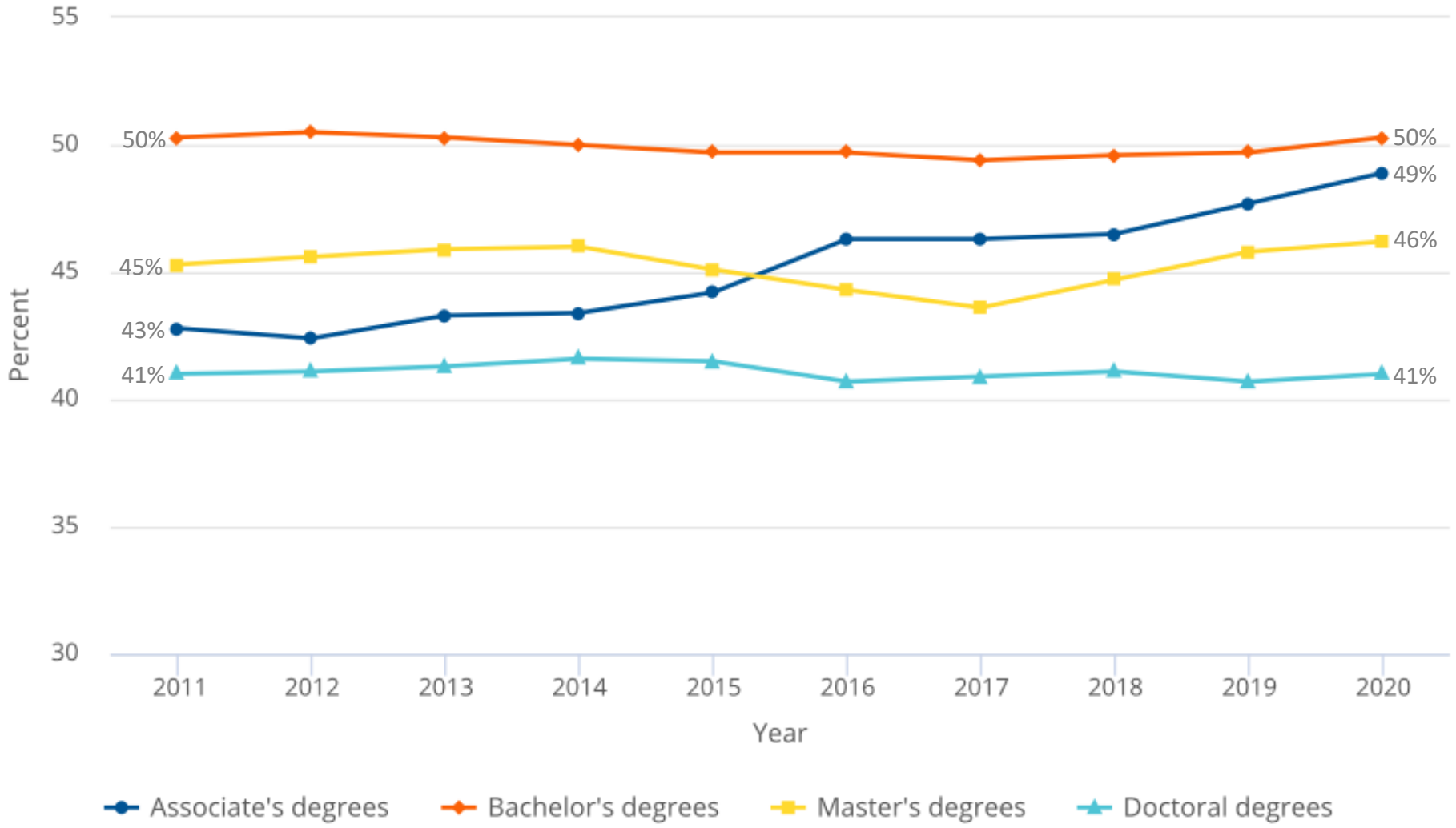


U.S. workforce, by STEM occupational group and education level: 2019

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.

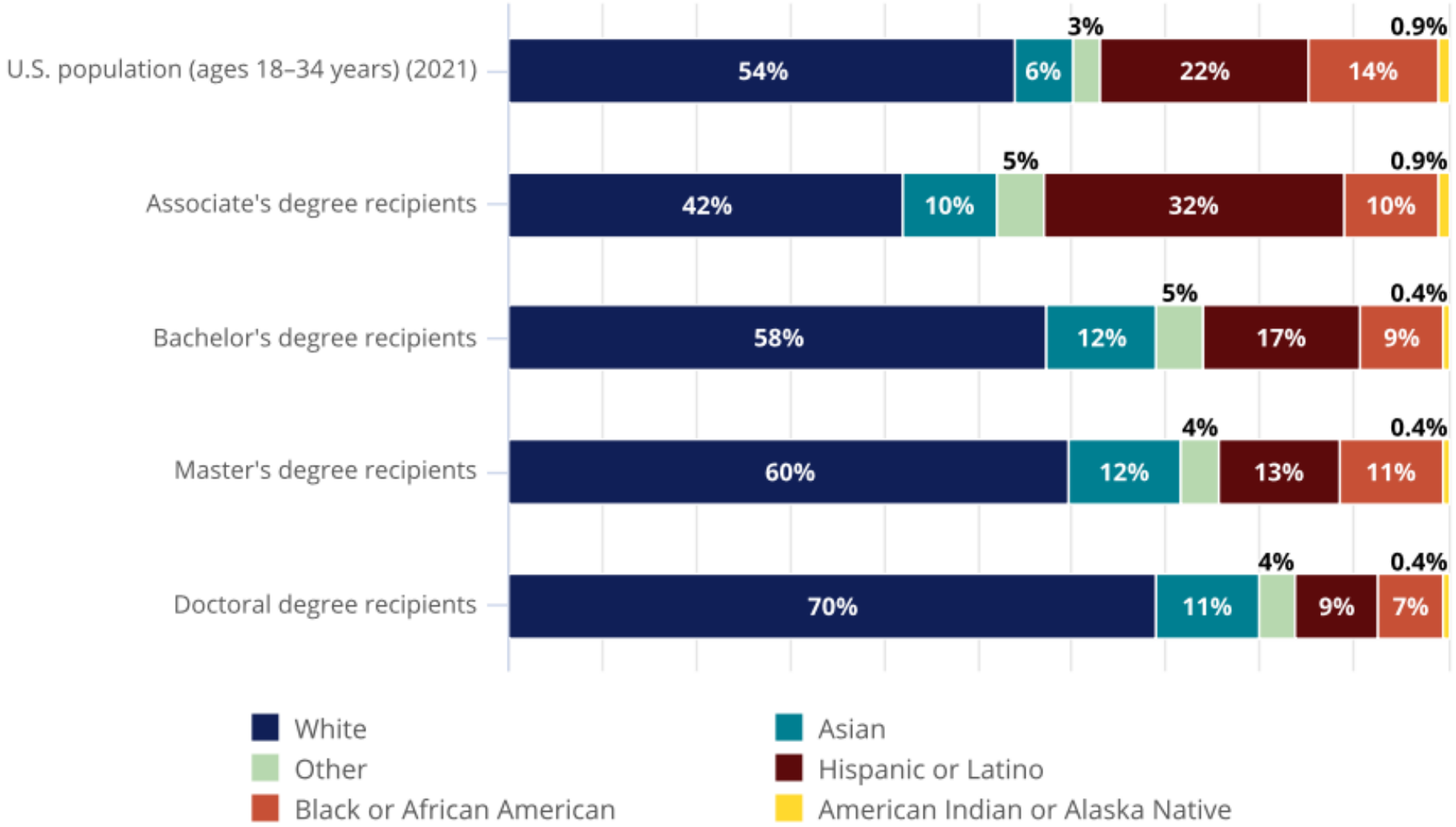
Women's share of S&E degrees has increased at the associate's level and remained stable at other degree levels.



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.

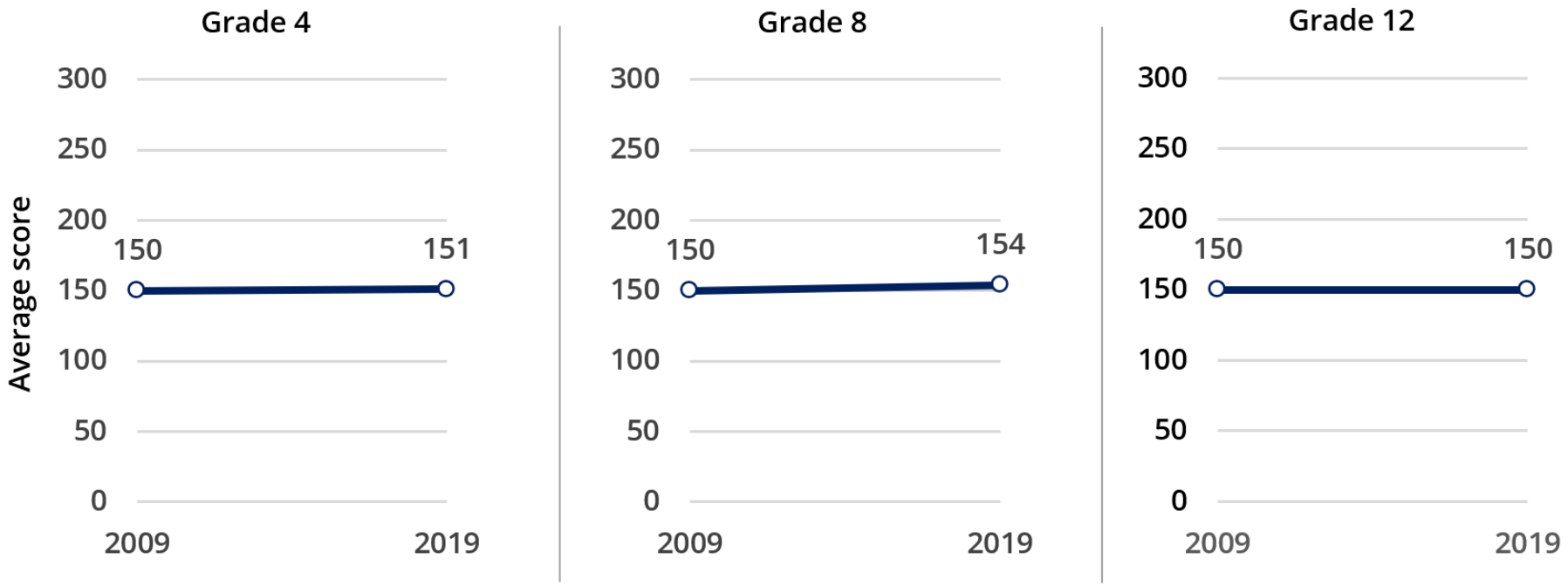


U.S. population ages 18–34 and S&E degree recipients, by degree level and race and ethnicity: 2020

Source(s): National Center for Education Statistics, Integrated Postsecondary Education Data Systems, Completions Survey, 2020; population data from Census Bureau, Current Populations Survey, Annual Social and Economic Supplement, 2021.
Diversity and STEM, Figure 7-4.

NSF NCSES

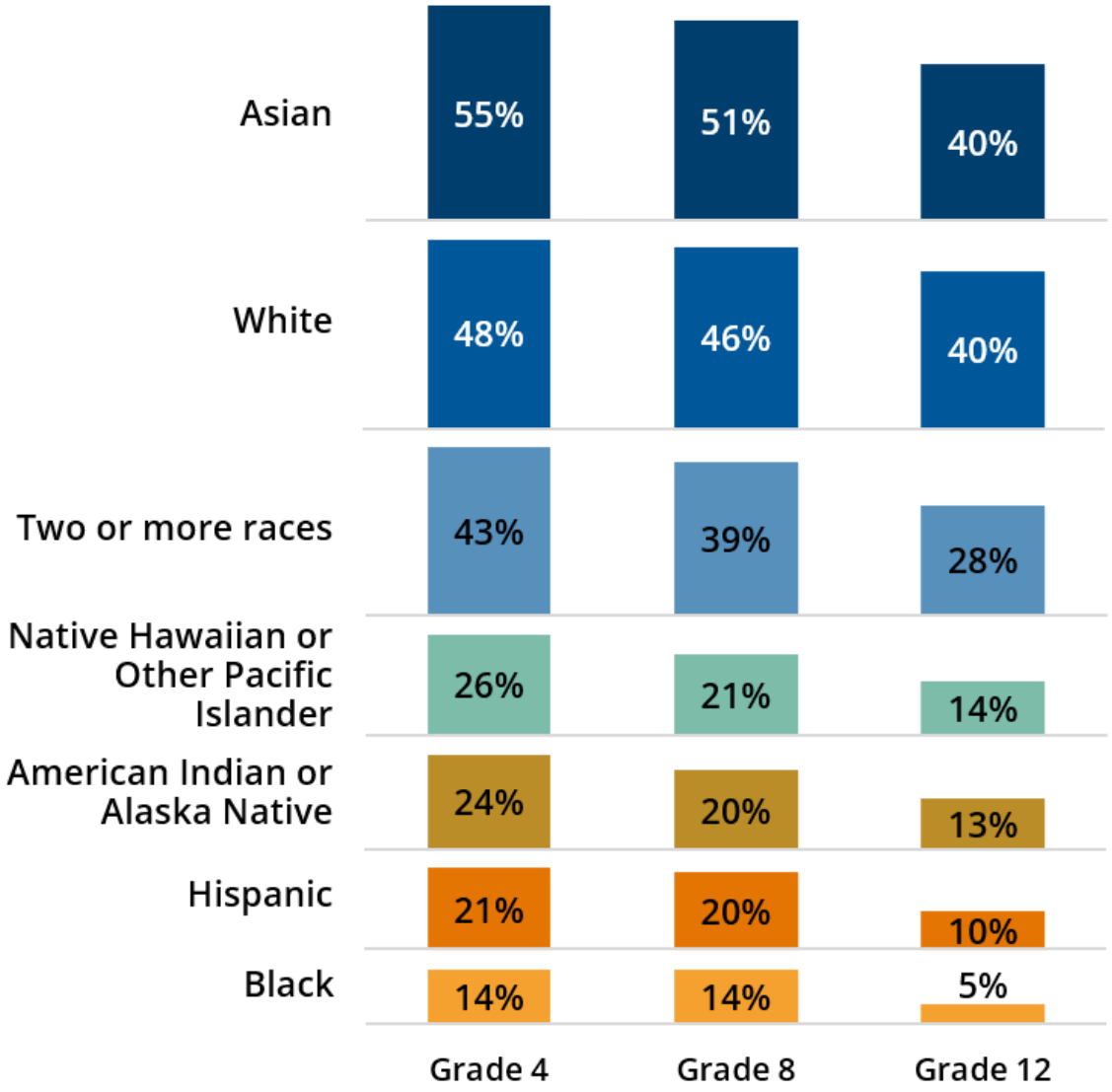
Average NAEP science scores increased by 1 and 4 points for grades 4 and 8, respectively, and did not change for grade 12: 2009 and 2019



Average NAEP science assessment scores, by grade: 2009 and 2019

Source(s): National Center for Education Statistics, National Assessment of Educational Progress (NAEP) science assessments, 2009 and 2019. *Student Achievement in Science: Selected Results from the National Assessment of Educational Progress*, InfoByte, 2022

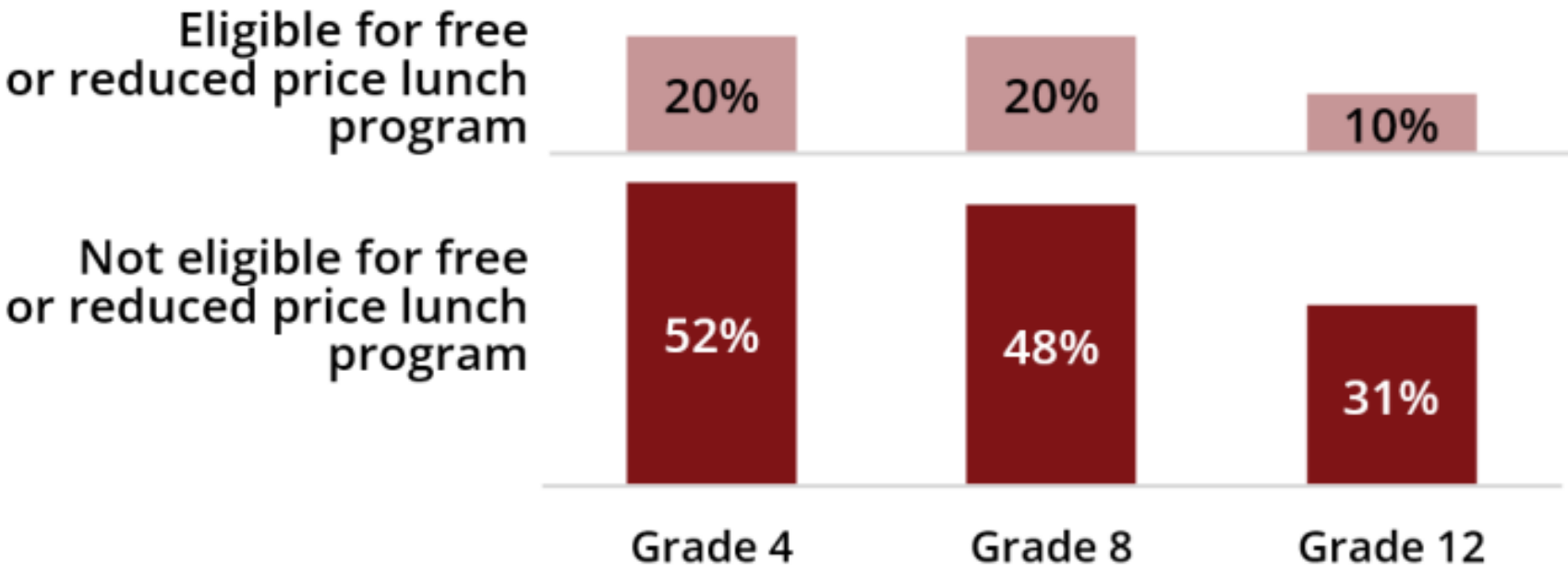
Percentage of students scoring proficient or above on the NAEP science assessment varies by race or ethnicity for each grade tested



Students with scores at the NAEP Proficient level or above on the NAEP science assessment, by race or ethnicity and grade: 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

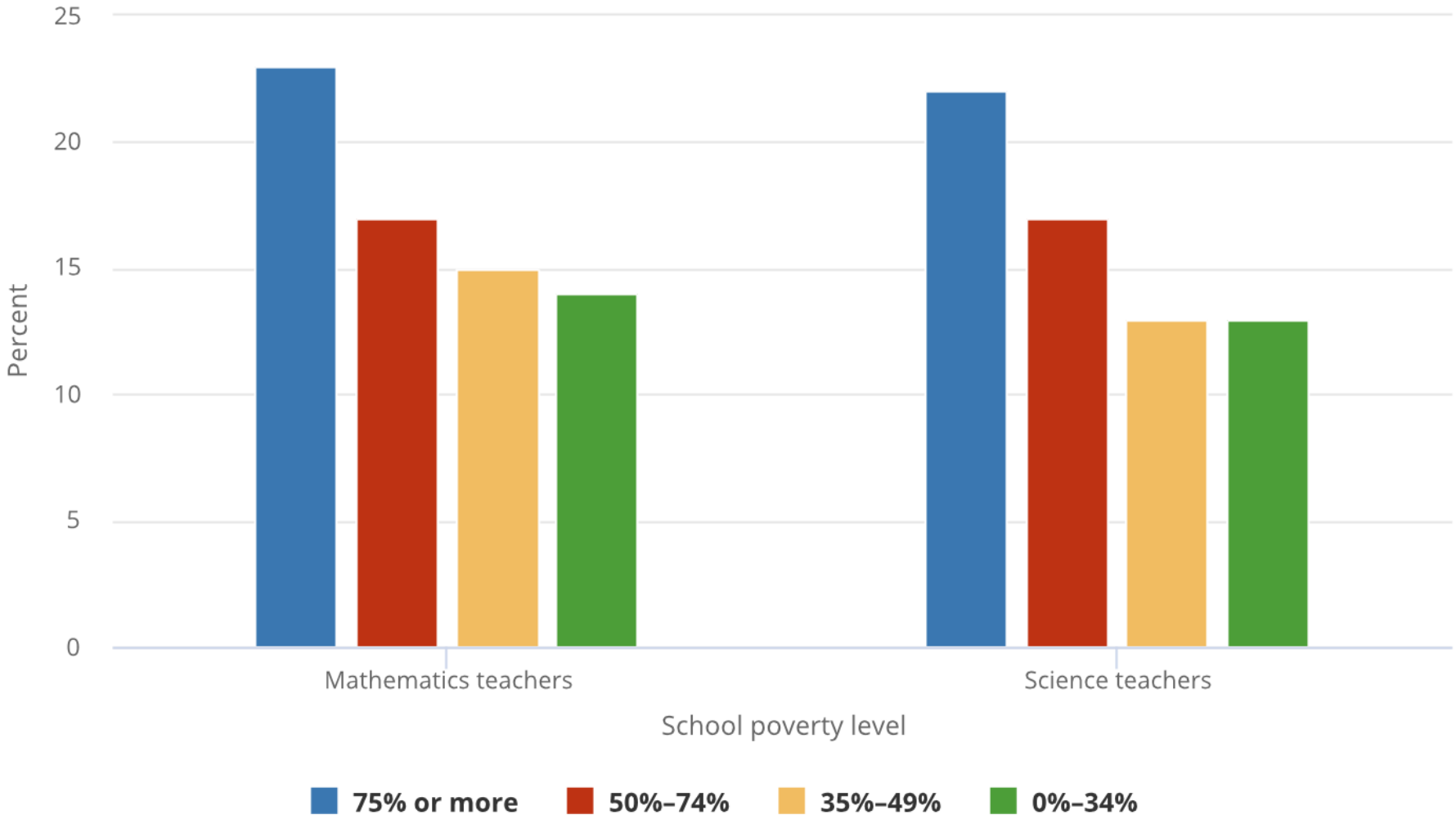
Percentage of students scoring NAEP Proficient or above in science is lower for students who qualify for free or reduced-priced lunch



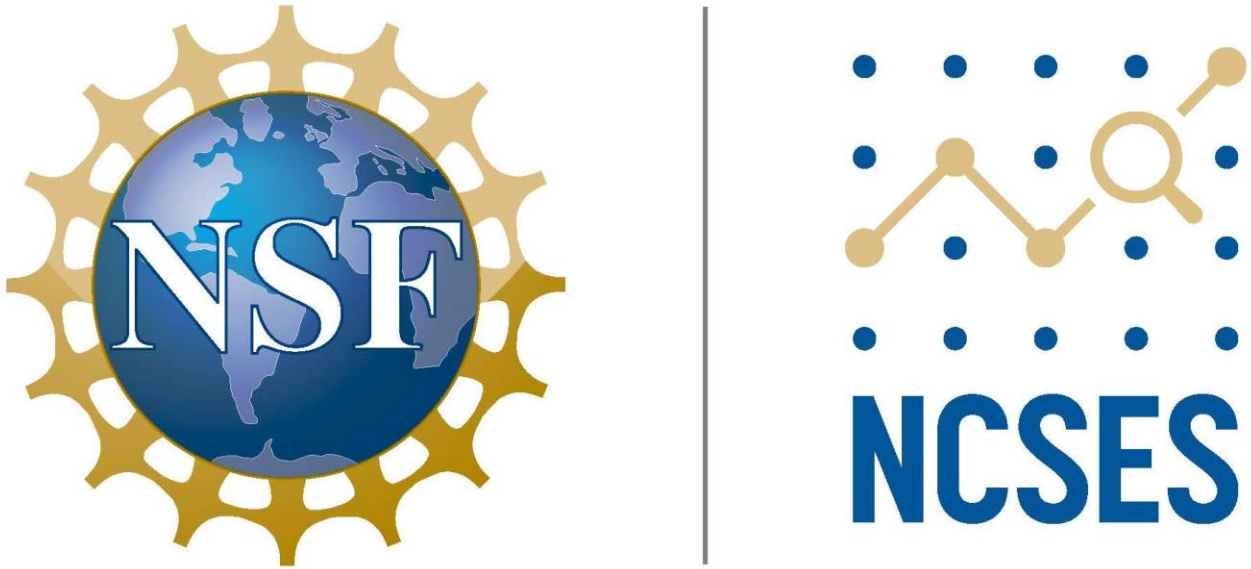
Students with scores at the NAEP Proficient level or above on the NAEP science assessment, by free or reduced-price lunch eligibility: 2019

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

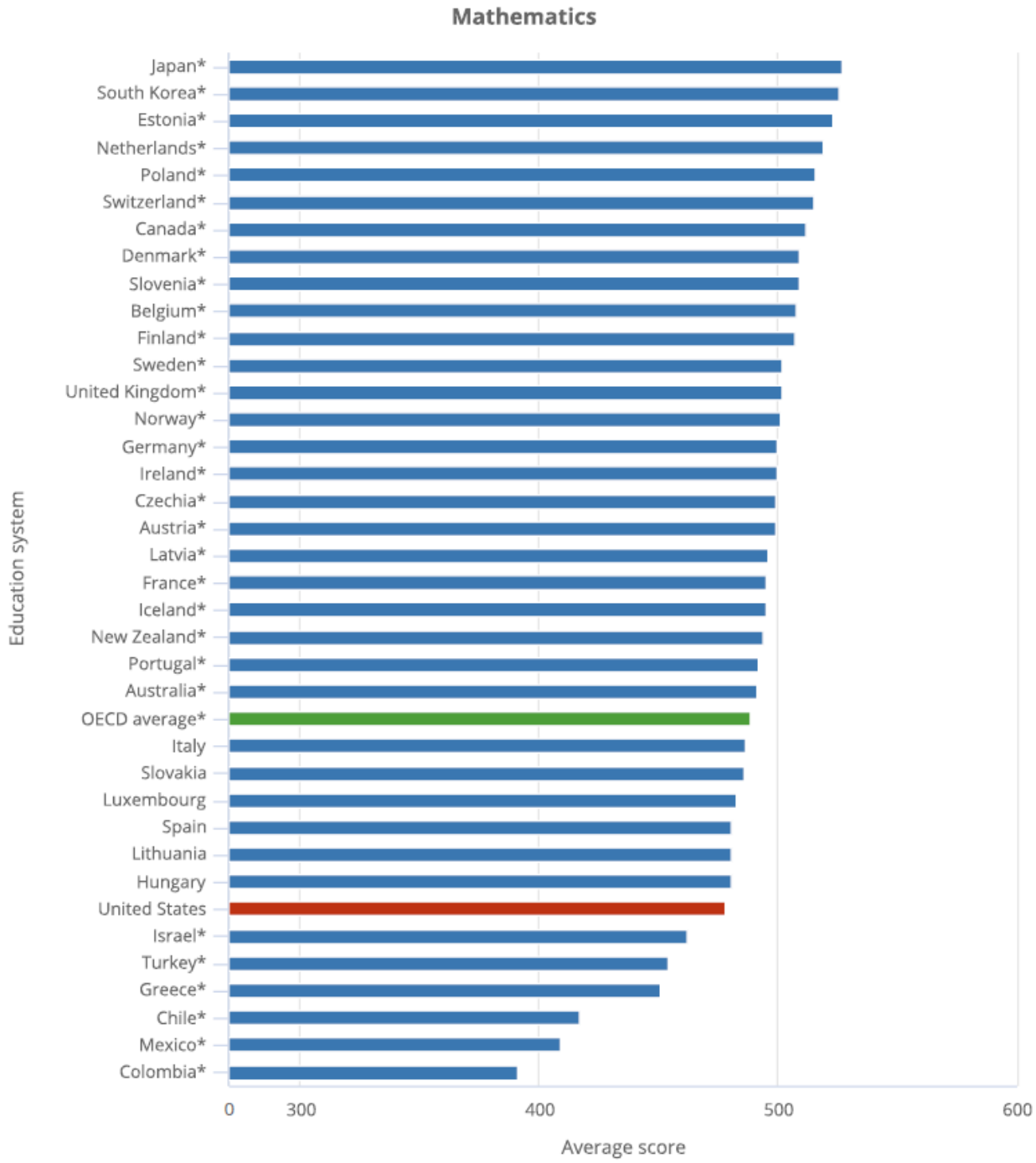
International Comparisons of Mathematics and Science Performance

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

Source(s):OECD, PISA, 2018. https://nces.ed.gov/surveys/pisa/pisa2018/index.asp#/math/intlcompare. Elementary and Secondary STEM Education, 2021, Figure K12-5

* $p < 0.05$. 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.



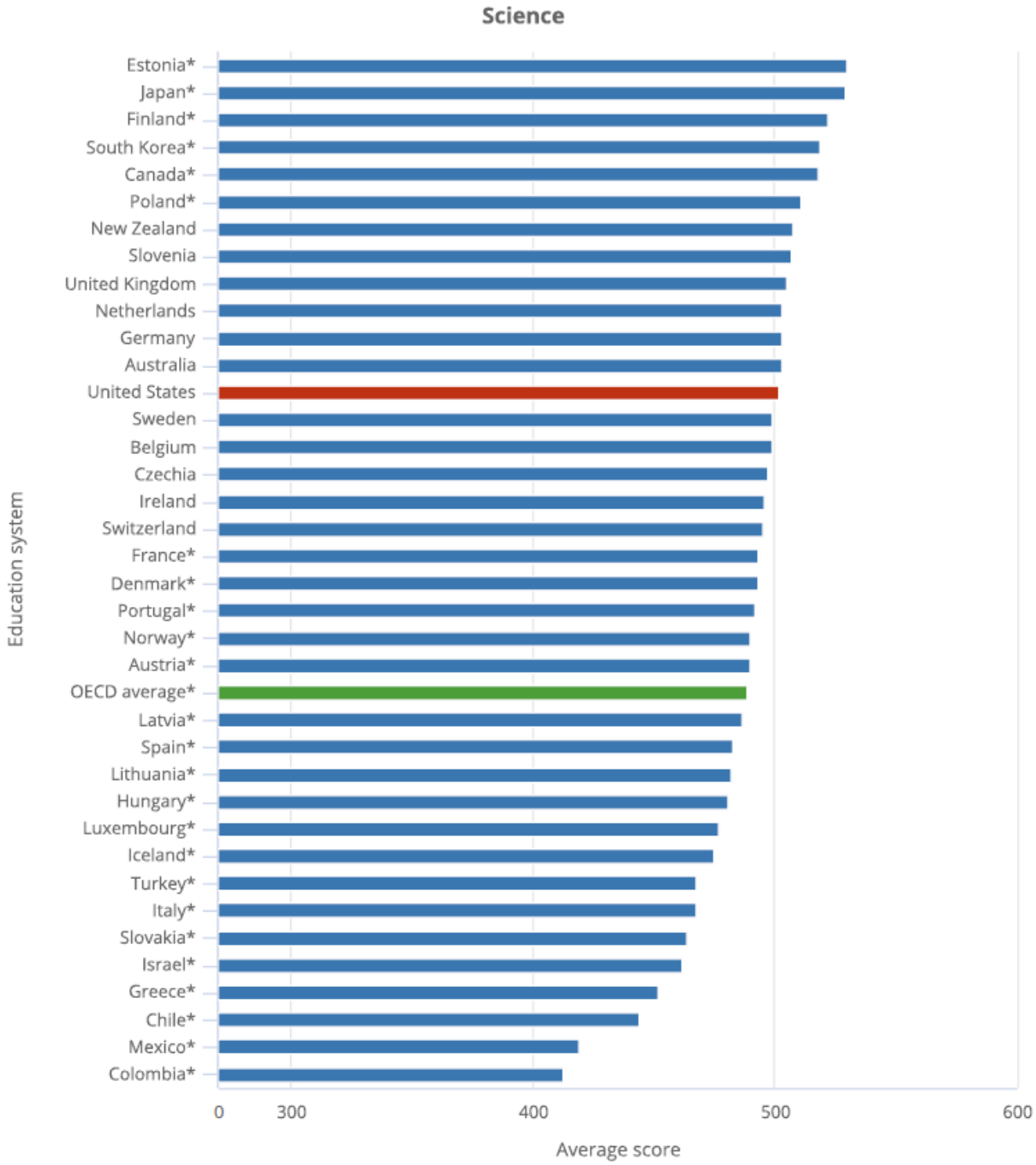
International Comparisons of Mathematics and Science Performance

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

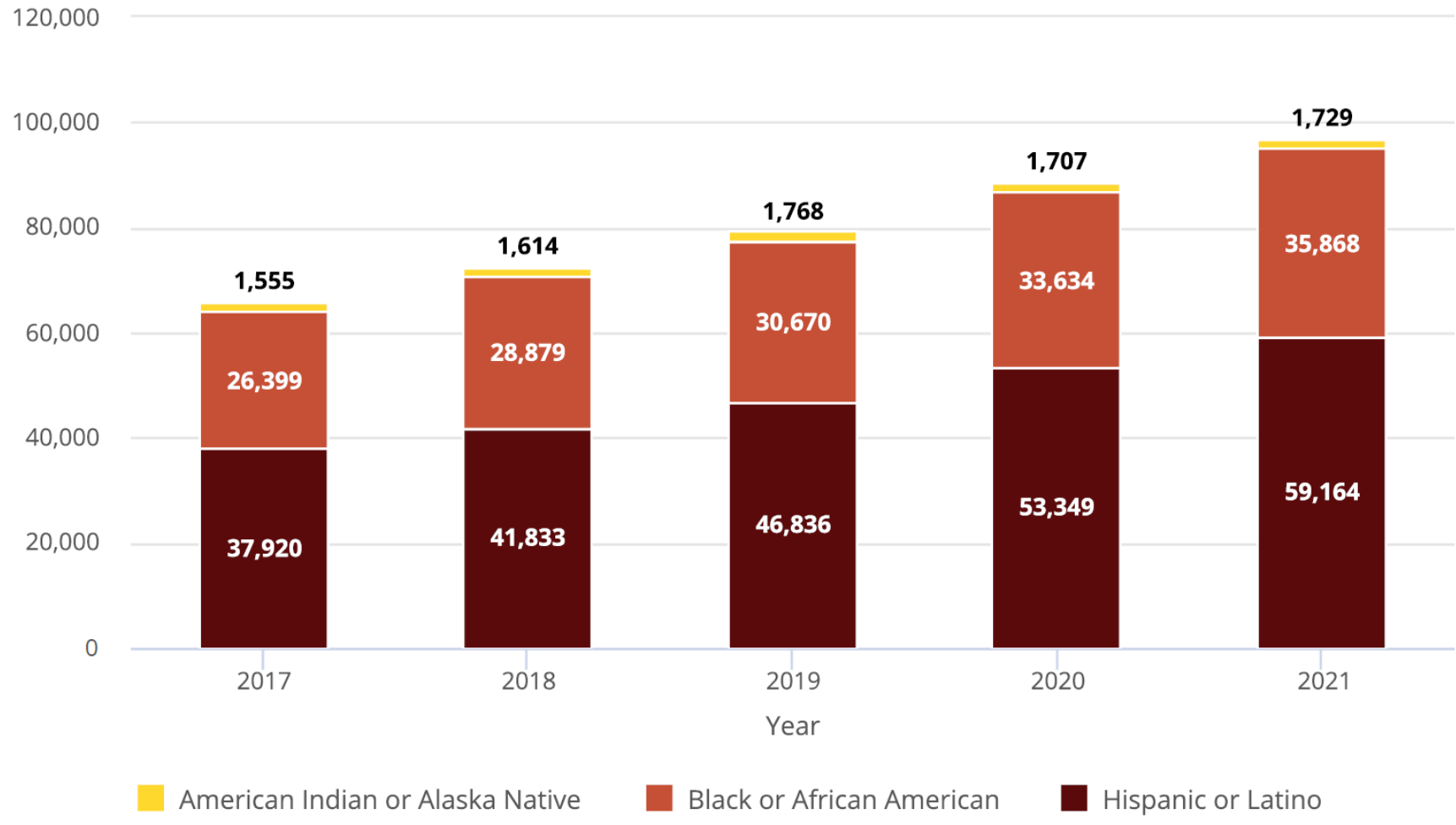
Source(s):OECD, PISA, 2018. https://nces.ed.gov/surveys/pisa/pisa2018/index.asp#/math/intlcompare. Elementary and Secondary STEM Education, 2021, Figure K12-5

* $p < 0.05$. 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.



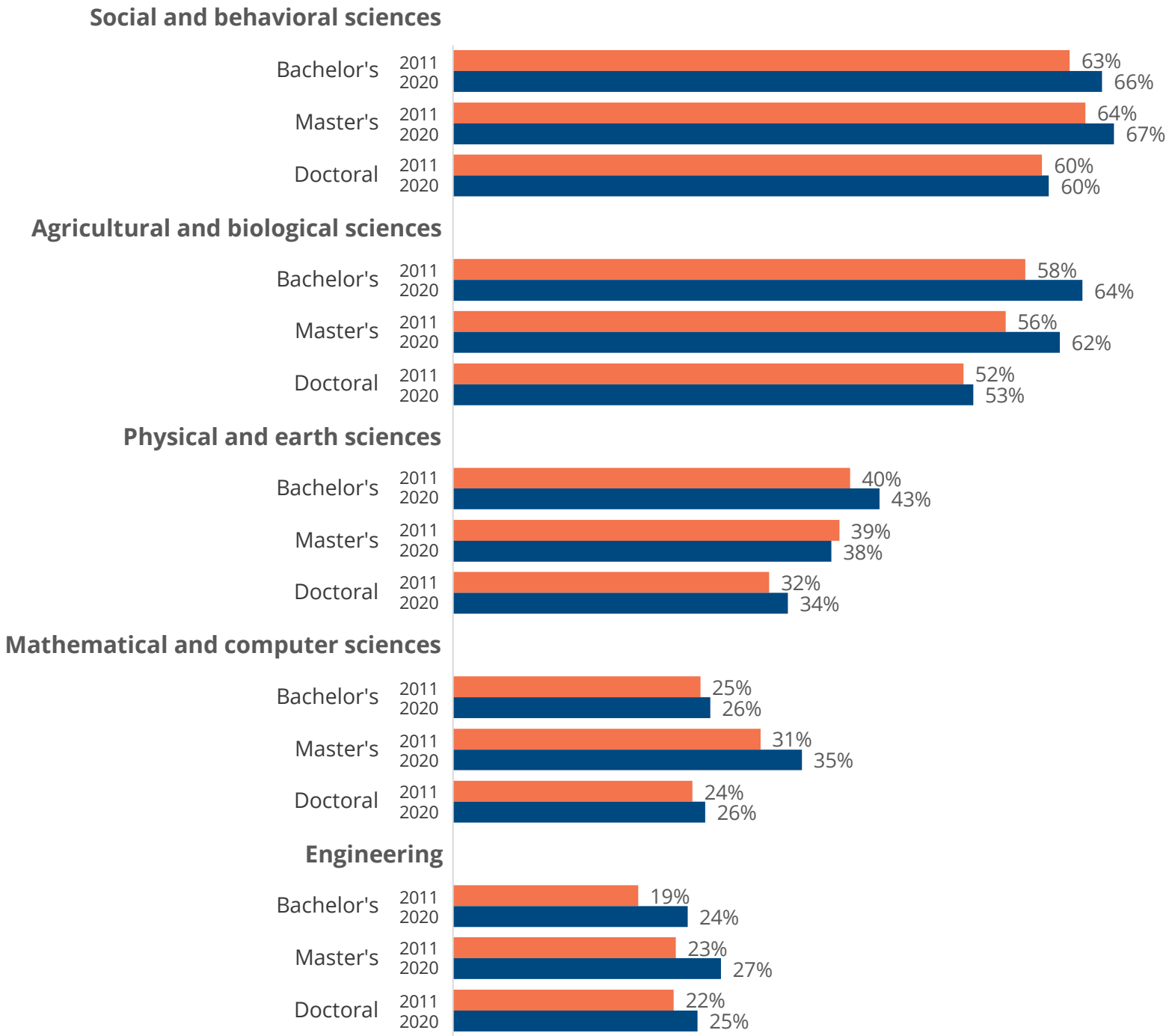
Increasing S&E graduate enrollment of underrepresented minorities is driven by Hispanic students.



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.

NSF NCSES

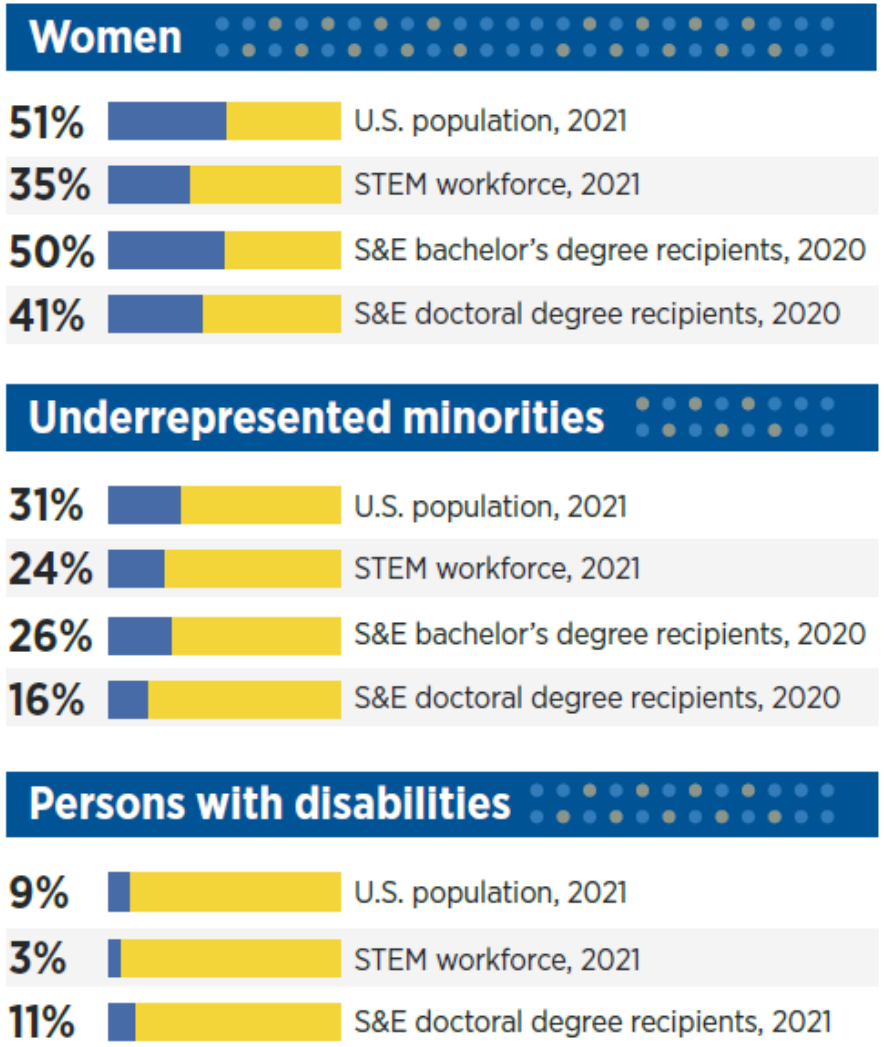
NCSES: NSF's Federal Statistical Agency

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.

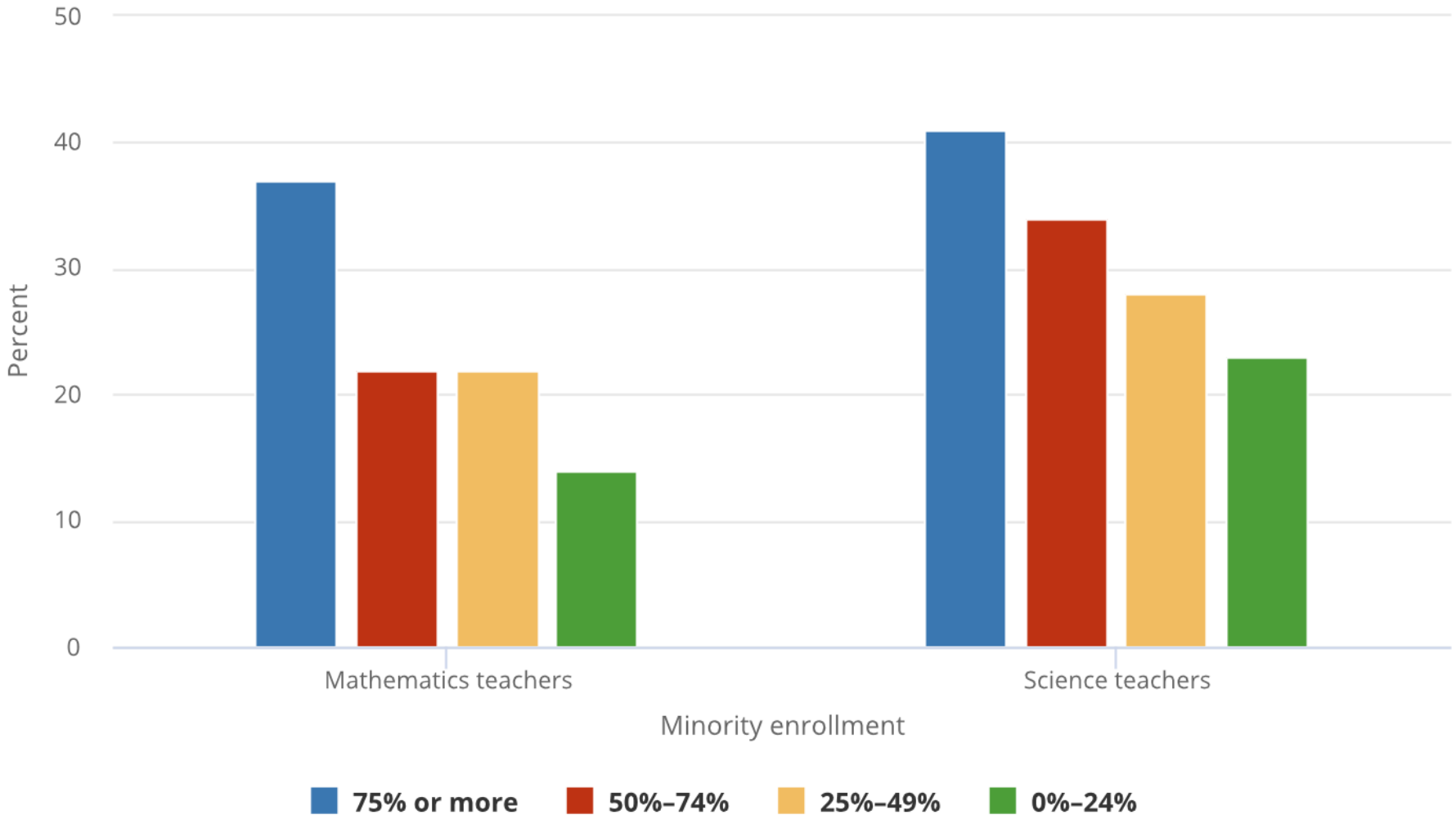
Underrepresented minorities include

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.

Sources: Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2021; National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey, 2020; and National Center for Science and Engineering Statistics, Survey of Earned Doctorates, 2021.

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

NSF NCSES

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

bmawhiney@sdafterschoolnetwork.org

SOUTH DAKOTA AFTERSCHOOL NETWORK

Our Work

SOUTH DAKOTA
AFTERSCHOOL NETWORK

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.

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.

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.

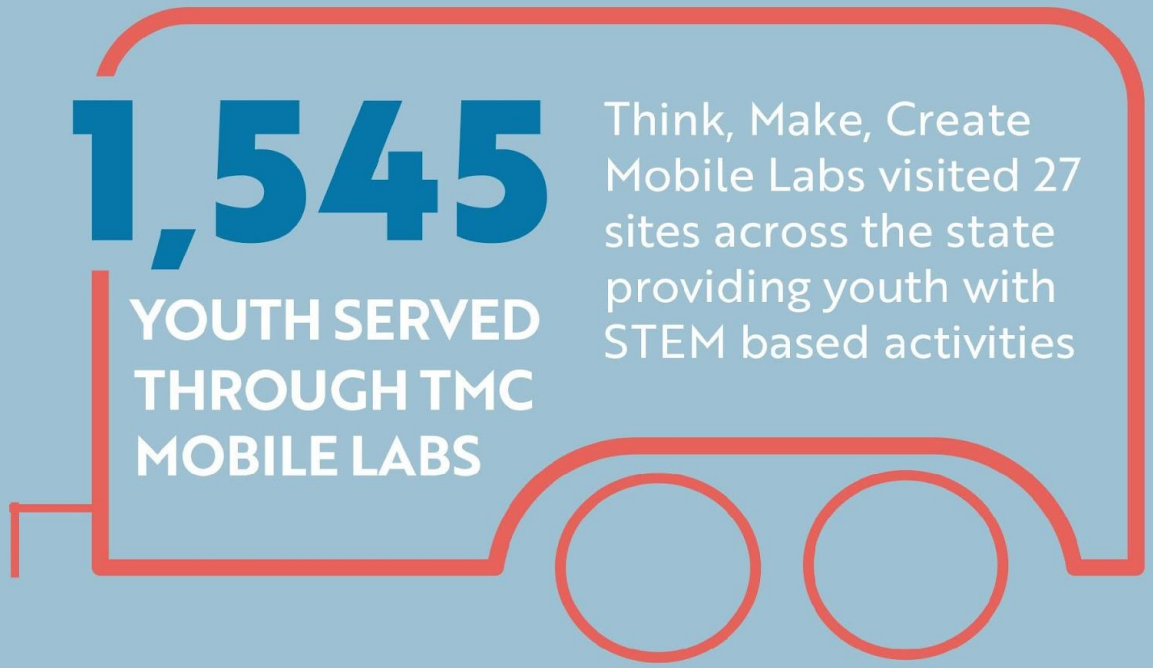
PITCH EVENT
Host a pitch event to promote STEM and entrepreneurial ambitions of middle school students.

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.

IMPACT 2022



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.

SOUTH DAKOTA AFTERSCHOOL NETWORK

THINK, MAKE, CREATE
MOBILE LAB
Summer Tour

June 3
Levitt | Sioux Falls

June 17
Levitt | Sioux Falls

July 1
Sisseton Wacipi

July 8
Levitt | Sioux Falls

July 15
Flandreau Wacipi

July 22
Levitt | Sioux Falls

August 5
Og Nation Wacipi | Pine Ridge

August 5
Levitt | Sioux Falls

August 26
Rosebud 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

SOUTH DAKOTA AFTERSCHOOL NETWORK

Focus Funds in South Dakota

STEM Focused Grants

Dept. of Education Awarded:

$2,500,000

13 programs

Average award $192,308

SOUTH DAKOTA AFTERSCHOOL NETWORK

21st CCLC Grant Need

demand has nearly doubled in SD

Only 25% of applicants were awarded

Previous years range from 40-50%

SOUTH DAKOTA AFTERSCHOOL NETWORK

SOUTH DAKOTA AFTERSCHOOL NETWORK

MEET THE TEAM

BILLY MAWHINEY
Executive Director
bmawhiney@sdafterschoolnetwork.org

DAWN MARIE JOHNSON
Director of Leadership & Culture
dawnmarie@sdafterschoolnetwork.org

LISA VERDIN
Director of Marketing & Engagement
lverdin@sdafterschoolnetwork.org

JEFF SEBERN
Director of Programs
jsebern@sdafterschoolnetwork.org

JAKE DANIELSON
Youth Success Manager
jdanielson@sdafterschoolnetwork.org

KARLA JOHNSON
Grant Writer
kjohnson@sdafterschoolnetwork.org

LEADERSHIP TEAM

Desmond Keller
President
Black Hills Special Services

Glen Marshall
Boys & Girls Club of Rosebud

Michelle Hentschel
EmBe

John Hegg
Community Volunteer

Christine Wood
SDSU Exention/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
South Dakota State Library

Alan Haarstad
SD Department of Education

Billy Mawhiney (he/him)

Executive Director
South Dakota Afterschool Network

bmawhiney@sdafterschoolnetwork.org

SOUTH DAKOTA AFTERSCHOOL NETWORK