



# Excellence Awards in Science and Engineering



## **EASE STEM Resources – Fall 2019**

### **NSF**

[NSF Resources](#) - Resources and findings generated through educational research and development projects funded in part by the National Science Foundation can help inform states and school systems that are developing strategies for improving K-12 STEM (science, technology, engineering and mathematics) education.

### **OSTP and National Science and Technology Council**

[Progress Report on the Federal Implementation of the STEM Education Strategic Plan](#) - This document is an annual progress report on efforts by the Federal Government to implement the five-year strategic plan for STEM education released by CoSTEM in December 2018. It is responsive to the requirements of Section 101(c) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. §6621). The intent of the progress report is to provide Congress and the wider STEM education stakeholder community with a window into ongoing and planned Federal activities, with the goal of leading by example toward the North Star vision of the strategic plan. The report includes an analysis of actions developed by the agencies of FC-STEM in support of the strategic plan's objectives, a discussion of major focus areas across the Federal STEM education community, a description of the ways Federal agencies will work together to address common challenges, and an inventory of Federal STEM education programs.

[Charting a Course for Success: America's Strategy for STEM Education](#) - This document presents the Federal Government's five-year strategic plan for STEM education, based on a vision for a future where all Americans will have lifelong access to high-quality STEM education and the United States will be the global leader in STEM literacy, innovation, and employment. The plan accordingly strengthens the Federal commitment to equity and diversity, to evidence-based practice, and to engagement with the national STEM community through a nationwide collaboration with learners, families, educators, communities, and employers. Beyond guiding Federal activities and investments, it is intended to serve as a "North Star" for the broader community to help achieve the goals, pathways, and objectives within this plan.

### **Department of Education:**

<https://www.ed.gov/stem> - In an ever-changing, increasingly complex world, it's more important than ever that our nation's youth are prepared to bring knowledge and skills to solve problems, make sense of information, and know how to gather and evaluate evidence to make decisions. These are the kinds of skills that students develop in science, technology, engineering and math—disciplines collectively known as STEM.



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## *Building Strong Foundations for STEM Literacy*

[Education Innovation and Research \(EIR\)](#)— Provides funding to create, develop, implement, replicate, or take to scale entrepreneurial, evidence-based, field-initiated innovations to improve student achievement and attainment for high-need students. STEM and computer science (CS) are priority areas.

[STEM Innovation for Inclusion in Early Education \(STEMIE\)](#)— A knowledge development center that is working to identify evidence-based practices to promote STEM learning with infants, toddlers, and preschoolers with disabilities.

[Javitz Gifted & Talented Program](#)— Supports evidence-based research, demonstration projects, and innovative strategies to enhance the ability of elementary and secondary schools to identify gifted and talented students and meet their special educational needs.

[STEM Innovation Spotlights](#) – Using technology to teach STEM in innovative ways and deepen students' STEM experiences. A STEM spotlight framework was also developed that surfaced nine dimensions of powerful STEM learning that can be supported with digital technology.

[ESSA/Perkins/IDEA Flexibilities doc](#) – Includes Title IVA which Student Support and Academic Enrichment Grants support safe & healthy schools, well-rounded curricula including STEM/CS, and the effective use of technology including professional development.

[IES data and statistics, research and evaluation, and tools for educators](#) – Includes the What Works Clearinghouse and Practice Guides.

[K-12 Practitioners' Circle](#) – Repository of resources across ED for K-12 practitioners.

## *Increase Diversity, Equity, and Inclusion in STEM*

[Minority Science & Engineering Improvement Program \(MSEIP\)](#)— To improve science and engineering education at predominantly minority institutions and to increase the number of underrepresented ethnic minorities, particularly minority women, in scientific and technological careers.

[Hispanic Serving Institutions-STEM](#) — To increase the number of Hispanic and other low-income students attaining degrees in the fields of science, technology, engineering, or mathematics;

[Gaining Early Awareness and Readiness for Undergraduate Programs \(GEAR-UP\)](#) — To provide support for eligible low-income students, including students with disabilities, in obtaining a secondary school diploma and to prepare for and succeed in postsecondary education.



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[TRIO: Upward Bound Math-Science; Upward Bound Program; Ronald E. McNair Postbaccalaureate Achievement Program; Student Support Services Program; Talent Search Program](#)

[College Assistance for Migrant Students \(CAMP\)](#) — To assist students who are migratory or seasonal farmworkers (or children of such workers) enrolled in their first year of undergraduate studies at an IHE.

*Prepare the STEM Workforce for the Future*

[Presidential Cybersecurity Education Award](#) – This activity supports section 3(c) of the Executive Order dated May 2, 2019. Nomination period is open until January 31, 2020. Awarded to one elementary and one secondary teacher during Teacher Appreciation Week May 2020.

[Teacher Quality Partnership \(TQP\)](#) – Aims to improve the quality of prospective and new teachers by improving the preparation of prospective teachers and enhancing professional development for new teachers.

[Supporting Effective Educator Development \(SEED\)](#)– Provides funding to increase the number of highly effective educators by supporting the implementation of evidence-based preparation, development, or enhancement opportunities for educators.

[CTE Cyber Camps](#) – ED is working with will be working with Centers of Academic Excellence (CAE) CAE Regional Resource Centers. Will include intensive technical assistance and professional development for teachers.

[School Ambassador Fellowship](#) – The School Ambassador Fellowship is designed to improve education for students by involving educators in the development and implementation of national education policy. Applications for the 2020-2021 cohort of the School Ambassador Fellowship will opened in Fall 2019.

[Pathways to STEM Apprenticeship for High School Career and Technical Education \(CTE\) Students](#) (Pathways to STEM Apprenticeships)—demonstration program is expand and improve the transition of high school CTE Students to postsecondary education and employment through apprenticeships in science, technology, engineering, and mathematics (STEM) fields, including Computer Science.

[Perkins Innovation and Modernization](#) – The I&M Grant is designed to test new ideas to help prepare students for success in the workforce by identifying, supporting, and evaluating evidence-based strategies for improving CTE.



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[Graduate Assistance in Areas of National Need](#) (GAANN)—Provides higher education fellowships to assist graduate students with excellent records with financial need and plan to pursue the highest degree available in their course study at the institution in a field designated as an area of national need.

[Stackable credentials that lead to careers](#) – Stackable credentials focus career and technical education programs on building the critical skills needed for students to advance in growing sectors of the economy.

## *Additional Resources*

[Institute of Education Sciences \(IES\)](#) - The Institute of Education Sciences (IES) is the statistics, research, and evaluation arm of the U.S. Department of Education. We are independent and non-partisan. Our mission is to provide scientific evidence on which to ground education practice and policy and to share this information in formats that are useful and accessible to educators, parents, policymakers, researchers, and the public.

[You for Youth](#) – You for Youth’s mission is to build a community of caring and competent afterschool professionals who nurture, motivate, and engage children and youth in 21st CCLC programs. Moments of joy mark the real learning experiences of our lives. Whether we call them discoveries, breakthroughs, understandings or wows, they tickle our brains and make us want to know more.

[College Scorecard](#) – With this tool, students can now find customized, accessible, and relevant data on potential debt and earnings based on fields of study (including for 2-year programs, 4-year degrees, certificate programs, and some graduate programs), graduation rates, and even apprenticeships.

## **ARMY**

[The STEMx™ Network](#) - A multi-state STEM network that provides an accessible platform to share, analyze and disseminate quality STEM education tools to transform education, expand the number of STEM teachers, increase student achievement in STEM and grow tomorrow’s innovators.

## **Department of Energy**

[STEM Rising](#) - An initiative to inspire, educate, and spark an upwards trajectory to lifelong success in STEM through sharing the Department's programs, resources, competitions, events, internship opportunities and more.





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## **Environmental Protection Agency**

[Environmental Education \(EE\)](#) - This website provides information about EPA activities and programs that support environmental education, including professional development, youth and educator recognition, and grants. Environmental education increases public awareness and knowledge about environmental issues or problems. In doing so, it provides the public with the necessary skills to make informed decisions and take responsible action.

## **Federal Reserve**

[Federal Reserve Education](#) – Provides resources divided by grade level around financial education, economics, and The FED.

## **Census Bureau**

[Statistics in Schools](#) - Using new Statistics in Schools (SIS) resources in your classroom during the 2019-2020 school year will support efforts to make sure EVERY child is counted in the 2020 Census. This count impacts the federal funds that communities receive for special education, classroom technology, teacher training, after-school programs, school lunch assistance, and more.

## **International Space Station**

[Space Station Explorers](#) - A community of educators, learners, and organizations that make STEM learning fun and exciting through connections with the International Space Station (ISS) National Lab. We collaborate with many partner organizations on innovative programs and resources for K-12 students, educators, and the public, including opportunities to design experiments to launch to space!

## **NASA**

[NASA For Educators](#) - Find resources to support your STEM curriculum, professional development opportunities to expand your knowledge base, contests to engage your students and more!

## **National Academies of Science, Engineering, and Medicine**

[The Science of Effective Mentorship in STEMM Report](#) - Mentorship is a catalyst capable of unleashing one's potential for discovery, curiosity, and participation in STEMM and subsequently improving the training environment in which that STEMM potential is fostered. Mentoring relationships provide



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developmental spaces in which students' STEMM skills are honed and pathways into STEMM fields can be discovered. Because mentorship can be so influential in shaping the future STEMM workforce, its occurrence should not be left to chance or idiosyncratic implementation. There is a gap between what we know about effective mentoring and how it is practiced in higher education.

## **National Institute of Health**

[STEM Teaching Resources](#) - Inspire students between pre-kindergarten and 12th grade to pursue the world of science. Find links to free teaching resources like comic books, lesson plans, games, videos, and more.

[The National Institute of General Medical Sciences \(NIGMS\)](#) – This institute supports basic research that increases our understanding of biological processes and lays the foundation for advances in disease diagnosis, treatment, and prevention. NIGMS-funded scientists investigate how living systems work at a range of levels from molecules and cells to tissues and organs, in research organisms, humans, and populations.

## **NOAA**

[The NOAA Education Portal](#) - Your one-stop shop to connect with learning and teaching resources about the ocean and atmosphere. Discover curricula, lesson plans, and real-time data to bring NOAA science into your classroom. Explore opportunities for educators and students of all levels. Apply for competitive funding for education projects.

## **Patent and Trademark Office**

[Education and Outreach](#) – Features information around the Science of Innovation video series and the National Summer Teacher Institute.

## **Smithsonian Institution**

[The Smithsonian Science Education Center](#) – This center, attempting to empower the next generation of decision makers capable of making the right choices about the complex socio-scientific issues facing human society, blends together previous practices in Inquiry-Based Science Education (IBSE), Social Studies Education (SSE), Global Citizenship Education (GCE), and Education for Sustainable Development (ESD).

[Smithsonian Science for Makerspaces](#) - A series of free engineering design challenges for students to engage with emerging technologies through hands-on learning of science, technology, engineering, arts and math (STEAM) by asking them to make something new.



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## USGS

[USGS Education](#) – These pages contain a curated collection of educational resources across the grade levels from pre-K through college. They focus on all of the earth sciences including geology, ecology, hydrology, atmospheric sciences, and planetary sciences. Teachers can search by grade level, topic, or type.

## USDA

[USDA Education](#) - To feed the growing global population - expected to reach 9.6 billion by 2050 - the Food and Agricultural Organization projects that agricultural production (food, feed and fiber) will need to increase by 70 percent. If these predictions are accurate, humankind's greatest challenge may be educating the needed labor to replace the aging American farmer and the skilled workers and scientists needed to support the sustainable growth in agricultural production.