

**2010**

**SURVEY OF DOD SCIENCE, TECHNOLOGY,  
ENGINEERING AND MATHEMATICS (STEM)  
PROGRAMS**

Office of the Under Secretary of Defense, Acquisition, Technology and Logistics



## **SURVEY OF DOD SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM) PROGRAMS**

This survey\* responds to pages 361-362 of the House report to accompany the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009, H.R. Rep. No. 110-652 and pages 235-236 of the National Defense Authorization Act for Fiscal Year 2007, S. Rep. No. 109-254 and contains information from four sources:

- 1) FY 2009 budget line justification documents (R2) entries specific to science, technology, engineering and mathematics (STEM) education and research;
- 2) Input from more than 175 Department of Defense (DoD) STEM Education and Outreach Board members and their appointed action officers, responsible for the support, design and implementation of initiatives;
- 3) Engagement of education program managers at military installations and DoD laboratories throughout the U.S.; and
- 4) Interaction with public and private sector organizations that support DoD STEM education and outreach initiatives

The Director, Defense Research and Engineering (DDR&E), STEM Development Office is responsible for developing this survey. DoD is providing the best current available data and will address data gaps in subsequent versions of this inventory survey. Information on funding of STEM education and outreach initiatives was provided to the Office of Management and Budget (OMB) through DoD's budget office in March of this year (2010).

Outcomes resulting from the creation of this effort will include:

- Defining STEM education and outreach across the DoD
- Support for a gap analysis that considers DoD's STEM education and outreach initiatives across the Department
- Differentiating between DoD STEM initiatives that have a funding line associated with them, and those that do not
- Creation of a web-based STEM program inventory tool that is publically accessible

In addition to this STEM survey (inventory), the Services are working to develop a Service-specific inventory tracking system to permit the integration of their data with a broader DoD-wide database of STEM initiatives that include educational opportunities.

The DoD STEM Development Office collects STEM information for this inventory and can be reached at: [STEM@osd.mil](mailto:STEM@osd.mil).

\* covers programs through FY 2009

Explanation of acronyms found in the enclosed survey (inventory):

21 CEETP	21st Century Engagement, Education and Technology Program
ACT	American College Testing Program
AEOP	Army Educational Outreach Program
AF	Air Force
AFOSR	Air Force Office of Scientific Research
AFRL	Air Force Research Laboratory
AMC	Army Materiel Command
ARO	Army Research Office
ASRA	Alaska Summer Research Academy
ASSURE	Awards to Stimulate and Support Undergraduate Research Experiences
AT&L	Acquisition, Technology and Logistics
CAP	Civil Air Patrol
CERL	Construction Engineering Research Laboratory
CIO	Chief Information Officer
CLEC	Crane Learning and Employment Center
CNMOC	Commander Naval Meteorology and Oceanography Command
CREST	Career Related Experience in Science and Technology
CRFP	Consortium Research Fellows Program
CryoConn	Cryosphere Connections
DARPA	Defense Advanced Research Projects Agency
DDR	Discover Design Research
DDR&E	Director, Defense Research and Engineering
DFAS	Division of Financial Advisory Services
DIA	Defense Intelligence Agency
DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
DoD	Department of Defense
DoN	Department of Navy
DTRA	Defense Threat Reduction Agency
EDGE	Experiential Discoveries in Geoscience Education
ExCEED	Excellence in Civil Engineering Education
FIRST	For Inspiration and Recognition of Science and Technology
GEMS	Gains in the Education of Mathematics and Science
GIS	Geographic Information System
GPS	Global Positioning System
HBCU	Historically Black Colleges and Universities
HBCU/MI	Historically Black Colleges and Universities/Minority Institutions
HENAAC	Hispanic Engineer National Achievement Awards Conference
IA	Information Assurance
IASP	Information Assurance Scholarship Program
INTEL-ISEF	Intel Corporation International Science and Engineering Fair

ISEF	International Science and Engineering Fair
ISEP	Internships Science and Engineering Program
IT	Information Technology
ITAR	International Traffic in Arms Regulations
JCLC	JROTC Cadet Leadership Challenge
JLAB	JROTC Leadership and Academic Bowl
JROTC	Junior Reserve Officer Training Corps
JSHS	Junior Science and Humanities Symposia
JSS	Junior Solar Sprint
K-12	Kindergarten through 12th grade
MAES	Society of Mexican American Engineers and Scientists
MDA	Missile Defense Agency
MDC	Mobile Discovery Centers
MESA	Mathematics Engineering Science Achievement Program
MI	Minority Institutions
MS	Master of Science
MWM	Materials World Modules
NASA	National Aeronautics and Space Administration
NAVSEA	Naval Sea Systems Command
NCO	Noncommissioned Officer
NCR	National Capital Region
NDEP	National Defense Education Program
NDSEG	National Defense Science and Engineering Graduate Fellowship
NETC	Naval Education and Training Command
NEW-STEM	Non-Traditional Emerging Workforce in Science, Technology, Engineering and Mathematics
NGIA	National Geospatial-Intelligence Agency
NJROTC	Naval Junior Reserve Officers Training Corps
NPS	Naval Postgraduate School
NRC-RRR	National Research Council/Resident Research Associateship
NREIP	Naval Research Enterprise Intern Program
NROTC	Naval Reserve Officer Training Corps
NSA	National Security Agency
NSAP	Naval Science Awards Program
NSC	National Science Center
NSF	National Science Foundation
NSSEFF	National Security Science and Engineering Faculty Fellowship
NSTC	Naval Service Training Command
NSWC	Naval Surface Warfare Center
ONR	Office of Naval Research
OSD	Office of the Secretary of Defense
PECASE	Presidential Early Career Award for Scientists and Engineers
PETES	Providing Engineering and Technology Experiences for Students

PETES PRS	Providing Engineering and Technology Experiences for Students Phillips Research Site
PSP	Pre-freshman Summer Program
R&D	Research and Development
RDECOM	Research, Development and Engineering Command
REAP	Research and Engineering Apprenticeship Program
REPP	Research and Education Partnership Program
REU	Research Experiences for Undergraduates
ROTC	Reserve Officer Training Corps
ROV	Remotely Operated Vehicle
S&E	Science and Engineering
S&Es	Scientists and Engineers
SAME	Society of American Military Engineers
SAT	Scholastic Aptitude Test
SEAP	Science and Engineering Apprenticeship Program
SEAP-CQL	Science and Engineering Apprentice Program - College Qualified Leaders
SEMEDS	Scanning Electron Microscopy-Energy Dispersive Spectroscopy
SFFP	Summer Faculty Fellowship Program
SMART	Science, Mathematics And Research for Transformation
SO	Science Olympiad
STARBASE	Science and Technology Academies Reinforcing Basic Aviation and Space Exploration
STEM	Science, Technology, Engineering and Mathematics
SWE	Society of Women Engineers
UNITE	The Uninitiates' Introduction to Engineering
USAF	United States Air Force
USAFA	United States Air Force Academy
USNA	United States Naval Academy
VRA	Veterans Recruitment Appointment Program
WISE	Women in Science and Engineering
WISP	Women in Science Project
WO	Warrant Officer
WOW	Wizards of Wright
WPAFB	Wright Patterson Air Force Base
WPAFB EO	Wright Patterson Air Force Base Educational Outreach
WRIGHT-STEPP	Wright State University's Science Technology and Engineering Preparatory Program
YIP	Young Investigator Program
YPS	Youth Philanthropy Service

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
<b>Office of the Secretary of Defense (OSD)</b>					
AT&L/DDR&E	Awards to Stimulate and Support Undergraduate Research Experiences (ASSURE)	Involves students in ongoing research and increases the number of high-quality science and engineering majors who decide to pursue advanced degrees in these fields. Students conduct DoD-relevant research at one of up to 40 NSF-sponsored research college and university locations (Research Experiences for Undergraduates (REU) sites). Sponsored students work closely with faculty in host institution research programs. Students work in groups of 10, get stipends and, in many cases, housing and travel assistance. Those from non-research colleges and universities gain experience not available at their home institutions. The program is administered by AFOSR, in partnership with NSF. More than 3,000 fellowships have been awarded since 2003.	2003	<ul style="list-style-type: none"> <li>• Undergraduate students</li> <li>• U.S. citizens</li> <li>• Naturalized citizens</li> </ul>	~ 600 (2008)
AT&L/DDR&E	National Defense Science and Engineering Graduate (NDSEG)	To increase the number of U.S. citizens and nationals trained in science and engineering disciplines of military importance, NDSEG awards three-year graduate fellowships, subject to the availability of funds. The DoD offers fellowships to students with demonstrated ability and aptitude for advanced training in science and engineering, and who will pursue a doctoral degree in or closely related to an area of DoD interest within one of 15 STEM disciplines. This tri-service program is also supported by the DoD High Performance Computing and Modernization Office. Approximately 8,000 fellows have been awarded since 1989.	1989	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• U.S. nationals</li> <li>• Graduate students</li> </ul>	~ 200 (2009)
AT&L/DDR&E	HBCUs / MIs Program	Through agreements with Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions, Tribal Colleges and Universities, and other minority institutions of higher education (MIs), DoD funds research activities in science and engineering fields. DoD also provides technical assistance to schools on the Department of Education's annual listing of Accredited Postsecondary Minority Institutions. Partners and participating organizations include: Army, Navy, Air Force, NGIA, DARPA, DISA, MDA, DLA, NSA, DIA, DTRA, Special Ops Command.	1992	<ul style="list-style-type: none"> <li>• Undergraduate students</li> <li>• Graduate students</li> <li>• University faculty</li> </ul>	~ 50 institutions

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
AT&L/DDR&E	Presidential Early Career Awards for Scientists and Engineers (PECASE)	Grants of \$200K per year for five years are made single investigators conducting research in areas relevant to DoD. PECASE recognizes some of the finest scientists and engineers who, early in their research careers, show exceptional potential for leadership at the frontiers of scientific knowledge during the twenty-first century. Only tenure-track faculty with no more than five years from receipt of a doctorate degree are eligible. Awards are made by ARO, ONR, and AFOSR. PECASE is coordinated by the National Technology and Science Council.		<ul style="list-style-type: none"> <li>• University faculty</li> <li>• U.S. citizens</li> <li>• U.S. nationals</li> <li>• Permanent residents</li> </ul>	41 (2008)
AT&L/DDR&E	National Defense Education Program (NDEP)	NDEP consists of three components: 1) Science, Mathematics and Research for Transformation (SMART) scholarship-for-service (1 to 5 years) that supports students majoring in DoD-relevant STEM fields; 2) National Security Science and Engineering Faculty Fellowship (NSSEFF) that supports world-class university faculty, researchers, their students, and postdoctoral researchers; 3) K-12 student and teacher STEM initiatives that use national curricula including STEM Learning Modules, MathCounts and First Robotics. Initiatives include scientists and engineers working with teachers in the classroom and in after-school programs, as well as in professional development training for teachers. NDEP supports and collaborates with each of the services, working directly with military laboratories and bases. Some programs are only open to U.S. citizens or permanent residents.	2005	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> <li>• Undergraduate students</li> <li>• Graduate students</li> <li>• University faculty</li> </ul>	<ul style="list-style-type: none"> <li>• Undergraduate students (SMART): ~500</li> <li>• University Researchers (NSSEFF): ~20</li> <li>• K-12 Students: ~100K</li> <li>• K-12 Teachers: ~1,500</li> </ul>
Tri-services	FIRST Robotics Program	High school teams plan, design, prototype and build a robot, and then compete in engineering challenges. DoD contributions include the support of mentors and judges provided by the Army.	n/a	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	160K (2008)
Tri-services	International Science and Engineering Fair (INTEL-ISEF)	International science competition that helps students gain skills to compete in our global economy. Students from 56 countries, regions and territories share ideas, showcase cutting-edge research and inventions, and compete for nearly \$4M in scholarships and awards. Primary partner is Intel Corporation. DoD support includes scholarship funds and judges for the competitions; For example, Navy provides up to \$700K in scholarships, savings bonds, and conference travel awards.	Since 1948	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	<ul style="list-style-type: none"> <li>• Millions worldwide in science fairs</li> <li>• Regional Fairs: 65K (2008)</li> <li>• National contest: 1,500 (2008)</li> </ul>

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
Office of Diversity Management and Equal Opportunity (DMEO)	Great Minds in STEM	Great Minds in STEM is the new name of the Hispanic Engineer National Achievement Awards Conference (HENAAC). Great Minds' campaign "STEM UP" is a community-wide education and outreach program that seeks to create awareness, and inspire, motivate and develop skills. It focuses on Hispanic students and their families in the 18 schools of the Boyles Heights Community in East Los Angeles. Great Minds works with ROTC, the Y Center, Boy's Clubs, local universities and colleges (including Cal. State Los Angeles), and the private sector to encourage interest in higher education in STEM fields and disciplines. The program also provides vehicles such as scholarships to foster this pathway. Administered by the Army Corps of Engineers, and funded at \$7.4M over five years.	2008	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> </ul>	20K
Networking and Information / Chief Information Office (CIO)	Information Assurance Scholarship Program (IASP)	IASP consists of two programs that recruit and retain highly-qualified Information Assurance (IA) and Information Technology (IT) talent to manage, operate and secure information infrastructure. 1) The recruitment program gives scholarships to rising junior and senior college students who are pursuing BS, MS, and/or Ph.D. degrees at select Centers of Academic Excellence in IA Education and Research throughout the U.S. 2) The retention program supports current DoD civilian and military personnel to attend school full or part-time to earn IA/IT degrees. Students may choose from multiple academic programs focused on IA and IT, including some STEM disciplines. This program has helped attract new talent and further the education of the DoD's current civilian and military IT security professionals.	2001	<ul style="list-style-type: none"> <li>• Undergraduate students</li> <li>• DoD employees</li> </ul>	<ul style="list-style-type: none"> <li>• Students: 260</li> <li>• DoD employees: 100+</li> </ul>

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
Reserve Affairs	STARBASE Program	STARBASE emphasizes experiential applications, student interaction, and problem-solving experiments. Students and teachers attend visit military bases for 20 to 25 hours of instruction in 13 topics. They learn and apply knowledge in team inquiry, then add reasoning processes to build understanding of applied science, math and technology. Facilities, simulators, and trainers are made available. Collaboration between military bases, school districts, and communities ensures the integration of instruction with state and local science and math objectives. In 2008, there were 60 locations in 34 states, Washington, D.C. and Puerto Rico. There were also various outreach programs to American Indians in Missouri, Oklahoma and South Dakota. Program participants are primarily 5th graders from populations historically under-represented in STEM. These students may be disabled, socio-economically disadvantaged or come from inner cities, rural locations, or other areas with typically low academic performance.	1993	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> </ul>	54K (2008)
Tri-service	Junior Science and Humanities Symposium (JSHS)	Students conduct an original research investigation in the sciences, engineering, or mathematics, and participate in a regional symposium sponsored by universities or other academic institutions. Scholarships are given to top contestants. The program develops students' oral presentation skills and emphasizes the ethical conduct of original research. Administered by AEOP, with funds from AEOP, ONR and AFOSR.	1963	<ul style="list-style-type: none"> <li>• High school students</li> <li>• U.S. citizens</li> <li>• Naturalized citizens</li> </ul>	9,800 (2008)
Tri-service	Consortium Research Fellows Program (CRFP)	Places students as research fellows at DoD laboratories, also providing junior and senior undergraduate students the opportunity to work as research assistants. Partnership among Army Research Institute, Air Force Research Laboratory, the Defense Manpower Data Center, the National Defense University, 45 colleges and universities, and 12 DoD agencies in 10 states. 1,000 students have been placed since 1981. Oversight provided by Army Education Outreach Program (AEOP).	1981	<ul style="list-style-type: none"> <li>• Undergraduate students</li> <li>• Graduate students</li> <li>• University faculty</li> </ul>	<ul style="list-style-type: none"> <li>• Students: 114</li> <li>• Faculty: 33 (2008)</li> </ul>

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
DoD Missile Defense Agency (MDA); Army Aviation and Missile Research, Development and Engineering Center; Navy; and, Air Force	NEW-STEM	Provides opportunities for transitioning military officers (WOs (Ranks W1-W5) and non-commissioned officers (Ranks E5-E9)) to pursue an engineering degree and who have been pre-screened for qualifications to attend the University of Alabama in Huntsville. Participants can earn an engineering degree while in a paid co-op program offered by a federal agency on Redstone Arsenal or private sector company in Huntsville, Alabama. Coordinated by the Tennessee Valley Authority. Participating organizations include the Department of Labor, Northrop Grumman, Intuitive Research and Technology, Raytheon and Lockheed Martin. NEW-STEM applicants must have training, experience or previous academic coursework in one of the following technical areas: engineering (chemical, civil, computer, electrical, industrial, mechanical, aerospace or optical), mathematics or science. The Fall 2009 inaugural class contained six non-commissioned officers; Five more positions will be open for 2010.	2009	<ul style="list-style-type: none"> <li>• Transitioning non-commissioned military officers</li> </ul>	NCOs-6 (2009)
Defense Logistics Agency (DLA)	DLA Corporate Intern Program	Two-year corporate training program designed to train entry-level personnel for subsequent advancement to the journey-level in professional, administrative and technological career fields. Includes training and work in information technology, engineering and environmental protection.		<ul style="list-style-type: none"> <li>• DoD employees</li> <li>• Public</li> <li>• Veterans</li> </ul>	n/a

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
<b>Army Programs</b>					
Army Educational Outreach Program (AEOP)		Central office for Army-sponsored research, education, competitions, internships and practical experiences to engage and guide students and teachers in STEM. Students of all proficiency levels, interests, ethnic, economic and academic backgrounds participate in real world STEM experiences. Involves interactive activities and community science fairs.	2005	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> <li>• Undergraduate students</li> <li>• Graduate students</li> </ul>	122K+ (2008)
AEOP	Science and Engineering Apprenticeship Program (SEAP)	Cooperative education program that encourages students to pursue S&E careers and further their education via hands-on experiences that include mentoring by lab personnel, participation in research, and exposure to research and technology efforts that can lead to DoD employment. Support includes the SEAP-CQL (College Qualified Leaders) Program that provides paid internships for undergraduates seeking experience in Army research. The Navy also has a SEAP program, administered separately. This program is also supported by Navy.	2000	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> <li>• High school students</li> </ul>	914 (2009)
AEOP	Junior Solar Sprint - (JSS)	A national competition in which students explore concepts and technology to address global climate change, reduce air and water pollution, and reduce foreign fuel dependence. Focuses on the design, construction and racing of solar electric cars. Conducted by the Northeast Sustainable Energy Association and partially supported by AEOP.	2008	<ul style="list-style-type: none"> <li>• Middle school students</li> <li>• Middle school teachers</li> </ul>	20K (2008)
AEOP	Gains in the Education of Mathematics & Science (GEMS)	GEMS provides students paid summer internships in Army laboratories. Seven Army laboratories participate in this program that emphasizes the real-world application of STEM and technical skills. Advanced courses in subsequent years build upon prior experience. Internship opportunities are unique to each laboratory. The GEMS program began in 1995 at Walter Reed Army Institute for Research.	1995	<ul style="list-style-type: none"> <li>• Middle school students</li> <li>• High school students</li> </ul>	671 (2008)

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
AEOP	UNITE	Promotes engineering and technology careers by providing historically underrepresented student populations opportunities to participate in a college-structured academic enrichment program. Courses in chemistry, physics, algebra and calculus are offered. Currently conducted at eight universities with plans for an additional site in 2010.	1980	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• High school students</li> </ul>	548 (2008)
AEOP	Research and Engineering Apprentice Program (REAP)	A cooperative work/study program for students interested in science and engineering careers. Offers hands-on experiences and mentoring with Army partners at university laboratories active in Army research and development.	1980	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• High school students</li> </ul>	115 (2008)
AEOP	Internships Science and Engineering Program (ISEP)	Student interns assist Construction Engineering Research Laboratory (CERL) researchers on projects during the summer prior to their senior year. All students are required to give a formal presentation of their research.		<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> <li>• High school students</li> </ul>	n/a
AEOP	Women in Science Project (WISP)	Created at Dartmouth College to encourage women, particularly freshmen undergraduates, to pursue mathematics, science and engineering. Six different interventions include mentoring, early hands-on research experiences, exposure to role models, access to career information, and building a science community.	1990	<ul style="list-style-type: none"> <li>• Undergraduate students</li> </ul>	~ 60 (2009)
AEOP	Career Related Experience in Science & Technology (CREST)	Develops student engineers and scientists as future leaders by providing summer and/or part-time employment to work on soldier-related equipment and providing internships in engineering or science. Working with an Army sponsor, participants tailor the program to their academic schedule and interests. Open to students who are interested in construction, natural resources, or civil works, in general. The Army does not centrally hire scientists and engineers, but students can directly contact the organization in which they are interested as long as it belongs to AMC. Funding is provided by the Army Civilian Training, Education and Development System.	1990's	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> </ul>	24 (2009)

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
AEOP	eCybermission	Web-based competition promotes self-discovery and real-life applications of STEM. Teams propose a solution to a real-world problem in their communities and compete for regional and national awards. Encourages the pursuit of advanced education and careers, and increases the number of technologically-literate citizens and future Army employees. Administered by RDECOM.	2002	<ul style="list-style-type: none"> <li>• Middle school students</li> <li>• High school students</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	6K (2008)
National Science Center (NSC)	Mobile Discovery Centers (MDC)	Conducted by the National Science Center, Mobile Discovery Centers are modified 18-wheel trucks equipped that travel across the U.S. and present hands-on, interactive, high-energy science demonstration programs to show young people that studying science and math is fun and essential to their future. The annual budget of \$461K (2010) funds the operation of two MDCs. The cost of an additional Center is approximately \$850K.	1993	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	60K
National Science Center (NSC)	NSC Live! (Distance Learning)	Sixteen programs in topics such as physical science, health science, math and chemistry are delivered via live two-way interactive video and audio broadcasts.	1999	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> </ul>	24K
National Science Center (NSC)	Fast Track Science	A high-energy after-school and summer camp program featuring remote-controlled racing. Components include a racing kit, 33+ hour curriculum, and training. Action focused on team-based challenges using the real process of science and mathematics.	2007	<ul style="list-style-type: none"> <li>• K-12 Students</li> </ul>	3,400
National Science Center (NSC)	Discovery Academy	An interdisciplinary (science, math, language arts and social studies) 60-hour Web platform for teachers nationwide to incorporate into summer camps, the classrooms, or after-school programs. The current program is on rainforests.	2009	<ul style="list-style-type: none"> <li>• Middle school students</li> </ul>	2,500
National Science Center (NSC)	JROTC Math and Science Program	Provides hands-on activities/kits 16 hours in length and focused on math and science problem-solving (basic electronics) that involve "learning by doing." Available as a summer camp (JCLC) or as an in-school program.	1993	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	45K

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
National Science Center (NSC)	Learning Logic	A year-long, self-paced, mastery-based computer software program used for teaching Algebra I.	2008	<ul style="list-style-type: none"> <li>High school students</li> <li>Undergraduate students</li> </ul>	n/a
Army Research Office (ARO)	Young Investigator Program (YIP)	YIP seeks to attract outstanding young university faculty members to support their Army-related research, and to encourage their careers. Faculty who are no more than five years from receipt of their Ph.D. or equivalent degree are eligible. The award funds up to \$50K per year for three years and is intended to defray research expenses (e.g., direct salaries, indirect costs, graduate student support, equipment, supplies, etc.). The most exceptional research proposals may be considered for a Presidential Early Career Award for Scientists and Engineers (PECASE).	n/a	<ul style="list-style-type: none"> <li>University faculty</li> </ul>	4 grants (2009)
U.S. Army Cadet Command	JROTC	Emphasizes character education, student achievement, wellness, leadership and diversity. Military services and host institutions work together to produce successful students and citizens, while fostering a more constructive and disciplined learning environment in each school. Some high schools provide mentorships to middle school youths. Operates year round in some schools.	1916	<ul style="list-style-type: none"> <li>Middle school students</li> <li>High school students</li> </ul>	281K (2008)
U.S. Army Cadet Command / JROTC	dlWebsite	Distance Learning Site complements the Army JROTC program by augmenting cadet's life-long learning skills. Publicly-accessible at any time.	n/a	<ul style="list-style-type: none"> <li>High school students</li> <li>Public</li> </ul>	281K
U.S. Army Cadet Command / JROTC	Leadership & Academic Bowl (JLAB)	Three-phase one-year mandatory competition focused on academics and leadership using a state-of-the-art Internet game. In level 1, cadets form teams and compete using the game. Level 2 takes place at select college campuses (potentially on campuses with strong STEM programs, internships and facilities). The program develops high-stakes test-taking skills (i.e., SAT/ACT) in science, math, history, English, literature, and select JROTC subjects. Involves Senior ROTC.	n/a	<ul style="list-style-type: none"> <li>High school students</li> </ul>	13K (2008)
U.S. Military Academy (USMA)	West Point Bridge Design Contest	Web-based engineering design competition to stimulate interest and encourage advanced education in STEM among middle and high school students. Contestants learn about engineering and technology through a realistic, hands-on problem-solving experience.	2001	<ul style="list-style-type: none"> <li>Middle school students</li> <li>High school students</li> <li>Public</li> </ul>	80K

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
U.S. Military Academy (USMA)	ExCEED	Six-day teaching workshop that provides engineering educators with an opportunity to improve their teaching abilities. The workshop focuses on basic skills and includes seminars in other specific educational topics. Supported by the Department of Civil and Mechanical Engineering.	1998	<ul style="list-style-type: none"> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	24
U.S. Military Academy (USMA)	New York Science Olympiad	NY Science Olympiad is part of the national competition to promote science education and involve more students in science. The USMA hosts and supports the state-level competition. Supported by the Department of Chemistry and Life Sciences.	1980s	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	~800

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
<b>Navy Programs</b>					
Naval Postgraduate School (NPS)		Provides advanced education and research programs to increase the combat effectiveness of the U.S. and Allied armed forces. Includes programs in the Graduate School of Business and Public Policy, the Graduate School of Engineering and Applied Sciences, the Graduate School of Operational and Information Sciences, and the School of International Graduate Studies. In addition to resident programs, NPS provides more than 20 Master's level programs and more than 40 certificate programs through distributed education. Some are centrally-funded by DoD, while others are command-funded. NPS's resident programs are primarily supported by the Navy with additional support provided by those organizations sending students. Foreign attendees, Graduate level/Navy and Marine Corps officers, officers and civilians from other services and federal agencies are all eligible. Of approximately 1,600 resident students, 200 represent 40 other nations. Budget includes \$406M in obligational authority, including \$101M in direct authorization and \$304M in reimbursable authorization.	1909	<ul style="list-style-type: none"> <li>• Graduate students</li> </ul>	<ul style="list-style-type: none"> <li>• Resident students: ~1600</li> <li>• Distributed students: ~1200</li> </ul>
Diversity / Outreach Directorate	Mexican American Engineering Society (MAES)	Diversity Directorate teamed with MAES to run seven science events in 2008 and 2009 at universities across the U.S. in conjunction with MAES regional chapters. MAES also sponsored a 2009 Diversity Essay Contest with winners receiving a ride on the Blue Angels, an aircraft carrier or nuclear submarine. Provides stipends from \$7.5K to \$10K per student.	2008	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	~500
Diversity / Outreach Directorate	Society of Women Engineers (SWE)	SWE represents professional and collegiate female engineers. Navy provides support including the use of a Navy flight simulator and 25 female Navy officer mentors.	1950	<ul style="list-style-type: none"> <li>• Undergraduate students</li> <li>• Public</li> </ul>	2K
Naval Reserve Officer Training Corps (NROTC)	Prairie View A&M NROTC - Prairie View, Texas	Reaches pre-college and prospective freshman with the goal of additional accessions into NROTC.	2005	<ul style="list-style-type: none"> <li>• High school students</li> <li>• U.S. citizens</li> <li>• Permanent residents</li> </ul>	287

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
NROTC	Atlanta NROTC program - Atlanta, Georgia	NROTC Atlanta has teamed with Morehouse College's Pre-freshman Summer Program (PSP), the U.S. Department of Education TRIO Program, and the NROTC units of Spelman College. Together they have offered 60 Historically Black Colleges/Universities (HBCU) scholarships at Morehouse and Spelman. 45 offers were accepted in 2009.	2005	<ul style="list-style-type: none"> <li>• High school students</li> <li>• U.S. Citizens</li> <li>• Permanent residents</li> </ul>	45
NROTC	Norfolk State University - Virginia	Partners with Dozoretz National Institute for Mathematics and Applied Sciences to lead STEM programs that reach students in the Tidewater VA Area. The Institute supports the completion of a four-year STEM degree.	2004	<ul style="list-style-type: none"> <li>• Undergraduate students</li> <li>• U.S. citizens</li> <li>• Permanent residents</li> </ul>	400
Navy	STEM Academic Policy	Effective for midshipmen entering fall of 2009 (Class of 2013), Naval Academy and NETC will ensure a minimum of 65% of Navy-Option USNA Midshipmen and NROTC Midshipmen complete a technical degree program before receiving a Navy commission. Involves two one-week sessions in June, with 100 attendees in each.	2009	<ul style="list-style-type: none"> <li>• Undergraduate students</li> </ul>	1,800
Naval Junior Reserve Officers Training Corps (NJROTC)	STEM Leadership Seminar	Courses for NJROTC cadets focus on STEM principles in hands-on lab experiments. The seminar uses lab equipment at Embry-Riddle Aeronautical University to emphasize teamwork and advance learning for cadets. Introduces a diverse group of high-performing NJROTC students to the college atmosphere and gives information regarding college opportunities, NROTC scholarships and Academy appointments.	n/a	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	<ul style="list-style-type: none"> <li>• NJROTC Cadets: 150</li> <li>• NROTC Cadets: 300</li> </ul>
Office of Naval Research (ONR)	SeaPerch Program	SeaPerch provides students the opportunity to learn about robotics, engineering, science and math while building an underwater remotely operated vehicle (ROV) as part of a STEM curriculum. Students learn how to build a propulsion system, develop a controller, and investigate weight and buoyancy. This project teaches basic skills in ship and submarine design and encourages students to explore naval architecture and marine and ocean engineering concepts independently. Teacher training and curriculum/activities are provided, as well as the actual kits (3K kits cost \$450K). The program is currently in 18 states and more than 10,500 students have built SeaPerches. More than 275 teachers have been trained.	2008	<ul style="list-style-type: none"> <li>• High school teachers</li> </ul>	<ul style="list-style-type: none"> <li>• Students: ~6K</li> <li>• Teachers: 150</li> </ul>

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
Office of Naval Research (ONR)	Science and Engineering Apprenticeship Program (SEAP)	Cooperative education (work/study) program that encourages students to pursue S&E careers and further their education via hands-on experiences. Experiences include mentoring by lab personnel, participation in research, and exposure to research and technology efforts that can lead to DoD employment. Support includes the SEAP-CQL (College Qualified Leaders) Program that provides paid internships for undergraduates seeking experience in Navy research. The Army also has a SEAP program, administered separately.	2001	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> <li>• High school students</li> </ul>	450 (2009)
Office of Naval Research (ONR)	Naval Research Enterprise Intern Program (NREIP)	NREIP is a paid 10-week internship that provides an opportunity for students to participate in research at a Department of Navy (DoN) laboratory during the summer. NREIP seeks to encourage participating students to pursue science and engineering careers; education via mentoring by laboratory personnel and their participation in research, and awareness of DoN research and technology efforts, which can lead to employment within the DoN.	2000	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> <li>• Undergraduate students</li> <li>• Graduate students</li> </ul>	<ul style="list-style-type: none"> <li>• Undergraduate Students: 100</li> <li>• Graduate students: 61</li> </ul>
Office of Naval Research (ONR)	Naval Science Awards Program (NSAP)	NSAP encourages High school students to develop and retain an interest in science and engineering. Accomplishments of eligible students are recognized at regional and state science and engineering fairs and the International Science and Engineering Fair (ISEF).	Mid-1980s	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> <li>• High school students</li> </ul>	100K
Office of Naval Research (ONR)	Research and Education Partnership (REPP)	Facilitates interactions between Historically Black Colleges and Minority Institutions to enable greater HBCU / MI participation in Navy and Marine Corp related programs. There are ten students at each of the five participating schools.	2001	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> <li>• Undergraduate students</li> </ul>	50
Office of Naval Research (ONR)	Future Faculty Engineering Program	Program is designed to develop and attract qualified engineering faculty to the engineering programs of Historically Black Colleges and Universities. Each year, three recipients who join the engineering faculty after receiving their degrees are competitively selected for study and research support to pursue doctoral degrees. Disciplines include aerospace, electrical and mechanical engineering. * Program was discontinued in 2009, but may resume in 2010.	1992	<ul style="list-style-type: none"> <li>• University faculty</li> </ul>	15

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
Office of Naval Research (ONR)	University Laboratory Initiative	Established to increase the number of engineers and scientists in Navy labs and University Affiliated Research Centers that conduct research and the development of undersea weapon technology. Navy labs in undersea weapons R&D and universities are encouraged to seek out graduate students interested in pursuing thesis or post-doctoral research in one or more of the Undersea Weaponry Core Technology Areas. Navy provides tuition and stipend funding and encourages recipients to examine Naval lab employment upon graduation. The program assigns one lab mentor per student.	2002	<ul style="list-style-type: none"> <li>• Graduate students</li> <li>• U.S. citizens</li> <li>• Permanent residents</li> </ul>	20 (2009)
Office of Naval Research (ONR)	Young Investigator Program (YIP)	YIP seeks to attract, support and encourage outstanding new faculty in naval research and teaching careers.	2007	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> <li>• University faculty</li> </ul>	15 (2009)
Office of Naval Research (ONR)	Naval Postdoctoral Fellowship Program	Program encourages the involvement of creative, capable and highly-trained scientists and engineers in areas of interest and relevance to the Navy. Eligible candidates should be no more than seven years from receiving their Ph.D. or equivalent.	n/a	<ul style="list-style-type: none"> <li>• University faculty</li> </ul>	40
Office of Naval Research (ONR)	Naval Science and Technology for America's Readiness	Program aids scientists and engineers from the Naval warfare centers to effectively work with teachers in local middle schools to help shape students' perceptions about mathematics and science. The goal is to produce more scientists and engineers who have familiarity with the defense research community and the types of careers available.	2004	<ul style="list-style-type: none"> <li>• Middle school students</li> </ul>	3K
U.S. Naval Academy (USNA)	Summer Seminar	Fast-paced, six-day experience teaches about life at the Naval Academy, where academics, athletics and professional training play equally important roles in developing our Nation's leaders. STEM academic lessons are provided by civilian and military faculty. Includes the participation of 200 midshipmen as hosts and information providers. Supported by Naval Academy Foundation and Academic Dean.	Since at least 1990	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> <li>• High school students</li> </ul>	2,250 (2008)

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
U.S. Naval Academy (USNA)	STEM Summer Program	Rising 7th through 11th grade students learn how technological advances in engineering assist in catching criminals and spies. Lessons include breaking steel and crash mechanics; material fingerprints and technical crimes; studying hull designs and structures at the Hydro and Fluids Labs; investigating the forces of nature in the Aero Labs; the use of mathematics, computer science, and engineering to keep messages hidden and cryptic; chemical analysis to solve crime and fingerprinting of physical phenomenon; and robotics. The program is supported by NDEP, ONR, and Naval Academy Foundation. Program will host 375 students in 2010.	2008	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Middle school students</li> <li>• High school students</li> </ul>	200 (2009)
U.S. Naval Academy (USNA)	Tech Camp	Hands-on program developed by female engineering faculty to encourage young women to consider engineering as a career. Conducted at Rickover location. Supported by as many as four faculty members.	n/a	<ul style="list-style-type: none"> <li>• Undergraduate students</li> </ul>	50 (2009)
U.S. Naval Academy (USNA)	Maury Project	Teacher enhancement program with the American Meteorological Society. Involves six faculty, with two civilians and support from external funds from CNMOC and ONR.	n/a	<ul style="list-style-type: none"> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	25
U.S. Naval Academy (USNA)	Anne Arundel County Public Schools Advanced Studies Program	Exposes select middle school students to 10 hours of instruction from late July to early August, and is conducted yardwide. Supported by one faculty member per class.	n/a	<ul style="list-style-type: none"> <li>• Middle school students</li> </ul>	80 (2009)
U.S. Naval Academy (USNA)	Reach for Tomorrow	For high aptitude inner city kids receiving partial or full free school meals. Students room with midshipmen. Conducted yardwide, at Yps, 44's, Smoke Hall, athletic fields, Rickover Hall, Halsey Climbing Wall, and at Lee Airfield. Program is supported by eight faculty members.	n/a	<ul style="list-style-type: none"> <li>• Middle school students</li> </ul>	~ 80 (2009)
U.S. Naval Academy (USNA)	MINICAMPS	During six weekends per year, students engage in STEM activities plus some military activities. Conducted yardwide, and supported by five faculty members.	n/a	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	200 (2009)
U.S. Naval Academy (USNA)	Candidate visits	Conducted eight weekends per year, 12th grade selectees participate in STEM facility tours and visit classes. Conducted yardwide, and supported by 10 faculty members.	n/a	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	1K (2009)

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
U.S. Naval Academy (USNA)	Engineering and Science Days	Day-long visits are provided covering STEM topics, per the request of interested schools. Conducted yardwide, and supported by 10 faculty members.	n/a	<ul style="list-style-type: none"> <li>Elementary school students</li> <li>Middle school students</li> <li>High school students</li> </ul>	200 (2009)
Navy League	Navy Sea Cadet Corps and Navy Sea Cadets	The program develops youth ages 11-17 country-wide, and promotes interest and skill in seamanship and aviation. It instills strong moral character in an anti-drug and anti-gang environment. Includes summer training onboard Navy and Coast Guard ships and shore stations, and develops self-confidence, self-discipline, high standards of conduct, performance, teamwork, patriotism, courage and the foundation of personal honor. A significant percent of Cadets join the Armed Services often receiving accelerated advancement or obtain commissions. The program promotes the Navy and Coast Guard, particularly in locations where these Services have little presence. The officer and enlisted accessions related to this program are a significant asset to the Services: More than 12% of USNA Midshipmen are ex-Cadets. Navy estimates that 2K out of an eligibility pool of 20K enlist in the Services annually. 387 units in the U.S., Guam and Puerto Rico make up the 9K annual participants. Funding comes from Navy HQ, while Cadets and volunteers are self-funded at \$400 - \$500 / year (up to \$4.5M). Navy Recruiting includes \$1.7M / year to offset Cadets' training costs. This is augmented by \$586K (FY2010) of Congressional additions to the Defense Appropriations bill.	1958	<ul style="list-style-type: none"> <li>U.S. citizens</li> <li>Permanent residents</li> <li>Middle school students</li> <li>High school students</li> </ul>	9K
Diversity / Outreach Directorate		Hispanic Engineer National Achievement Awards Corporation (HENAAC), Viva Technology Student Day - HENAAC has partnered with the Los Angeles Unified School District and Navy (OSD funding) to do a value chain initiative to promote STEM learning through a student's career from K to the University of California system.	1989	<ul style="list-style-type: none"> <li>Elementary school students</li> <li>Middle school students</li> <li>High school students</li> <li>Undergraduate students</li> </ul>	500

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
Naval Sea Systems Command (NAVSEA) and USNA	Mathematics Engineering Science Achievement Program (MESA)	Navy partners with seven K - 12 programs promoting engineering, math and science careers that feed the University of Maryland, including the Baltimore County campus. Activities include exploring Newton's Law of Motion through hot-air balloons, rockets, and bridge building, and speaking / mentoring to pre-college students.	1970	<ul style="list-style-type: none"> <li>Elementary school students</li> <li>Middle school students</li> <li>High school students</li> </ul>	400
Naval Sea Systems Command (NAVSEA)	21st Century Engagement, Education and Technology Program (21 CEETP)	Conducted in two elements: 1) K - 12 program, and 2) Scholarships for minority college students. A third element conducted under research covers research and development at MSIs. In K-12, the Navy and state of Virginia use technology-oriented mentoring to encourage interest in STEM. The program enables school teachers, Navy R&D Center scientists and engineers to mentor Virginia Middle school students. NAVSEA sponsored summer workshops in 2009 at the Dahlgren base, and worked with 12 Navy scientists and engineers and taught robotics and rocketry for 104 students and 17 teachers. That program is conducted in partnership with NDEP. At the college level, scholarships are provided to students attending HBCUs to encourage them toward completion of their STEM degrees. NAVSEA is linked with university labs to increase problem-solving and initiate student interest in NAVSEA work. NAVSEA was the lead for 2009, but this may fall under ONR for 2010. The majority of the 43,000 annual participants are scholarship recipients.	2009	<ul style="list-style-type: none"> <li>U.S. citizens</li> <li>Permanent residents</li> <li>Elementary school students</li> <li>Middle school students</li> <li>High school students</li> </ul>	43K
Naval Sea Systems Command (NAVSEA)	International Human-Powered Submarine Race	Carderock NAVSEA laboratory is the annual host for the International Human-Powered Submarine Race. The competition is primarily a college-based competition, but included two high schools among 18 teams from U.S. and international schools in 2009.	1989	<ul style="list-style-type: none"> <li>High school students</li> <li>Undergraduate students</li> </ul>	18 Teams (2009)
Naval Sea Systems Command (NAVSEA)	Patriots Technology Training Center	Robotics workshops and competitions are sponsored during the Annual Youth Summit on Technology. These events provide take-away robotics kits teaching robot-building and the application of engineering and scientific knowledge learned in school. Students pay to attend the camp. Patriots teams compete in an annual robotics competition at the Naval Academy. NAVSEA support also includes preparatory work such as the training of S&Es (14 in 2009), and can include Educational Partnership Agreements with sites where the activity is conducted. Bases participating in 2009 included Carderock, Indian Head and Dahlgren. NAVSEA headquarters also participates.	2002	<ul style="list-style-type: none"> <li>High school students</li> </ul>	500

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
Naval Sea Systems Command (NAVSEA)	Robotics	Partners with college and universities to provide robotics workshops and volunteers. The activity promotes the Navy's STEM initiative and interest in robotics and feeds into an annual state-wide competition. Sponsors include NSF and DDR&E. Sixty teams from 40 schools competed in the final competition.	2007	<ul style="list-style-type: none"> <li>High school students</li> </ul>	60 teams from 40 schools
Naval Sea Systems Command (NAVSEA)	College Day	Norfolk Naval Shipyard hosted the 2nd College Day to educate local students and university representatives on career opportunities.	n/a	<ul style="list-style-type: none"> <li>High school students</li> <li>Undergraduate students</li> <li>University faculty</li> </ul>	n/a
Naval Sea Systems Command (NAVSEA)	Crane Learning & Employment Center (CLEC) for Disabled Veterans	A partnership between 15 public and private sector organizations, CLEC provides training in technical and scientific disciplines, fields and skills to disabled veterans. Currently run by non-profit Crane Technology, Inc. with Naval Surface Warfare Center (NSWC) at NSA Crane in Southwest Indiana. Plans to expand to Indianapolis and Ft. Wayne, IN. Also plans to clone the Crane model to new Southern California and National Capitol Region (NCR) Veterans Training Centers in FY10. NSWC Crane provides student-trainee jobs to CLEC participants or full-time VRA placements. NAVSEA trained and hired 55 disabled veterans in 2009, with the goal of 134 in 2010. Partners include the Lilly Endowment, Indiana Department of Workforce Development and the McCormick Foundation.	2007	<ul style="list-style-type: none"> <li>Veterans</li> </ul>	55

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
<b>Air Force Programs</b>					
Air Force	Chabot Space and Science Center	Supports teaching about earth, life and physical sciences. Teaches problem-solving to motivate individual and community social action to encourage environmental protection and sustainability. The Center had more than 150K visitors in 2008.	n/a	• Public	156K (2008)
Civil Air Patrol (CAP) Cadet Program		Motivates youth to become responsible citizens through aviation-centered programs emphasizing aerospace education, leadership, physical fitness, and values. Supports the Air Force by communicating opportunities and careers in the Air Force. Cadets voluntarily enroll and renew their enrollment on an annual basis. AF partners with USAF organizations and aerospace organizations. Middle and high schools from 1,100 communities nationwide are represented.	1942	• Middle school students • High school students • Undergraduate students	22K
Civil Air Patrol (CAP) Cadet Program	CAP Aerospace Education	Cadet Orientation Flights and National Flight Academies introduce youth to Scholarships to introduce cadets to science of flight in powered aircraft and gliders.	1942	• Middle school students	8K
Civil Air Patrol (CAP) Cadet Program	Aerospace Dimension	Uses six modules over a two-year span to introduce aerospace subjects, principles of flight, rocketry, weather and space. Of the 35K participants, 1K are CAP cadet squadrons and 500 are educators.	1942	• High school students • Undergraduate students • Public	35K
Civil Air Patrol (CAP) Cadet Program	Aerospace: The Journey of Flight	Comprehensive 650-page textbook covering aviation and space topics for high schools, junior colleges, colleges and CAP units.	1942	• Middle school students • High school students	20K
Civil Air Patrol (CAP) Cadet Program	Aerospace Excellence Award	Enables aerospace hands-on activities involving STEM subjects and scientific principles over a one-year period.	1942	• Middle school students • High school students	25K
Civil Air Patrol (CAP) Cadet Program	Model Rocketry Program	Program for building and launching rockets over a two to three month period.	1942	• Middle school students • High school students	10K
Civil Air Patrol (CAP) Cadet Program	Aerospace Thematic Units	One-year program on units covering aviation and space topics.	1942	• High school students	35K
Civil Air Patrol (CAP) Cadet Program	Air Force Space Command Familiarization Course	Helps cadets experience a space launch mission in a one-week program at Patrick, Peterson, and Vandenberg AF Bases and within CAP units.	1942	• High school students	75

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
Civil Air Patrol (CAP) Cadet Program	Specialized Undergraduate Pilot Training Familiarization Course	Cadets study aviation for one week with AF student pilots in an academic setting at Columbus and Laughlin AF Bases and within CAP units.	1942	<ul style="list-style-type: none"> <li>High school students</li> </ul>	70
Civil Air Patrol (CAP) Cadet Program	Air Force Civil Engineering Course	Cadets shadow AF officers for one week in the civil engineering career field at Tyndall AF Base and within CAP units.	1942	<ul style="list-style-type: none"> <li>Middle school students</li> <li>High school students</li> </ul>	35
Civil Air Patrol (CAP) Cadet Program	Advance Technologies Academy	Cadets complete hands-on computer engineering and satellite tracking projects during a one-week program at Peterson AF Base and in CAP units.	1942	<ul style="list-style-type: none"> <li>Middle school students</li> <li>High school students</li> </ul>	35
Civil Air Patrol (CAP) Cadet Program	Engineering and Technologies Academy	Cadets complete hands-on engineering projects in a one-week program at Auburn University and in CAP units.	1942	<ul style="list-style-type: none"> <li>Middle school students</li> <li>High school students</li> </ul>	35
Air Force Force Renewal Branch	AF Centrally-Managed Internship Program	Designed to attract college graduates with management potential to careers as civilian employees in the Air Force and DoD. Recruits high-caliber candidates for internships, and provides on-the-job and classroom training, and developmental opportunities in occupational areas that include STEM. Full-time employment is provided in over 20 career fields with 2-4 years training and performance-based annual promotions while in training. Initial funding is from central salary account until placement into locally-funded positions. Central funding support driven by work years and employment cycle from intern to occupation. Funding in 2009 was \$60.8M.	Mid to late 1980s	<ul style="list-style-type: none"> <li>Public</li> <li>U.S. citizen</li> </ul>	750 (2009) (Typically ~ 450 per year)
Air Force Office of Scientific Research (AFOSR)	Resident Research Associateship (USAF/NRC-RRA) Program	Postdoctoral and senior scientists and engineers are offered opportunities to perform research at sponsoring Air Force labs. Also provides researchers of unusual promise and ability opportunities to solve problems, largely of their own choosing, that are compatible with the interests of the hosting labs and contribute to the overall efforts of the Air Force laboratories. \$55K stipend per recipient, increasing for each year past Ph.D.. Conducted in partnership with National Research Council.	1954	<ul style="list-style-type: none"> <li>U.S. citizens</li> <li>Permanent residents</li> <li>Post-Docs</li> </ul>	49

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
AFOSR	Summer Faculty Fellowship Program (USAF-SFFP)	Provides university faculty with fellowships to conduct research at Air Force facilities in the summer to (1) stimulate collaboration among SFFP fellows and the scientists and engineers in AFRL Technical Directorates and research facilities; (2) elevate awareness in academia of Air Force research needs and foster continued research at SFFP fellows' institutions; and (3) provide faculty opportunities to perform high-quality research at AFRL Technical Directorates and other AF research facilities. Conducted in partnership with American Society for Engineering Education.	2005	<ul style="list-style-type: none"> <li>• U.S. citizens</li> <li>• Permanent residents</li> <li>• University faculty</li> </ul>	90 (2009)
AFOSR	University Nanosatellite Program	Satellite design and fabrication competition for universities to train tomorrow's space professionals. Provides a two-year concept to flight-ready spacecraft competition for college and universities, and enables small satellite research and development, integration and flight testing. Competition period runs over two years, with 11 schools, and teams that can host as many as 50 students. AFOSR Physics and Electronics Directorate funds universities participating in the program. The AFOSR Space Vehicles Directorate implements the program and provides training. While non-citizens participate in student groups, universities must comply with ITAR. Program reviews are restricted to U.S. citizens and permanent residents.	1999	<ul style="list-style-type: none"> <li>• Undergraduate students</li> <li>• University faculty</li> </ul>	550
U.S. Air Force Academy (USAFA)	Discovery Canyon	Program conducted in K - 12 schools in Colorado. Partners with the American Institute of Aeronautics and Astronautics, and supported by the Department of Aeronautics.	2009	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	<ul style="list-style-type: none"> <li>• Students: 1,200</li> <li>• Staff: 160</li> </ul>

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
USAFA	Workshop for Peak Area Science Leaders	Four-hour workshop for local science teachers, and supported by the Department of Aeronautics.	n/a	<ul style="list-style-type: none"> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	n/a
USAFA	DFAS / WISE (Women in Science and Engineering)	STEM workshops for middle school students, especially female students, in Boulder, CO, Albuquerque, NM, and Los Alamos, NM. Supported by the Department of Astronautics.	1990s	<ul style="list-style-type: none"> <li>• K-12 Students</li> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> </ul>	~ 600
USAFA	Chemical Magic Shows	Demonstrations designed to get students of all ages excited about science. Supported by the Department of Chemistry.	1960's	<ul style="list-style-type: none"> <li>• Youth and public</li> </ul>	10K
USAFA	Girl Scouts Chemistry and Engineering Workshops	Girls participate in a variety of hands-on experiments in science and engineering. Five events are held each year. USAFA partners with Cool Science (non-profit), and the Girl Scouts of Colorado. Supported by the Department of Chemistry.	2003	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> </ul>	250
USAFA	Cool Science Activities / Events	Numerous science events are conducted throughout Colorado Springs, CO. USAFA partners with Cool Science (non-profit), Colorado College, and the University of Colorado at Colorado Springs. Supported by the Department of Chemistry.	2002	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> </ul>	~1K
USAFA	Chemistry of Rockets	Young students and adults participate in classes on rocketry. Supported by the Department of Chemistry. While the emphasis is on children, the program is open to all ages.	1990	<ul style="list-style-type: none"> <li>• Public</li> </ul>	300

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USAFA	Science Olympiad	USAFA is the lead coordinator for all chemistry events at the local Science Olympiad competition held once per year. Supported by the Department of Chemistry.	1990's	<ul style="list-style-type: none"> <li>• Middle school students</li> <li>• High school students</li> </ul>	~100
USAFA	Int'l Chemistry Olympiad	Study camp for America's top 20 high school chemistry students of which four are selected to represent the U.S. in international competition. Supported by the Department of Chemistry.	1984	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	20
USAFA	Peak Area Leadership in Science	Annual one-day workshop for local area science teachers giving them the opportunity to learn about new lab techniques and ideas for teaching science. Supported by the Department of Chemistry.	1990	<ul style="list-style-type: none"> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	50
USAFA	Society of American Military Engineers (SAME)	One-week high-energy hands-on engineering camps for students from across the U.S. and the world who excel in math, science and technical courses and are interested in pursuing engineering in college. Camps are led by engineers from private industry and the military. Camps take place on a military base in the Colorado Rockies, Southern California, and the Mississippi Valley. Supported by the Department of Civil and Environmental Engineering.	1999	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	~60
USAFA	Observatory Public Outreach	USAFA hosts public tours to educate the community in astronomy and space science. Approximately 85 cadets in the Physics and Astronomy Club plan and conduct these tours using the telescopes, walk-out roof for constellation studies, and classrooms. Also incorporates NASA-funded hands-on astronomy education tools. For groups of 50 or more, volunteers from the local civilian astronomy club set up telescopes near the observatory. Supported by the Department of Physics. Public tours are geared to all aspects of the community: K-12 to college students, local teachers, Boy and Girl Scouts, and other community groups.	1995	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> <li>• Undergraduate students</li> <li>• Public</li> </ul>	14K

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
USAFA	Physics is Phun	Faculty members visit local schools to conduct physics demonstrations in electromagnetics, mechanics and thermodynamics. Supported by the Department of Physics.	1999	• Elementary school students	10K
USAFA	Science Olympiad	High-school science knowledge competition. Supported by the Department of Physics.	1985	• High school students	500
USAFA	Girls in the Middle	Physics workshops and demonstrations for middle-school girls. Supported by the Department of Physics.	2003	• Middle school students	250
USAFA	Summer Seminar	Workshops and summer activities in science and technology. Supported by numerous departments at the USAFA.	1980s	• High school students	1,125
USAFA	Science and Technology Educator Workshop with USAFA Summer Seminar	Educators observe and participate in S&T Academic Seminars to further develop knowledge and teaching skills. The goal is for them to take that knowledge and those skills back to District 20 secondary school students and get them motivated and excited about S&T.	2009	• High school faculty	10 (2009)
USAFA	Community Events: Girls Rock Science!	Two afternoon community events sponsored in partnership with the Girl Scouts to encourage young girls' involvement in STEM fields. 350 girls and their families participate annually.	1990s	• K - 12 Students • Elementary school students • Middle school students • High school students	350
USAFA	High School Summer Science Camps (DDR, ASRA modules, Digipen)	Three camps for students: Discover Design Research (12-day residential camp), Digipen ProjectFUN computer programming / gaming camp (10-day camp building computer programming skills), and one course at the UAF Alaska Summer Research Academy (ASRA) focused on marine mammals and seabirds at Round Island (12-day camp with 8-days of field research).	2008	• High school students	35 (2009)
USAFA	Middle School Summer Science Camps (Sun to Sea, H2O Power)	Two summer science day camps: Sun to Sea Camp (10-day exposure to marine and atmospheric science and their interrelationship) and H2O Power Camp (six-day camp focusing on hydro power and electrical generation).	2009	• Middle school students	• H2O Power Camp: 47 • Sun to Sea: 11

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
USAFA	Young Investigator Program (YIP)	Part of an effort to increase opportunities for young investigators to recognize the Air Force mission and related challenges in science and engineering. The 38 awardees for 2010 are scientists and engineers at research institutions in the United States. These awardees were selected from 202 proposals, and will receive funding for a three- to five-year period.	2007	<ul style="list-style-type: none"> <li>• University faculty</li> </ul>	38
OSD - Office of Technology Transfer - Springboard	EDGE (Experiential Discoveries in Geoscience Education)	Provides classroom support for the use of GIS Arc mapping & GPS technologies in classrooms. The program is anticipating 300 students per year.	Since 2006	<ul style="list-style-type: none"> <li>• Middle school students</li> <li>• Middle school teachers</li> </ul>	660 students over 3 years
OSD - Office of Technology Transfer - Springboard	DoD Manufacturing Technology STEM Initiative	Exploring Manufacturing STEM initiative with Mississippi and Alabama community colleges in partnership with National Aeronautics and Space Association (NASA).	TBD	TBD	TBD
OSD - Office of Technology Transfer - Springboard	SpringBoard - SeaPerch	Provides instruction to teachers in Remotely Operated Vehicle (ROV) building and how to conduct ROV building in the classroom. Each teacher reaches approximately 1K students per year.	Since 2008	<ul style="list-style-type: none"> <li>• K - 12 teachers</li> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	• 40 teachers
OSD - Office of Technology Transfer - Springboard	SpringBoard - CryoConn (Cryosphere Connections)	Provides teacher training in science related to the cryosphere and its connection to global climate and ecological systems. Training is provided to 800 teachers per year by 23 classroom teachers and four college teacher trainers. \$50K in funding pays for program materials.	Since 2008	<ul style="list-style-type: none"> <li>• K - 12 teachers</li> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	800

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OSD - Office of Technology Transfer - Springboard	SpringBoard - Materials World Modules (MWM)	Materials World Modules (MWM) are hands-on, inquiry and design-based units for middle and high school students. Based on materials science and nanotechnology principles and focused on pre-engineering, this interdisciplinary approach engages students, adds relevance to traditional curriculum, and has been shown to improve science knowledge for all students. More than half of the \$42K in funding goes toward providing materials to 800 kids per year. Each participating teacher reaches about 800 kids per year.	Since 2006	<ul style="list-style-type: none"> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	55
OSD - Office of Technology Transfer - Springboard	SpringBoard - Alaska Math and Science Conference	A biennial conference involving teachers across Alaska, offering a wide range of professional development workshops and training venues.	3-day conference held in 2007 and 2009	<ul style="list-style-type: none"> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> <li>• University faculty</li> </ul>	500
OSD - Office of Technology Transfer - Springboard	SpringBoard - Science Curriculum Revision and Support	Support for the revision of Juneau School District's science curriculum to align with national and state standards and build STEM interest and capabilities among students. The curriculum will be implemented in 2010. There are 4,900 students in the Juneau School District.	Since 2006	<ul style="list-style-type: none"> <li>• Elementary school teachers</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	• 4,900 students
OSD - Office of Technology Transfer - Springboard	SpringBoard - FIRST (For Inspiration & Recognition of Science & Technology)	Support of robotics programs for ages nine through high school. School and community based teams compete in annual challenges. The FIRST Program is also supported independent of SpringBoard by the NDEP and independently by the Army.	Since 2007	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> </ul>	~500

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
OSD - Office of Technology Transfer - Springboard	SpringBoard - Science Olympiad	Science Olympiad (SO) is a national after-school competitive program that challenges students in a myriad of science subjects. Challenges posed by SO are often integrated into classroom instruction, as well.	Since 2006	<ul style="list-style-type: none"> <li>• Middle school students</li> </ul>	<ul style="list-style-type: none"> <li>• After School Programs: 35</li> <li>• SO Challenges: 100</li> </ul>
OSD - Office of Technology Transfer - Springboard	SpringBoard - Regional science fair	Support is provided to the Southeast Alaska Regional Science Fair -- an ongoing science activity in Juneau for 16 years, with regional winners moving onto the Intel International Fair. 126 students produced 116 projects in 2009.	Since 2006	<ul style="list-style-type: none"> <li>• High school students</li> </ul>	126
OSD - Office of Technology Transfer - Springboard	SpringBoard - Community Events: Chill at the State Museum	A 2-hour community celebration of winter and the science of the cryosphere held at the Alaska State Museum. The event attracted 390 community visitors and was organized by 18 volunteers at 11 activity centers.	n/a	<ul style="list-style-type: none"> <li>• Public</li> </ul>	390
OSD - Office of Technology Transfer - Springboard	SpringBoard - Community Events: Girls Rock Science!	Two afternoon community events sponsored in partnership with the Girl Scouts to encourage young girls' involvement in STEM fields. 350 girls and families participated in the two events in 2009.	n/a	<ul style="list-style-type: none"> <li>• K - 12 students</li> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> </ul>	350

Department, Service or Agency	Program or Project Title	Program Description	Program Start or Period	Participants	Number of Participants Annually
OSD - Office of Technology Transfer - Springboard	SpringBoard - High School Summer Science Camps (DDR, ASRA modules, Digipen)	Three camps for students: Discover Design Research (12-day residential camp), Digipen ProjectFUN computer programming / gaming camp (10-day camp building computer programming skills), and one course at the UAF Alaska Summer Research Academy (ASRA) focused on marine mammals and seabirds at Round Island (12-day camp with eight days of field research).	Since 2008	• High school students	35 (2009)
OSD - Office of Technology Transfer - Springboard	Springboard - Middle School Summer Science Camps (Sun to Sea, H2O Power)	Two new summer science day camps: Sun to Sea Camp (10-day exposure to marine and atmospheric science and their interrelationship) and H2O Power Camp (Six-day camp focusing on hydro power and electrical generation).	Since 2009	• Middle school students	<ul style="list-style-type: none"> <li>• H2O Power Camp: 47 students</li> <li>• Sun to Sea: 11 students</li> </ul>

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<b>Examples of Defense Laboratory and Military Base education and outreach</b>					
Air Force Research Laboratory (AFRL)	Wright-Patterson Air Force Base Educational Outreach Program (WPAFB EO)	WPAFB partners with AFRL and the Aeronautical Systems Center to facilitate K - 12 educational community partnerships to increase student awareness and interest in math, science, aviation and aerospace to develop our S&T workforce and support teacher and curriculum development. Works with more than 20 universities, associations, Federal labs, and private sector partners. Activities include science fairs, teachers in-service, providing classroom speakers, mentoring / tutoring, summer employment for teachers, FIRST Robotics League, Air Force Association, TECH FEST, Akron Global Polymers Academy, ASM, Wizards of Wright (WOW!), STARBASE Wright-Patt. Mentoring programs through Miami Valley Reads, Parity, Inc, WPAFB Job Shadow Days, In-school Tutoring, Junior Achievement, Big Brothers/Sisters Classroom Speaker Program, STARBASE Wright-Patt (Pilot Program), Scanning Electron Microscope (SEMEDS). Partners with Dayton Public Schools and Wright State University by supplying instructors for WRIGHT-STEPP, has provided \$6.5M in free educational programs since 1999. Offerings include Wright Scholars Program that matches scientists or engineers with high school students to do lab-based research, attend engineering programs at Dayton and Wright State universities, and attend other professional meetings. The DoD NDEP contributes funds to WPAFB EO.	1999	<ul style="list-style-type: none"> <li>• Elementary school students</li> <li>• Middle school students</li> <li>• High school students</li> <li>• Public</li> </ul>	2K
Air Force Research Laboratory	La Luz Academy for New Mexico Students and Teachers	Air Force Research Laboratory (AFRL) conducts diverse activities for students to put math and science in action and explore the role of engineering. Activities include the MINDSTORM robotics curriculum, Mars Missions Flight & Computer Assisted Math Instruction, PinPoint WeatherNet Program, Providing Engineering Technology Experiences for Students (PETES), DoD STARBASE Flight and PETES PRS Flight, Intro to Systems Engineering Flight and Space Flight, AFRL La Luz Academy Summer Teacher Institute, sending S&E's into the classroom, offering lab tours, a challenge problem for high school students, and robotics summer camps. Numerous strategic partners including New Mexico Tech and KOB-TV Channel 4, and numerous school districts (that benefit from automated weather stations at middle schools and other institutions throughout the state). The program is open to all middle and high school students and teachers in New Mexico, Colorado, Texas and several other states.	1992	<ul style="list-style-type: none"> <li>• Middle school students</li> <li>• High school students</li> <li>• Middle school teachers</li> <li>• High school teachers</li> </ul>	8K students through various programs