Grant Funding Opportunities

The Funding Landscape for STEM Education in K-12: Grants for your next project!

Presentation Supplemental

Prepared for FETC – STEM Theater
"The Funding Landscape for STEM Education in K-12"
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GRANTS OFFICE
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This report is intended to accompany a presentation given by a Grants Office consultant. Contact helpdesk@grantsoffice.com for more information.

Grants Office Funding Report

Mobilizing to Access Grant Funding

Each year, the federal government makes over $400 billion available for a wide range of projects. Much of that is available to a group of entities referred to as "State, Local, nonprofit, and other." As distinguished from research funding recipients, these government agencies, schools, and hospitals receive the largest share (in terms of dollars) of federal funding annually.

Grant Pathways

Funding at the federal level comes from 26 grantmaking agencies, and grants are either:

Direct – funds go directly from the federal funding agency to local recipients; or

Pass-through – funds go through the state, and possibly even a regional entity, before they are made available to the local entity. States may still have to apply for these funds and often keep a portion to cover administrative costs, but then each state will maintain its own re-granting process, timelines, and priorities.

It's important to be aware of whether you are directly eligible to apply to a particular grant opportunity (and receive funds from it), or whether the opportunity is a pass-through grant for the state, and you will need to follow up with the state to determine what you need to do to apply for funds for your project.

Grant Types

Another distinction to be aware of is the type of grant a particular program offers. A grant may be:

Formula – Funding allocations are based on a formula – such as student poverty (No Child Left Behind Grants), risk assessments (State Homeland Security Grants) or number of acute care hospital beds (Hospital Emergency Preparedness Grants). As long as an eligible applicant completes an application in the timeline and format required by the funder, they're virtually assured of receiving the money their formula has determined they're eligible for;

Competitive – applications are competitively scored based on a set of objective and/or subjective criteria, and the score the proposal receives factors in to the award allocation; or

Earmark – grant awards are decided at the legislative level during the budgeting process. You will need to apply to your local Congressman or State Representative to obtain these funds.

This Research Report may contain direct and pass-through grants as well as formula, competitive, and earmark programs. Each of these distinctions will have implications as the value of the program to your organization and the potential to raise new funding for your project.

Grant Sources

Grants typically come from one of three sources, including:

Federal – issuing from one of the 26 Federal grantmaking agencies. These grants tend to be large (often $250,000 to $500,000 in size) and restricted to broad, national priorities;

State – issuing from a state agency, either using funds derived from within the state or passing through funds received from elsewhere (most often a federal agency). These grants tend to be more accessible, smaller than federal grants, and more in line with state priorities; and

Private – Foundations and Corporations provide approximately $35 billion each year in funding, and they tend to be the most responsive to locally developed projects and local needs.

All three of these sources may figure in to your funding strategy. A common approach is to fund the bulk of a project with federal and state funds, then apply to foundations to support the local elements that fall outside the parameters of the government funders, or to cover the required matching costs.

Determining the Desirability of a Grant

You may not have the resources or even the desire or need to write all the grants identified in this document. So, it may be necessary to qualify which grants to which you'd like to apply for the project, and which you'll leave for another time or another project. The following criteria may be helpful in determining which grants to pursue:

Total funding available – gives you an idea how broad the program will be and how competitive;

Application burden – some programs require 100 page narrative, while others may look for 10 or less;

Matching requirements – similarly, some programs require a dollar for dollar match, while others may require a 5% match or no cost sharing at all;

Scale – you don't want to write 1,000 $5,000 requests to get your $500,000 project funded or lock yourself into a lot of extra activities that you didn't intend just to get what you needed;

Collaboration/partnering requirements – beyond what you have in place are a factor to consider;

Lead time – more lead time generally equals more time to develop the project and articulate that in the grant application – six weeks is good, and three weeks is almost essential;

Track record with the funder – generally more important or local funders than federal sources, but a consideration nonetheless.

Anatomy of a Grant Summary

The grant summaries contained in this report contain several common data elements, intended to provide you with an overview of each program and enough information to determine whether a given program warrants serious investigation of the guidance document and other informational materials on the program.

Each grant summary contains:

Grant Title - the title of the grant as defined by the funder, with any common abbreviations in parentheses. If the grant is focused on a particular state, the state name will also be in parentheses.

CFDA# - the Catalog of Federal Domestic Assistance number assigned by the funder, including the two numbers representing the primary funding agency (followed by a decimal point), and the remaining numbers (and letters) representing the agency's program. If no CFDA number exists, the entry will read: None

Authority - the definition of the funding source, including the federal or state agency and sub-agency or name of the foundation making the grant.

Summary - relevant information about the grant program, funding priorities, and application process, including highlights of the grant program and information on the priorities and application process.

Eligibility - the types of applicants that are eligible to apply for the grant including standard categories of eligible applicants, as well as any special eligibility criteria that the program requires.

Award Information - the total funding available, matching requirements, allocation formula, and any other relevant items that impact the award amount.

History of Funding - any available information on past years' funding. If no information is available, the entry will read: Not Available

Deadline - additional information on the deadline, including Letter of intent/full application deadlines or submission timeframes for different media, reflecting any nuances in the application deadline, as indicated in the guidance or other sources. In the event that a grant program's application deadline has passed, a future deadline may be forecasted based on historical information and the expectation that the program will re-open for application in the future. Potential grant applicants should consider both current and anticipated grant opportunities as part of a successful long-term grantseeking strategy. **Both forecasted and official deadline dates are subject to change at any time.**

Additional Information - relevant information not suited for other fields

Contact Information - information on program contact(s), including phone, e-mail, and a URL which points as directly as possible to the program Web page or guidance document.

GRANTS OFFICE

Grant Program Summaries

1. Innovative Technology Experiences for Students and Teachers (ITEST)
2. Navy and Marine Corps STEM Education, Outreach and Workforce Program (ONR STEM)
3. Environmental Literacy Grants

Innovative Technology Experiences for Students and Teachers (ITEST)

CFDA Number(s):

47.076

Authority:

National Science Foundation (NSF)

Summary:

The ITEST program through research and model-building activities seeks to build understandings of best practice factors, contexts and processes contributing to K-12 students' motivation and participation in the science, technology, engineering, and mathematics (STEM) core domains along with other STEM cognate domains (e.g., information and communications technology (ICT), computing, computer sciences, data analytics, among others) that inform education programs and workforce domains. The ITEST program funds foundational and applied research projects addressing the development, implementation, and dissemination of innovative strategies, tools, and models for engaging students to be aware of STEM and cognate careers, and to pursue formal school-based and informal out-of-school educational experiences to prepare for such careers. ITEST supports projects that:

- Increase students' awareness of STEM and cognate careers;
- Motivate students to pursue the appropriate education pathways for STEM and cognate careers; and/or
- Provide students with technology-rich experiences that develop disciplinary-based knowledge and practices, and non-cognitive skills (e.g., critical thinking and communication skills) needed for entering STEM workforce sectors.

ITEST projects may adopt an interdisciplinary focus on one or more STEM domains or focus on sub discipline(s) within a domain. ITEST projects must involve students, and may also include teachers. ITEST is especially interested in broadening participation of student groups from traditionally underrepresented in STEM and cognate intensive education and workforce domains. Strongly encouraged are projects that actively engage business and industry to better ensure K-12 experiences are likely to foster the skill-sets of emerging STEM and cognate careers.

ITEST supports two types of foundational and applied research projects:

- Strategies: projects that address the creation and implementation of innovative technology-related interventions

- SPrEaD (Successful Project Expansion and Dissemination): projects that support the wider and broader dissemination and examination of innovative interventions.

The ITEST program also intends to fund one Resource Center to provide technical support for all ITEST projects, to facilitate national dissemination of project outcomes, to further develop the ITEST research and development community, and to advance the mission of broadening participation in STEM careers and career education pathways.

ITEST supports projects that enhance students' interest in and capabilities to successfully pursue STEM and STEM cognate careers. A number of DRL programs also address students STEM learning in K-12 formal and informal settings but with difference emphases.

- The PreK-12 focuses on researching the development and implementation of innovative resources, models, and tools for K-12 students and teachers, primarily in formal elementary, middle, and high school settings.
- The AISL focus is on understanding design and engagement in out-of-school STEM learning and learning environments across all ages in the life span; including cross venue youth programs in grades K-12.
- The ECR emphases are on foundational research to advance our understandings of and methodologies for studying STEM learning, STEM learning environments, broadening participation in STEM, and/or STEM workforce development.

The research and development goals of the ITEST program are consistent with EHR's commitment to building and expanding research foundations in STEM learning and learning environments, workforce development and broadening participation in STEM.

ITEST projects explore and test strategies and tools for fostering K-12 students' motivations, interests and capacities in STEM learning. ITEST is especially interested in broadening participation of student groups from traditionally underrepresented in STEM and cognate intensive education and workforce domains. Underrepresented groups may include, but are not limited to, women, underrepresented minorities (African-Americans, Hispanics, Native Americans, Alaska Natives, Native Hawaiian, and other Pacific Islanders) and persons with disabilities. ITEST projects may provide students with authentic, contextual experiences from in- and/or out-of-school educational settings/programs. Projects may also involve partnerships with higher education, and business and industry to enhance the development of authentic experiences that serve to build student interest in STEM.

Successful ITEST projects will engage in foundational or model-based design applied research that seeks to understand conditions and contexts that improve K-12 students' STEM learning pathways and STEM-focused career preparations and mentorships. The ITEST program is particularly interested in projects that examine the effectiveness of engaging adult volunteers with relevant disciplinary expertise from academia or industry to mentor and engage students in school, after school or out-of-school. Typically, proposals with a primary focus on workforce development for youth and on school to work transitions should be submitted to ITEST. Also encouraged are proposals that engage students in the use of cutting-edge technological tools, in computer sciences, or in providing students with work/problem based opportunities for innovative use of technology.

Eligibility:

All U.S. organizations with an educational mission are eligible for ITEST. All ITEST projects must demonstrate evidence of partnerships and collaboration in the formulation, implementation, and/or interpretation and dissemination of the project. Eligibility for Innovation through Institutional Integration is limited to institutions of higher education (including two- and four-year colleges) located and accredited in the US, acting on behalf of their faculty members.

Award Information:

Approximately $35,000,000 is anticipated to be available in total funding for FY16. Approximately $35,000,000 will be available each year after. 20 to 30 awards are expected to be made. 15 to 20 Strategies awards will be up to $1,200,000 each and will last up to 3 years, 5 to 10 SPrEaD awards will be up to $2,000,000 each and will last 3 to 5 years, and 1 Resource Center awards will be up to $3,500,000 and will last for 3 years. Cost sharing/matching is not required.

Deadline Description:

Applications must be submitted by 5:00 PM local time of proposer on August 9, 2017. Applications will be due on the second Wednesday in August, annually thereafter.

History of Funding:

Abstracts of recent ITEST awards are available online.

Additional Information:

Proposals to the ITEST program may request support for projects that:

- Develop, implement, and study a curricular or instructional strategy or model to understand how to improve student interest in and/or preparation for STEM and/or STEM cognate careers based on a well-specified theory of action appropriate to a well-defined end-user;
- Test existing measures or create valid and reliable new performance -based measures to evaluate the implementation and impact of an intervention strategy on how to prepare students for the existing or future STEM workforce. The focus may be on student assessments or assessing growth in teachers' knowledge of STEM and/or STEM cognate career opportunities.
- Conduct design-based pilot studies of fully or partially developed interventions to examine the attainment of intended outcomes such as knowledge about approaches, models, and interventions involving children, mentors and teachers that are most likely to increase the nation's capacity and innovation in the STEM and/ STEM cognate workforce of the future.

Contact:

ITEST Program Staff
4201 Wilson Boulevard
Arlington, VA 22230

Phone: (703) 292-8628
Email: drlitest@nsf.gov
Visit Website: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5467

*Consult the program guidance by following the links provided at the above URLs. Additional relevant POCs are provided in the program guidance.

Navy and Marine Corps STEM Education, Outreach and Workforce Program (ONR STEM)

CFDA Number(s):

12.330

Authority:

Department of Defense (DoD)

Summary:

The Office of Naval Research (ONR) seeks proposals for developing innovative solutions that directly support the development and maintenance of a robust STEM workforce. The goal of any proposed effort should be to provide "game changing" solutions that will establish and maintain a diverse pipeline of U.S. citizens who are interested in uniformed or civilian DoN (or Navy and Marine Corps) STEM related workforce opportunities.

While this announcement is relevant for any stage of the STEM pipeline, funding efforts will be targeted primarily towards the future DoN (naval) STEM workforce in High Schools, all categories of Post-Secondary institutions, the STEM research enterprise, and efforts that enhance the current naval STEM workforce and its mission readiness. Efforts may encompass a spectrum of project sizes from exploratory pilots to large-scale regional or national initiatives. The technical content of any idea must establish naval relevance within the broad scope of key engineering and scientific areas as outlined in the Naval S&T Strategic Plan, or such as our National Naval Responsibilities (see ONR website), or any identified gaps in workforce needs.

Specific audience priority areas may include, but not be limited to, military dependent children, education systems integral to the naval science and technology enterprise, and veteran initiatives that improve education outcomes and connections to naval STEM careers.

While not a formal requirement or program focus of this program, applicants are strongly encouraged to consider under-represented populations including women and minorities in project plans.

Applicants are encouraged to understand the significant reorganization of STEM funding across the Federal government. Applicants seeking to improve general national STEM performance rather than a focus on Naval workforce needs, and particularly efforts aimed at the P/K-9 levels, are encouraged to seek funding from one of the designated lead agencies: The Department of Education, the National Science Foundation, or the Smithsonian Institution.

Successful white papers and proposals will clearly demonstrate that they:

- Will invest in either the development of nationally scalable innovative capabilities and educational tools OR in significantly scale proven models and approaches.
- Will create meaningful content and participant experiences that meet Naval STEM education and workforce priorities, and that will expose participants to elements such as Navy and Marine Corps STEM skills, content, careers, facilities and personnel (uniformed, civilian, active duty or retired).
- Will collect a set of program-specific measures of performance and measures of effectiveness appropriate to the goals of the project.
- Will contain a strategy for self-sufficiency, such that following the completion of ONR's investment, the effort will have a clear financial sustainability path and leave enduring organizational capability.
- Will be distinct from those types of efforts requested by ONR's Long Range BAA

Eligibility:

Eligible applicants are all responsible sources from academia, the nonprofit sector, and industry.

Award Information:

Awards are typically up to $250,000 per year and last between 12 months and 36 months. Cost sharing/matching is not required.

Deadline Description:

This program will remain open until December 31, 2017 or until replaced by a successor solicitation, whichever occurs first. A similar deadline is anticipated annually. Two Funding Calls for white paper pre-proposals will occur. White paper pre-proposals submitted in each Funding Call will be reviewed in that Funding Call only.

- Funding Call 1 of 2 will occur now until 3 January 2017. White paper pre-proposals submitted under these dates will be considered for FY17 funding potential.
- Funding Call 2 of 2 will occur from 1 May 2017 to 31 August 2017. White paper pre-proposals will be considered for FY18 funding potential.

White paper pre-proposals will be considered as they are submitted. Therefore, Offerors are encouraged to submit early in the cycle as there is no guarantee of available program funding.

History of Funding:

Brief summary information of past funded projects is usually made available through the year end issue of the Naval STEM newsletter: https://www.onr.navy.mil/Education-Outreach/Navy-STEM-Strategy.aspx

Funding amount information can be found at:
https://www.usaspending.gov/Pages/AdvancedSearch.aspx?sub=y&ST=G&FY=2017,2016,2015&A=0&SS=USA&AA=9700&CFDA=12.330

Additional Information:

All funded programs will be required to provide an evaluation plan and, as appropriate, to provide DoN-specified output measures that demonstrate whether the program is operating successfully according to its intended purpose. All programs will also be required to collect and provide a set of DoN-specified impact measures designed to show whether and how these programs are achieving their intended goals and changing the behavior of program participants if requested. Grantees will be required to work with existing metrics efforts and to provide data on an ongoing and timely basis.

Contact:

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Visit Website: https://www.onr.navy.mil/~/media/Files/Funding-Announcements/BAA/2017/N00014-17-S-F002.ashx

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*Consult the program guidance by following the links provided at the above URLs. Additional relevant POCs are provided in the program guidance.

Environmental Literacy Grants

CFDA Number(s):

11.008

Authority:

Department of Commerce, National Ocean and Atmospheric Administration (NOAA)

Summary:

Environmental Literacy Grants (ELG) support projects that inform, educate, and inspire a diverse pool of educators, students and the public to use Earth systems science toward both improving ocean and coastal stewardship and increasing safety and resilience to environmental hazards. These grants support formal and informal education activities at local, regional, and national levels to address the National Oceanic and Atmospheric Administration's (NOAA) mission of science, service, and stewardship. This mission is directed toward a vision of the future where communities and their ecosystems are healthy and resilient in the face of sudden or prolonged change.

The goal of this program is to strengthen the public's and/or K- 12 students' environmental literacy to enable informed decision-making necessary for community resilience to extreme weather events and other environmental hazards. Projects should build the environmental literacy necessary for community resilience by focusing on geographic awareness and an understanding of Earth systems and the threats and vulnerabilities that are associated with a community's location. Projects will be firmly based on the established scientific evidence about current and future natural hazards and stresses facing communities and consider socio-economic and ecological factors. Projects should also

- Leverage and incorporate relevant state and local hazard mitigation and/or adaptation plans; and
- Collaborate with institutions that are involved in efforts to develop or implement those plans.

Projects may focus on a single type of environmental hazard or a range of hazards that may impact a community or communities. NOAA will consider funding a wide range of project types, but all projects must actively engage participants in learning and addressing real-world issues. In addition, projects must utilize NOAA's vast scientific data, data access tools, data visualizations, and/or other physical and intellectual assets available on these topics.

Project topics must relate to NOAA's mission in at least one of the areas of ocean, coastal, Great Lakes, weather, and climate sciences and stewardship and should focus on one or more of the goals of a NOAA's Next Generation Strategic Plan: healthy oceans; weather-ready nation; climate adaptation and mitigation; and resilient coastal communities and economies.

Eligibility:

Eligible applicants are: institutions of higher education; other nonprofits, including informal education institutions such as museums, zoos, and aquariums; K-12 public and independent schools and school systems; and state, local and Indian tribal governments in the United States.

Award Information:

Approximately $2,000,000 is anticipated to be available in total funding for FY16. Awards will range between $250,000 and $500,000 and last between 2 and 5 years. Cost sharing/matching is not required. An average of 10 awards are granted per year (69% to informal education programs, 20% to formal K-12 education programs, and 11% to a combination of the two). The ELG Program is notably competitive, with only about 13% of the 610 applications that have been sent for peer review ultimately receiving funding.

Deadline Description:

Applications were to be electronically submitted on February 8, 2016. It is expected that the next competition will be held in the Fall of 2017.

History of Funding:

Previous awards can be reviewed at: http://www.noaa.gov/office-education/elp/grants/awards and http://www.oesd.noaa.gov/grants/elg/elg_award_search.php?t=&year=ALL&competition=2016%3A+ELG+for+Community+Resilience+to+Extreme+Weather+Events+and+Environmental+Hazards&state=ALL&category=ALL&subject=ALL&audience=ALL&type=ALL&submit=Search

Additional Information:

Projects must be implemented within the United States and its territories. They may be implemented on local to regional scales. The project description should include a justification of the proposed geographic scale of a project and discussion of the project components that might be applicable to projects in other places. Applications that propose the expansion or enhancement of a previously funded project that meets the requirements of this funding opportunity are eligible. However, the applicants must explicitly demonstrate the significant accomplishments of the previous award and how the proposed project will significantly improve, and/or build on the previous award.

Contact:

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Visit Website: http://www.oesd.noaa.gov/grants/elg.html#page=funding

*Consult the program guidance by following the links provided at the above URLs. Additional relevant POCs are provided in the program guidance.

Funded Project Highlights

Innovative Technology Experiences for Students and Teachers:

Integrated computer science in elementary classrooms (iCS)
Awardee #1433327: Georgia State University Research Foundation

This collaborative project between the International Society for Technology in Education (ISTE), Georgia Technical Institute, and Georgia State University will develop and test a model curriculum for grades 3-6 that aligns with ISTE's standards and computational thinking goals. The strategy is to leverage three existing computational environments (Scratch, Alice, and MAD-learn) to build upon the activities and materials for them that exist, to create an elaborate curricular guide. Teachers will collaborate regularly over three years with computer science mentors and science educators to iteratively create this curricular guide, which will be based on their own efforts and experiences implementing the computer science activities in their classrooms. The activities will aim to teach students computational thinking, as well as increase their motivation and interest in computer science related fields. Each year the program will culminate with an annual fair at which student products will be displayed. The population of the charter school where the project will be implemented includes a majority of students from underrepresented groups and from low-income families.

This curricular effort will be augmented with mentor networking among teachers and students with professionals in computer science industries. Research will be of two forms: (1) Design research approach will collect quantitative and qualitative data on the curriculum development process, including summative measures of learning and attitudes toward science as well as general academic ability. Data will also include qualitative results of an existing observation protocol for instruction that supports computational thinking, qualitative ethnographic field notes of meetings and classroom instruction, and video recordings of select events. (2) Data from quantitative instruments will be compared to another school with similar demographics that employs a project-based curriculum but does not use the technological environments or curriculum developed here. This project has potential for considerable impact, first immediately on the 452 students that will experience this innovative program, and then indirectly on others based upon the documented results of this innovative effort to integrate computational thinking support into elementary education, and to document curriculum and instruction that achieves this.

Teachers and Researchers Advancing Integrated Lessons in STEM (TRAILS)
Awardee #1513248: Purdue University in partnership with West Lafayette Schools (IN)

This project will advance efforts to better understand and promote practices that increase students' motivations and capacities to pursue careers in fields of science, technology, engineering, or mathematics (STEM) through the Innovative Technology Experiences for Students and Teachers program. It will address the long-term need to help teachers prepare more students to excel in STEM fields. The project will meet this need through integrated science instruction that will help students to link learning to the real-world context, which research shows will help increase their

interest, motivation, and persistence in STEM careers. The project will: (1) engage in-service science and technology teachers in professional development to build STEM knowledge and practices to enhance integrated STEM instruction; (2) establish a sustainable community of practice of STEM teachers, researchers, industry partners, and college student mentors; (3) engage students in STEM learning through engineering design and 3D printing and scanning technology; and (4) generate strategies to overcome barriers for students in rural schools and underserved populations to pursue careers in STEM fields.

The project will use real-world exemplars as the foundation for integrating entomology and engineering design to investigate the development of 21st skills (creativity, critical thinking, collaboration, communication, and computational thinking) in STEM for teachers and students. To prepare teachers for this challenge, professional development will be based on a community of practice model that involves training, curriculum modification and adaptation, and lesson planning on integrated instruction. The project will examine the influence of these efforts on students' ability to design, test, and develop products and artifacts to help them make real-life connections to the world in which they live. Because students in rural communities have few role models, STEM faculty and their graduate and undergraduate students from Purdue University and Ivy Tech Community College, along with local community stakeholders and business leaders, will team with 45 high school teachers and more than 2000 students in an authentic learning context of design and discovery learning. This approach will afford teachers and students from 21 schools in rural Indiana with access to experts from STEM disciplines through technology-rich pathways, face-to-face interactions, and follow-up in-class support. The findings from this study will inform theory about authentic ways to reduce barriers for students in rural areas that continue to hinder their access to instruction shown to be effective in advancing 21st knowledge and skills. Results from this study will also help increase students' interest in and motivation for careers in STEM fields.

Preparing High Achieving Urban Students for STEM Careers: Engineers of the Future Program
Awardee #1657111: Rand Corporation in partnership with Baltimore City Schools (MD)

This project will advance efforts of the Innovative Technology Experiences for Students and Teachers (ITEST) program to better understand and promote practices that increase students' motivations and capacities to pursue careers in fields of science, technology, engineering, or mathematics (STEM) by preparing and interesting high achieving middle school students for advanced math courses in high school and eventually in engineering careers.

The project by the Baltimore City Public Schools (City Schools) and the RAND Corporation is motivated by a clear need in the U.S. to improve the representation of African-American and Latino talent pursuing science, technology, engineering, and mathematics (STEM) careers. The available data show that the percentage of African Americans among U.S. engineering bachelor's degree recipients has been declining for more than a decade to 3.5% in 2014. Only 1.1% of the nation's black college freshmen were enrolled in engineering programs in 2010. The project being conducted involves enrolling selected high achieving Baltimore students from schools which don't offer Algebra 1 in 8th grade. The project will offer a 6 week summer preparation program to improve their math skills and expose them to STEM careers. The students will then take a Virtual Algebra 1 class once the semester starts. Since mathematics is a key topic for STEM and lack of math skills is likely to limit some students in pursuing STEM careers, the project helps address an important need. The activities

in which students will be involved include field trips and weekly seminars. In addition there is a very detailed timeline and assessment plan to measure the outcomes on all key variables.

Several local school employees/teachers will be directly involved in the project. This is an advantage since it demonstrates that the project clearly has school support. These teachers will be directly developing/enabling Engineers of the Future. The criteria for selecting participants will include the following: There will be a total of 180 randomly selected, high achieving students from Baltimore City Public Schools, a lower-income urban school district with a high proportion of African-American schoolchildren. The involvement of industry professionals will provides role models for the students, giving them a look at the kind of careers they can obtain if they pursue STEM careers. The three-year project will impact 16 middle school teachers and 180 students. The summer learning is combined with virtual learning during the school year. The project will be a combination of blended classroom instruction, hands-on project-based work, and introductions to various STEM careers via field trips and seminars with professionals. Engineers of the Future will offer 3 summer and 3 academic years of support to city schools using a single K-12 adaptive diagnostic test for reading and mathematics that pinpoints student needs down to the sub-skill level. The project will specifically address gaps in knowledge and contribute to the evidence-based data on successful education programs for promoting STEM education in middle schools, especially those in lower-income, urban school districts with high proportions of African-American schoolchildren. The potential to impact a large number of students by working through Baltimore schools is a major strength of the project. Even though the project focuses on math education, a broad range of STEM careers are involved especially with industry (e.g., with Northrop Grumman). The project examines program artifacts (program materials), semi-structured interviews with program staff, observations of instruction, focus groups with students, questionnaires, surveys and school records which are the kind of data that could be used by other urban school districts. Hence, the essence of the research would provide valuable information and new knowledge of the role virtual learning has when blended with classroom instruction on improving a student's understanding of what is being taught.

Rural Girls Engaged in Math and Science Plus Technology
Awardee #1657174: Hinds Community College-Utica in partnership with 3 County School Districts (MS): Copiah, Claiborne, and Hinds

This project will advance efforts of the Innovative Technology Experiences for Students and Teachers (ITEST) program to better understand and promote practices that increase students' motivations and capacities to pursue careers in fields of science, technology, engineering, or mathematics (STEM) by engaging in hands-on field experience, laboratory/project-based entrepreneurship tasks and mentorship experiences. This Hinds Community College project will involve junior and senior high school girls from four high schools from three Mississippi rural counties--Copiah, Claiborne, and Hinds--to participate in a summer apprenticeship program and other activities to increase their awareness about STEM and academic preparedness for a pathway to STEM related careers. The program will last three years and will engage up to 120 rising high school junior and senior female students intensively and introduce up to 300 female students to STEM education and careers. During the three year grant period, the project will implement the following activities: a four-week summer apprenticeship with a near-peer mentoring program; host an annual STEM Girls Rock Convocation; offer Spring Break STEM Tours for apprentices, their parents/caregivers and mentors, and Hinds Community College STEM instructors; offer after-school and Saturday science fair project

assistance; and collaborate with the Shodor Foundation, a nonprofit research and education organization and a national resource for computational science education, to offer workshops for high school teachers, counselors and administrators.

The primary focus of the proposed project is to grow the pipeline of female students who are aware of STEM and computer science educational pathways and career opportunities. The goals of the project are to: 1) Provide evidence of engaging minority females in hands-on experiences in STEM-related technologies and practices; 2) Document evidence of advancing knowledge on how best to prepare minority females for STEM-related occupations; and 3) Build and expand the research foundation on STEM learning and learning environments, workforce development, and broadening participation in STEM. The project includes an infrastructure mechanism for teachers and administrators within the high school to support students by providing them opportunities to build their academic skills while participating in the project. A concurrent mixed methods research design will be used that combines quantitative and qualitative approaches to assess the latent variables.

More information on these and other awards available at:
https://www.nsf.gov/awardsearch/advancedSearchResult?ProgOrganization=11090000&ProgEleCode=7227,7774&BooleanElement=ANY&BooleanRef=ANY&ActiveAwards=true&#results

Navy and Marine Corps STEM Education, Outreach, and Workforce Program:

Engineering and Physics in High Schools
Awardee: East Bay Education Collaborative
Develops hands-on engineering/physics curricula and teacher professional development in 12 New England high schools

Enhances Hydrodynamic Science Education
Awardee: University of Iowa
Changes student education experience to hands-on and student-centric driven learning for undergraduate and veteran students, while engaging area high school students for pathway development

Immersive Aviation in High Schools
Awardee: Central Kitsap Schools, Washington
Implements aviation projects in district high schools to create a regional pathway for students to excel in military and industry aviation careers

Naval Architecture and Ocean Engineering Education
Awardee: Michigan Tech University
Develops scalable university initiatives in the Great Lakes region to provide hands-on learning in topical naval S&T areas for undergraduate and high school students

Pathways for Maritime Mechatronics
Awardee: Tidewater Community College
Establishes a pathway from high school to undergraduate for maritime mechatronic education aligned with DoN and maritime industry competency needs

Patuxent Partnership
Awardee: Patuxent Partnership and NAWCAD
Bolsters partnerships and academic programs between NAVAIR and local universities and high schools for enhanced STEM education experiences and workforce development

Translating ONR Research into STEM Education Tools
Awardee: University of California, San Diego
Links ONR-funded researchers with high school science teachers and classrooms to translate their research into usable teaching materials for area high schools

More information on these and other awards available at: https://www.onr.navy.mil/Education-Outreach/~/media/Files/Research/News/STEM2Stern-Winter2016.ashx and https://www.usaspending.gov/Pages/AdvancedSearch.aspx?sub=y&ST=G&FY=2017,2016,2015&A=0&SS=USA&AA=9700&CFDA=12.330

Environmental Literacy Program:

Global, Local, Coastal: Preparing The Next Generation for A Changing Planet
Awardee # NA15SEC0080004: Groundwork Hudson Valley

> This project, "Global, Local, Coastal", will be led by Groundwork Hudson Valley and Sarah Lawrence College, to integrate and expand the work of three award-winning environmental education centers in Yonkers, NY – The Science Barge, Ecohouse and the Center for the Urban River (CURB). Its primary objective is to prepare low-income students for the impact of a changing climate so that they can participate both personally and professionally in a world in which these issues are increasingly prevalent. It reaches an audience that is not well served by traditional programs and is most vulnerable to the consequences of climate change. Over the course of two years, the project will serve 600-700 middle and high school youth, primarily from the Yonkers public school system, through a new, integrated curriculum that teaches about these issues from multiple perspectives. Beyond its impact on students, the project will have a broader impact on people in our region. Together, the Barge, Ecohouse and CURB are visited by close to 10,000 people each year and new exhibits will reinforce key themes related to resiliency and adaptation. Other partners include NOAA's Hudson River National Estuarine Research Reserve, Lamont Doherty, and the Center for Climate Change in the Urban Northeast. The state's NY Rising Program and Yonkers Public Schools are key partners too. The project will be carried out in a community that has been severely affected by extreme weather in the last decade, including three hurricanes. Outcomes will help create "an informed society to anticipate and respond to climate and its impacts." It also addresses NOAA's goal of a "Weather-Ready Nation," and "Resilient Coastal Communities and Economies.

Resilient Schools Consortium (RiSC) Program
Awardee # NA16SEC0080004: Research Foundation of CUNY / Brooklyn College in partnership with New York City Schools (NY)

> Brooklyn College, working with NWF Eco-Schools USA, will create The Resilient Schools Consortium (RiSC) Program that increases environmental literacy while engaging high school and middle school students in climate resilience planning and practice in New York City (NYC). The City's long-term

planning document, OneNYC, sets forth a vision for a resilient city without specifying a role for students or including specific plans for their schools. This project addresses this gap by developing resilience plans for NYC schools and including student voices in the process. Student RiSC teams at NYC public schools in Brooklyn impacted by Hurricane Sandy will utilize a new Climate RiSC Curriculum based on science from the National Climate Assessment and other NOAA resources to explore the vulnerability of their schools and neighborhoods to climate change, variability and extreme weather. The RiSC teams will follow a resilience assessment process modeled after the NOAA Community Resilience Index to develop resilience projects for their schools and neighborhoods. These Students will then present their resilience plans to NYC Department of Education officials and representatives from the NYC's Office of Resilience and Recovery at RiSC Summits coordinated with the Science and Resilience Institute at Jamaica Bay. The RiSC Program and Climate RiSC Curriculum will be integrated into National Wildlife Federation's Eco-Schools USA program and disseminated nationally through the networks of the project partners.

Preparing Norfolk Area Students for America's Second Highest Sea Level Rise
Awardee # NA16SEC0080002 : Elizabeth River Project

Children in the Norfolk, Va., area will inherit the second highest sea level rise on the East Coast. In response, the non-profit Elizabeth River Project will prepare one of the first comprehensive youth education programs on climate change resilience on this coast. The Elizabeth River Project, working since 1993 to restore the environmental health of the urban Elizabeth River, will deploy its Dominion Virginia Power Learning Barge, "America's Greenest Vessel," and its new urban park, Paradise Creek Nature Park, to empower 21,000 K-12 students over three years to become informed decision makers and environmental stewards, prepared to adapt to rising seas. The project primarily will reach under-served schools in Norfolk and adjoining Portsmouth, Virginia. The lead science partner will be Old Dominion University, on the forefront of climate change research. Other partners include the Chrysler Museum of Art, ground zero for street flooding that has become routine in Norfolk. A youth strategy for the Elizabeth River watershed will be disseminated nationally and internationally by the City of Norfolk through its participation as one the Rockefeller Foundation's 100 Resilient Cities. The youth strategy will be used by Norfolk to complement its Norfolk Resilience Strategy, prepared thus far with adults in mind.

More information on these and other awards available at:
http://www.oesd.noaa.gov/grants/elg/elg_award_search.php