A GUIDE TO
NAVAL STEM
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SPAWAR: Girls Day Out (Photo by Joseph Bullinger)

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SPAWAR: Rear Adm. Paul J. Verrastro, commander, NAVSUP helps cut the EAGLE STEM program workshop ribbon. (Photo by Maddie Klebe)

VOL. 4, ISSUE 2—THE NAVAL STEM NEWSLETTER

Editor in Chief
► Dr. Michael M. Simpson
Director of Education and Workforce, ONR

Editorial Staff (Contractors)
► Lindsey Groark, Managing Editor
► Jaime Carter, Associate Editor
► Sierra Jones, Associate Editor and Designer
► Jeff Wright, Graphic Designer

► To submit an article or subscribe to the Naval STEM newsletter, please contact the managing editor.

Naval STEM Newsletter
Naval STEM Coordination Office
Office of Naval Research
875 N. Randolph Street, Suite 1425
Arlington, VA 22203-1995

Email: naval_STEM@navy.mil
Phone: (703) 696-5031
Web: http://navalstem.navylive.dodlive.mil
MESSAGE FROM ONR’S
DIRECTOR OF EDUCATION
AND WORKFORCE

The Department of the Navy has a rich history of providing educational and outreach opportunities for students, as well as developing a diverse, highly-trained workforce for the Navy and Marine Corps. These opportunities are developed, managed and executed by a community of naval commands and organizations that span the technical areas and geographic environments where we operate.

This guide provides a brief overview of the commands that lead these efforts. Together, this community inspires, engages and educates the next generation of scientists and engineers and supports the current Naval STEM workforce through efforts to attract, employ, develop and retain top technical talent.

Each command and organization within the Naval STEM community has specific workforce needs that influence the education and outreach efforts they offer. From outreach efforts that inspire young students to internship and other programs that employ high school, undergraduate and graduate students, these commands aim to introduce students to the naval-relevant STEM opportunities and careers that apply to their missions.

Throughout this guide you will learn about these organizations that manage and execute Naval STEM efforts in their local communities. I invite you to engage with our community and to become a part of these important endeavors.

Sincerely,

Dr. Michael M. Simpson
Director of Education and Workforce
Office of Naval Research
the Department of the Navy (DoN) aims to foster and cultivate a diverse, world-class STEM workforce in order to maintain the U.S. Navy and Marine Corps’ technological superiority. This includes naval civilians, active duty Sailors and Marines as well as Navy and Marine Corps Reserve components. Naval STEM programs are mission-critical investments in the DoN current and future workforces, and are vital to meeting present and future warfighting challenges.

The strategy of Naval STEM is to inspire, engage and educate the next generation of scientists and engineers, and to attract, employ, develop and retain our diverse technical workforce through collaboration to promote an effective and efficient STEM portfolio across the DoN, the federal government and the broad STEM community.

NAVAL STEM STAKEHOLDER ORGANIZATIONS
Local STEM efforts are managed and executed at the command or organization level. These organizations implement STEM education, outreach and workforce activities within their respective communities. This guide provides an overview of these stakeholder’s STEM efforts.

EDUCATION INITIATIVES
The Navy and Marine Corps reach out to students nationwide. For K-12 audiences, hands-on learning experiences are emphasized to encourage students and teachers of all ages to “learn by doing.” This encouragement comes in a variety of forms, including participation in expos and festivals; sponsorship of summer camps and teacher trainings; and support of STEM competitions.

WORKFORCE INITIATIVES
The development of the current and future naval STEM workforce is a primary concern for the Naval STEM community. Numerous programs are available to students, academic faculty and naval scientists and engineers. These programs include internships and mentorships as well as professional development opportunities.

NAVAL STEM OVERVIEW

ENGAGE
Engage students and professionals to enhance their capacity and confidence in areas of naval relevance.

INSPIRE
Inspire future and current generations of scientists and engineers to pursue naval-relevant STEM opportunities.

COLLABORATE
Collaborate across the DoN, federal government and broad STEM community to promote an effective and efficient portfolio of Naval STEM investments.

DEVELOP & RETAIN
Develop and Retain a STEM-proficient workforce and network to drive naval S&T innovation.

ATTRACT & EMPLOY
Attract and Employ a highly competent STEM workforce and network to sustain the Navy and Marine Corps’ technological superiority.

EDUCATE
Educate students and current professionals to be well prepared for and successful in STEM careers that support the Navy and Marine Corps.
The maps on this page show where the Naval STEM community is active across the world. The numbers in each blue circle or box denote the pages where you can learn more about the commands and facilities active in these communities.
NAVAL STEM:
SPRING EDITION 2016

NAVAL BUREAU OF MEDICINE AND SURGERY

ABOUT: The Navy Bureau of Medicine and Surgery (BUMED) is the headquarters for Navy medicine and has a long and proud history. Under the leadership of the Navy Surgeon General, Vice Adm. C. Forrest Faison, III, Navy medicine provides high-quality health care to beneficiaries in wartime and peacetime.

BUMED develops the policies and direction for Navy medicine to ensure its vision for patient and family-centered care is carried out throughout the world. It exercises direct control of naval hospitals, medical centers, dental battalions, preventive medicine units and technical schools for medical department personnel both inside the U.S. and around the world.


Bureau of Medicine and Surgery (BUMED)
Capt. Patricia McDonald, patricia.mcdonald3.mil@mail.mil
Diversity officers at BUMED provide mentorship, education and share best practices of STEM program with all BUMED commands.

Naval Medical Research Center (NMRC)
Capt. Patricia McDonald, patricia.mcdonald3.mil@mail.mil
NMRC has a multipronged STEM approach that includes engaging students onsite to gain hands-on experience in a laboratory environment, a community outreach program to reach younger students and career-day activities for high school students.

Naval Hospital (NH) Jacksonville
Jeanne Casey, jeanne.e.casey.civ@mail.mil
NH Jacksonville’s Science, Service, Medicine and Mentoring (S2M2) program seeks to nurture the next generation of medical professionals through collaboration with Darnell-Cookman School of the Medical Arts.

U.S. Naval Hospital Naples (USNH)
Capt. Patricia McDonald, patricia.mcdonald3.mil@mail.mil
USNH has initiatives and educational programs designed to provide students with opportunities to be successful in the various healthcare fields.

U.S. Naval Hospital Okinawa (USNH)
LT Mendilo Mendoza, danilo.r.mendoza4.mil@mail.mil
USNH Okinawa’s S2M2 event is an intensive week of health care exposure, instruction and interactive opportunities targeted to high school students of diverse socioeconomic and cultural backgrounds in order to spark the interest in health sciences in young minds.

FIND US ONLINE: https://www.facebook.com/USNavy-Medicine
https://twitter.com/navymedicine
https://www.youtube.com/user/USNavyMedicine
https://www.flickr.com/photos/navymedicine/

Photo links:
Ting Wang (right) and Ciera Jarrett (left) participate in an orthopedic workshop during Naval Hospital Jacksonville’s Science, Service, Medicine and Mentoring program. (U.S. Navy photo by Jacob Sippel)

HM1 Richard Kleber casts a student’s hand during a simulated disability lab. (Photo by HM2 Alejandro Agbay)
ABOUT: The Commander, Navy Installations Command (CNIC) is the Echelon II command under the Chief of Naval Operations responsible for Navy-wide shore installation management. The stand up of CNIC was an effort in the continuation of fleet and regional shore installation management organizational alignment that began in 1997 with the reduction of installation management claimants from 18 to eight. The intent of CNIC is to establish a single shore installation management organization that will focus on installation effectiveness and improve the shore installation management community’s ability to support the fleet.

Partnerships in Education (PIE) is a commander’s program designed to coordinate volunteer efforts of Sailors and active service members in support of local schools, the community and the installation. PIE is a three-pronged outreach program which serves schools as well as the child and youth programs (CYP). The goal of the PIE program is to improve scholastic achievement, enhance the development of social and life skills, and offer vocational guidance. Volunteers in the PIE program tutor, mentor, provide technical expertise and serve as role models for school-aged children.

EDUCATION PROGRAMS: PIE installations use Sailors and civilian employees to serve as volunteers, mentors, tutors and role models. The following are a few suggestions for school academic support: Provide career awareness involvement with career-focused activities on campus; assist in the delivery of drug abuse resistance education instruction; participate in or chaperone field trips to installation facilities for special occasions and tours; serve as judges for science fairs and other academic competitions; serve as celebrity readers and guest lecturers; support academic improvement workshops; support safety and fitness education programs.

WORKFORCE PROGRAMS: CNIC uses postsecondary preparation in military associated communities. In addition to high school course work, extracurricular activities, sports and leadership roles, family attitudes and practices regarding careers help shape a student’s postsecondary option. Role modeling by parents and parent expectations and support can contribute significantly to helping a teen make decisions which will create a positive postsecondary experience.


Commander, Navy Installations Command, Headquarters (CNIC)
Chuck Clymer, chuck.clymer@navy.mil

1. CNIC employs Child & Youth Education Services in 11 regions and 70 installations worldwide to implement Partnerships In Education and postsecondary preparation for military associated K-12 schools.

2. Navy Region Southeast, Region School Liaison Officer, Dawn Kaunike, dawn.kaunike@navy.mil

3. Navy Region Hawaii, Region School Liaison Officer, Kimberly Crutchfield, kimberly.crutchfield@navy.mil

4. Navy Region Mid-Atlantic, Region School Liaison Officer, Debbie Patch, deborah.patch@navy.mil

5. Naval District Washington, Region School Liaison Officer, Daniel Dunham, daniel.L.dunham@navy.mil

6. Navy Region Northwest, Region Child & Youth Programs, Vickie Ramsey, vickie.ramsey@navy.mil

7. Navy Region Southwest, Region School Liaison Officer, Kelly Frisch, kelly.frisch@navy.mil

8. Navy Region Europe, Africa, Southwest Asia, Region Child & Youth Program Manager, Kathy Flynn, kathy.flynn@eu.navy.mil
9 Navy Region Japan, Region Child & Youth Program Manager, Kathryn Hardebeck, kathryn.hardebeck@fe.navy.mil
10 Joint Region Marianas, Region School Liaison Officer, Lydia Broussard, lydia.broussard@fe.navy.mil
11 Navy Region Korea, Installation Child & Youth Program Manager, Terra Hendrickson, terra.hendrickson@fe.navy.mil
12 Navy Region Singapore, Region Child & Youth Program Manager, Paula Cabrera, paula.cabrera@fe.navy.mil
ABOUT: NAVAIR provides full lifecycle support of naval aviation aircraft, weapons and systems operated by Sailors and Marines. This support includes research, design, development and systems engineering; acquisition; test and evaluation; training facilities and equipment; repair and modification; and in-service engineering and logistics support.

STEM: Approximately one half of NAVAIR’s 23,000 person civilian workforce has either an engineering or a science degree. Our ability to support the development of systems to be used by operational Sailors and Marines depends on our ability to obtain a highly educated, technical workforce. Reaching out to today’s science and engineering student is vital.

EDUCATION PROGRAMS: NAVAIR’s STEM outreach programs include several education components. NAVAIR scientists and engineers (S&Es) reach out to local teachers to and help them prepare to teach S&E disciplines. This includes assistance with curriculum as necessary. We also help them in the classroom by being there to help address students’ challenging science and engineering questions. And we bring students to our facilities to perform hands-on activities in our S&E laboratories and to show them how we apply S&E concepts in real life.

WORKFORCE PROGRAMS: NAVAIR engages in many STEM workforce programs. These include:

- Mentor local high school students that participate in high school engineering classes and robotics/engineering clubs.
- Provide apprenticeship, internship and research opportunities for high school and undergraduate students.
- Provide opportunities for several hundred other ‘summer hires’ who assist in a wide variety of science and engineering activities.
- Participate in the Office of Secretary of Defense Science, Mathematics and Research for Transformation scholars program.
- Support large national diversity organizations by sponsoring their recruiting events.
- Support current workforce development by sponsoring scientific and research projects proposed and conducted by the workforce, and by supporting our employees that are pursuing advanced degrees.


1 Fleet Readiness Center (FRC) East Cherry Point
   Bettina Jahr, bettina.jahr@navy.mil
   With the support of numerous engineers, FRC East Cherry Point offers job-shadow events and tours for local students and also participates in engineering week activities.

2 Fleet Readiness Center Southeast (FRCSE) Jacksonville
   Rob Lynn, robert.lynn@navy.mil
   A committed group of scientists and engineers dedicate their time and talent to awakening science and math interest among young people in the local community.

3 In-Service Support Center Fleet Readiness Center Southwest, North Island
   Claudia Garcia, claudia.a.garcia@navy.mil
   North Island is a STEM community outreach leader in San Diego, motivating and inspiring students through robotics programs, interactive workshops and engineering summer internships.

4 Naval Air Warfare Center Aircraft Division (NAWCAD), Lakehurst
   Gaetan Mangano, gaetan.mangano@navy.mil
   The K-12 STEM outreach program at NAWCAD Lakehurst focuses on reaching and supporting all of its surrounding communities, with a special emphasis on serving the underprivileged.
NAVAL STEM:
SPRING EDITION 2016

NAWCAD is engaged with the local community and enlists the help of hundreds of subject matter experts to mentor, coach, demonstrate, train and tour. NAWCAD has also developed numerous hands-on activities for students.

Bob Seltzer, robert.seltzer@navy.mil

NAWCTSD provides mentors, lab tours, job-shadow opportunities and internships for students. Through partnerships with local schools, NAWCTSD offers professional development for teachers.

Julie Marshall, julia.marshall@navy.mil

NAWCWD works to increase engagement in STEM programs to provide related awareness, collaboration and support activities at schools in adjacent communities.

Rose Cepero-Santos and Arhum Shah, sophomores at Great Mills High School, fasten sensors to PixHawk Autopilot for initialization to complete a STEM physics and engineering project. (Photo by NAVAIR)
ABOUT: The Naval Facilities Engineering Command (NAVFAC) is the systems command that builds and maintains sustainable facilities, delivers utilities and services, and provides Navy expeditionary combat force capabilities. NAVFAC delivers best value facilities engineering and acquisition for the Navy and Marine Corps, unified commanders, and Department of Defense agencies through our six business lines: capital improvements, environmental, expeditionary, public works, asset management and contingency engineering. NAVFAC also provides program management for all aspects of the Naval Construction Force, the Seabees, and equipment/materiel management for the Naval Beach Group and other Naval Special Operating Units.

STEM: NAVFAC supports STEM outreach efforts through its Echelon IV Facilities Engineering Commands (FEC) which provide products and services throughout the world with more than 99 service points, its Civil Engineer Corps (CEC) acquisitions officers, and its CEC officers attending graduate school at civilian institutions. STEM outreach is a priority for building future leaders and recruiting the best and brightest to work at NAVFAC.

EDUCATION PROGRAMS: NAVFAC supports education programs at the local FEC level at multiple schools and organizations by involvement of both our military and civilian workforce. Programs include partnerships with local schools, participation in local science and math competitions and involvement in speaking engagements.

WORKFORCE PROGRAMS: NAVFAC participates in partnerships with local universities and colleges through its Naval Expeditionary Warfare Center. Their research and development provide opportunities for mutual partnerships. NAVFAC also utilizes the PATHWAYS intern program to develop promising young engineers for future full-time employment with NAVFAC.
Command participates in multiple STEM events with local schools and local affinity group events.

Command participates in multiple STEM events with local schools and local affinity group events.

Command participates in multiple STEM events with local schools and local affinity group events.
ABOUT: As the Navy’s information dominance systems command, Space and Naval Warfare (SPAWAR) Systems Command develops, delivers and sustains command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) capabilities for warfighters, keeping them connected anytime, anywhere. With a space support activity and two systems centers, and through partnerships with three program executive offices, SPAWAR provides the hardware and software needed to conduct Navy missions. The team consists of more than 9,700 active duty military and civil service professionals who keep SPAWAR at the forefront of research, engineering and acquisition to provide and sustain fleet capabilities.

STEM: The goal of SPAWAR outreach is to foster a culture that celebrates education, particularly in STEM, by empowering our professionals to bring an added richness to their communities.

EDUCATION PROGRAMS: SPAWAR is dedicated to cultivating a zest for STEM among today’s youth, with the intent of developing future STEM professionals and a more informed and interested citizenry. SPAWAR is building a robust K-12 and beyond pathway that reflects the demographics of each community, leading to future STEM employment, preferably at our command.

WORKFORCE PROGRAMS: SPAWAR delivers comprehensive human resource services in support of a mission-ready workforce. This includes numerous programs that develop future STEM professionals via internships, work co-ops and Science, Mathematics and Research for Transformation scholarships. It continues through to employment via the New Professionals program and engages our current scientists and engineers through various retention programs.


https://www.facebook.com/spaceandnavalwarfaresttemscommand
https://twitter.com/SPAWARHQ
http://www.youtube.com/user/teamspawar
https://www.flickr.com/photos/teamspawar/

Space and Naval Warfare Systems Center (SSC) Atlantic, Charleston, South Carolina
Shanda Johnson, shanda.johnson@navy.mil

1. SSC Atlantic, Charleston supports community STEM initiatives and nurtures collaboration with local school districts, colleges and universities through active participation in robotics mentoring, DimensionU, cyber security, Girls STEM camps, school fairs and other educational events.

Space and Naval Warfare Systems Center (SSC) Atlantic, Hampton Roads
Gerard Sekerak, gerard.sekerak@navy.mil

2. SSC Atlantic, Hampton Roads STEM program is an effort between the laboratory and other local organizations interested in encouraging young people to consider careers as scientists and engineers through various STEM activities such as robotics and Girls STEM camps, robotics mentoring and other educational events.

Space and Naval Warfare Systems Center (SSC) Atlantic, New Orleans
Marcus Hall, marcus.w.hall@navy.mil

3. SSC Atlantic, New Orleans supports local community schools participating in programs such as MATHCOUNTS, SeaPerch, FIRST Robotics, VEX Robotics, Project Lead the Way and a number of science fairs.

Space and Naval Warfare Systems Center (SSC) Atlantic, Philadelphia
Maurice Civers, maurice.civers@navy.mil

4. SSC Atlantic, Philadelphia supports a range of STEM outreach initiatives designed to increase community STEM engagement while creating career pathways for aspiring scientists and engineers in STEM professions, particularly in cyberspace.
Space and Naval Warfare Systems Center (SSC) Pacific, Hawaii
Nick Kamin, nick.kamin@navy.mil

SSC Pacific, Hawaii supports local public, private and charter schools with STEM activities in the expectation that nurturing aspiring scientists and engineers will create a pool of future STEM professionals.

Space and Naval Warfare Systems Center (SSC) Pacific, San Diego
Kathleen Gately, kathleen.gately@navy.mil

SSC Pacific, San Diego provides oversight for numerous STEM outreach programs, and its scientists and engineers volunteer as coaches and speakers for myriad outreach projects in the San Diego area.

Letry robots teach children of any age how to breadboard and build circuits to power a car to perform tasks, like following a line or seeking out a dark spot. (Photo by Neal Miyake)
NAVAL SEA SYSTEMS COMMAND

ABOUT: NAVSEA designs, builds and maintains ships, submarines and combat systems that meet the Fleet’s current and future operational requirements.

STEM: NAVSEA works to expose students to STEM activities and its vast talent pool of STEM professionals. Students who participate in these programs interact with scientists, engineers and technicians to acquire valuable skills that can be applied to their future academic and vocational endeavors.

EDUCATION PROGRAMS: NAVSEA education program activities span the educational spectrum, from early elementary school science labs through the university graduate level directed research, providing students a continuous thread of STEM experiences. Students work side by side with engineers, scientists and technicians on a variety of challenging, hands-on activities, which not only reinforce the basics tenets of engineering and physics, but show students the importance of these principles in the work the Navy does every day. In sum, educational outreach provides NAVSEA’s 21st century future workforce a progressive, integrated path aimed at building a rewarding professional career and a lifetime of service to our nation.

WORKFORCE PROGRAMS: NAVSEA offers a variety of student employment opportunities at various sites. Students team with engineers, scientists and technicians to work on real-world problems and projects. NAVSEA offers STEM scholarships, internship positions and co-op positions.


https://www.facebook.com/navsea
https://twitter.com/NAVSEA
https://www.youtube.com/user/NAVSEAp

Naval Sea Systems Command Headquarters (NAVSEA HQ)
Simon Gray, simon.gray@navy.mil

1. NAVSEA headquarters coordinates STEM activities; leverages internships, scholarships and student employment opportunities; and provides project-based educational activities.

Naval Surface Warfare Center (NSWC) Corona Division
Doug Sugg, douglas.sugg@navy.mil

2. Fifty colleges and universities are within 50 miles of the base. Several are designated as minority-serving institutions and are formal education partners with NSWC Corona.

Naval Surface Warfare Center Port Hueneme Division (NSWC PHD)
Ramon Flores, ramon.flores@navy.mil

3. NSWC PHD actively engages in scholastic engineering development programs that bring students and community leadership into partnerships to promote career-path opportunities by encouraging STEM learning and exploration.

Naval Surface Warfare Center Panama City Division (NSWC PCD)
Ed Linsenmeyer, edward.linsenmeyer@navy.mil

4. NSWC PCD has had a long history with STEM, engaging K-12 and partnering with universities and science and engineering organizations.

Pearl Harbor Naval Shipyard (PHNSY) and Intermediate Maintenance Facility (IMF)
Ron Kim, ronald.h.kim@navy.mil

5. As the largest industrial employer and the largest employer of engineers in the state of Hawaii, PHNSY & IMF is extremely supportive of STEM initiatives, as demonstrated by its participation in numerous STEM outreach events and activities.

Naval Surface Warfare Center Carderock Division, Acoustic Research Detachment (ARD) Bayview
Patrick Molvik, patrick.molvik@navy.mil

6. NSWC ARD is committed to expanding STEM offerings and influence in eastern and northern Washington.
NSWC Crane’s goals for STEM outreach are to facilitate STEM programs in local schools; motivate students, parents and teachers to engage in STEM learning; and cultivate and attract an innovative, technically excellent STEM workforce.

NSWCCD has signed educational partnership agreements with Montgomery County Public Schools in Maryland and Fairfax County Public Schools in Virginia in support of rapidly expanding STEM initiatives.

NSWC IHDIV is committed to enhancing STEM education in southern Maryland schools by providing students and educators with real-world examples of classroom lessons.

During the last four years, the shipyard’s STEM outreach program has grown from reaching fewer than 50 students to making a difference for more than 1,500 students through group and individualized teaching and mentoring contacts.

From underserved inner-city schools to affluent suburban and small rural schools, the Naval Ship Systems Engineering Station (NAVSSES) seeks to engage its students in new and meaningful STEM experiences.

NUWC Newport Division is committed to enhancing STEM education in Massachusetts and Rhode Island schools to provide students and educators with real-world examples of classroom lessons.
Naval Surface Warfare Center Fleet Readiness Center (FRC) East Cherry Point
Bettina Jahr, Bettina.Jahr@navy.mil
The STEM climate at FRC East Cherry Point continues to grow stronger every year with Engineering Week and individual engineering job-shadow events.

Naval Surface Warfare Center (NSWC) Carderock Division Detachment Norfolk
Christine Schleicher, christine.schleicher@navy.mil
The main components of CCD’s STEM outreach include SeaPerch projects, in-classroom hands-on learning modules and numerous mentoring events.

Naval Surface Warfare Center, Dahlgren Division (NSWCDD)
John Wright, John.C.Wright1@navy.mil
NSWCDD’s STEM program is centered on a highly successful Virginia Demonstration Project that is compatible with the workforce goals of the Navy.

Naval Surface Warfare Center (NSWC) Combat Direction Systems Activity (CDSA), Dam Neck
Dale Bloodgood, vernon.bloodgood@navy.mil
CDSA Dam Neck is working in collaboration with three other Navy S&T sites in the Hampton Roads region to maximize STEM impact.

Norfolk Naval Shipyard
Valerie Fulwood, Valerie.Fulwood@navy.mil
During the last five years, the shipyard’s STEM outreach program has grown from reaching fewer than 1,000 students to making a difference for more than 3,500 students.

Naval Undersea Warfare Center (NUWC), Keyport Division
Paul Hokanson, paul.hokanson@navy.mil
NUWC Keyport Division has engaged in extensive STEM outreach since 2006, with a focus on underwater remotely operated vehicles because of the close alignment of these teaching tools with the local defense mission.

Puget Sound Naval Shipyard (PSNS) and Intermediate Maintenance Facility (IMF)
Corinne Beach, Corinne.Beach@navy.mil
PSNS & IMF’s STEM outreach efforts incorporate hands-on activities from elementary to high school that concentrate on real-world applications of scientific and engineering phenomena.
ABOUT: MCSC serves as the Department of the Navy’s systems command for Marine Corps ground weapon and information technology (IT) system programs in order to equip and sustain Marine forces with full-spectrum, current and future expeditionary and crisis response capabilities.

STEM: MCSC has more than 500 engineers, scientists and IT professionals who support the design, development, testing and fielding of Marine Corps systems supporting over 180,000 Marines. MCSC is dedicated to promoting the development of its future workforce through hands-on engagement with students in competitions, camps and festivals.

EDUCATION PROGRAMS: MCSC participates in various activities to enhance the education and awareness of students in STEM disciplines and careers. These include participation in various festivals, such as the US Science and Engineering Festival held biannually at the Washington Convention Center; a yearly one week STEM Robotics Camp at the Quantico Middle/High School composed of challenges, displays, demonstrations, design activities and career briefings; and participation in specialized school days set aside for STEAM activities (STEM with Arts included). We are also involved in STEM outreach to local schools and sponsor STEM activities at other Marine Corps facilities, such as Science Week at the Marine Corps Tactical System Support Activity at Camp Pendleton in California.

WORKFORCE PROGRAMS: All of our education programs require close collaboration with other STEM and teaching professionals and engineering/scientist mentors. We host days-long training events for Robotics Camp teams in conjunction with the Naval Systems Warfare Center, Dahlgren and The College of William and Mary. MCSC engineers/scientists train on Marine Corps equipment used for displays and hands-on demonstrations at festivals, camps, and in classrooms. We participate in refresher training provided by the Naval Academy (Best Practices for STEM Outreach) and do STEM outreach through a group started by our women engineers at MCSC, called Females in Technology.


Marine Corps Systems Command (MCSC) Quantico
Michael Ferraro, michael.ferraro@usmc.mil
MCSC Quantico leverages activities with other naval organizations and Virginia colleges to advance naval STEM efforts in the region.

Marine Corps Systems Command (MCSC/MCTSSA) Pendleton
David Yergensen, david.yergensen@usmc.mil
Working with five Pendleton schools, MCSC/MCTSSA strives to promote and influence youth into pursing a STEM-based education. Events include College & Career Day, Science & Discovery Day and Five-Day Science Week.
ABOUT: The Naval Postgraduate School (NPS) provides relevant and unique advanced education and research programs to increase the combat effectiveness of commissioned officers of the naval service to enhance the security of the United States.

STEM: The Naval Postgraduate School’s interdisciplinary faculty and student expertise is harnessed to engage and inspire youth to explore STEM fields through a number of special programs. NPS faculty and students are vital and sought after members of local and national STEM efforts. The collective program supports academic and research projects of academic excellence, as well as NPS student thesis work.

EDUCATION PROGRAMS: NPS educational activities include resident astronauts and faculty visiting K-12 classes, inspiring students to consider a STEM career; middle and high school students exploring emergent unmanned and robotic systems technology at the annual “Robots in the Roses” event. Additionally, NPS faculty and students engage in local STEM efforts, including FIRST Robotics Competitions, California State University Monterey Bay Camp Sea Life, Monterey County Science and Engineering Fair and Monterey Peninsula College Marine Advanced Technology Education.

WORKFORCE PROGRAMS: NPS works closely with community scientists, educators and professionals to expand our STEM reach. We host robust STEM internship programs, including partnerships with several Hispanic Serving Institutions accessing our local underrepresented population. NPS interns are introduced to female scientists and military officers during “PhDs + Polka Dots.” The National Naval Officers Association and the Cyber Professional Association, student-run programs, work with local middle and high schools to offer free one-on-one tutoring and mentoring, student scholarships and other STEM outreach activities.


More than 80 high school and elementary kids participated in a mini “discovery day” at NPS' Spanagel Hall in Monterey, California. (Photo by NPS)
ABOUT: The Naval Research Laboratory (NRL) operates as the full-spectrum corporate laboratory for the Navy and Marine Corps – conducting broadly based, multidisciplinary programs of scientific research and advanced technological development. These programs are directed toward maritime applications of new and improved materials, techniques, equipment and systems, as well as ocean, atmospheric and space science and related technologies.

STEM: The goals of the STEM outreach program at NRL include:
- Inspiring students to pursue STEM careers
- Sharing the Navy mission with the local community
- Retaining the best and brightest local talent for our future workforce

EDUCATION PROGRAMS: NRL’s original community outreach program was established by a 1985 presidential directive tasking government organizations with supporting local schools. Currently, NRL volunteers promote K-12 community and educational outreach through a set of core STEM programs that include SeaPerch, FIRST Robotics and MATHCOUNTS. NRL also provides professional development to science and math teachers in school districts and systems that are geographically local to our laboratories and field sites. NRL scientists and engineers support other activities such as STEM fairs and student lectures.

WORKFORCE PROGRAMS: In addition to the federal Pathways Internships program, NRL participates in the Science and Engineering Apprenticeship Program (high school), Naval Research Enterprise Internship Program (college) and post-doctoral programs through the American Society for Engineering Education and National Research Council. Full-time personnel are also encouraged to participate in NRL’s long-term training programs to advance their knowledge in scientific areas while pursuing advanced degrees.


**Washington, D.C. (NRL-DC)**
*Henry Pickard, henry.pickard.ctr@nrl.navy.mil*
1 NRL-DC’s STEM outreach program primarily supports local schools in the Washington, D.C., metropolitan area under the DoD Partners in Education initiative.

**Naval Research Laboratory, Stennis Space Center (NRL-SSC)**
*Shannon Mensi, shannon.mensi@nrlssc.navy.mil*
2 NRL-SSC’s STEM partnerships and initiatives have yielded tremendous response within the Louisiana and Mississippi border areas.
ABOUT: The Office of Naval Research (ONR) provides the science and technology (S&T) necessary to maintain the Navy and Marine Corps’ technological advantage.

STEM: Ensuring access to skilled scientists and engineers, ONR’s STEM Grants Program funds projects that provide “game-changing” solutions and establish a diverse pipeline of U.S. citizens interested in uniformed or civilian Navy and Marine Corps careers.

The STEM Grants Program focuses on students at the high school, post-secondary and graduate levels, encouraging them to learn more about naval career opportunities. Other initiatives include:

- Helping to create innovative educational programs targeting naval science and engineering workforce needs
- Providing grants up to $600,000 over three years
- Partnering with educational institutions, nonprofits and businesses
- Cultivating and strengthening the engineering disciplines across all naval activities, and improving the naval technician pipeline
- Developing the capacity of the naval workforce to use big data and analytics to strengthen information science disciplines
- Supporting efforts to connect military veterans with naval STEM careers

EDUCATION PROGRAMS: ONR STEM initiatives encourage, promote and coordinate naval S&T. Through participation in expos and other outreach events, ONR highlights naval-relevant STEM content, skills and career paths to K-12 students. ONR also supports students at STEM fairs and competitions, providing hands-on activities and an introduction to naval applications for subject matter and skills taught in school.

WORKFORCE PROGRAMS: ONR’s workforce programs raise awareness of naval career opportunities, attract and nurture the future talent pool and foster the continued development of the current naval STEM workforce. Laboratory workforce initiatives provide students and faculty opportunities to participate in research programs at Department of Navy (DoN) labs through internships, fellowships and sabbatical leave programs. ONR STEM grants lead to innovative solutions that directly support the development and maintenance of a robust DoN STEM workforce.


Office of Naval Research (ONR)

Dr. Michael Simpson, ONR_STEM@navy.mil

ONR engages with the broad STEM community through its STEM Grants program and participation in numerous outreach and engagement efforts. ONR also hosts the Naval STEM Coordination Office.
ABOUT: As the undergraduate college of the naval service, United States Naval Academy prepares young men and women to become professional officers in the U.S. Navy and Marine Corps. After four years of undergraduate study and military training, midshipmen graduate with Bachelor of Science degrees and Reserve commissions.

STEM: The USNA STEM program provides opportunities to underrepresented populations and engages K-16 students and educators across the country and abroad. Emphasis is placed on sustainability of programs at a local level, empowering the educators through teacher training, leveraging resources and building community networks. Hundreds of USNA midshipmen participate each year in outreach activities that help prepare them for intellectual challenges by creating opportunities to lead in the classroom, strengthen creative problem solving skills, enhance innovative thinking and hone the ability to respond to spontaneous situations.

EDUCATION PROGRAMS: USNA STEM activities focus on Navy-relevant curriculum and teacher development. Formal and informal educators from across the country and abroad attend one-day, two-day and week-long workshops focusing on the use of project-based learning in engineering design, chemistry, physics, math, cyber and programming, biology, environmental science and many engineering disciplines. Additionally, thousands of students are reached directly each year via camps, mini-camps, engineering days, festivals and fairs supported by faculty and midshipmen utilizing Navy oriented activities based on real world applications.

WORKFORCE PROGRAMS: High-school and college students participate in a variety of paid and unpaid internships including ONR Science and Engineering Apprenticeship Program, Project Lead the Way and USNA/Pathways internships. Students are mentored by a faculty member in a science or engineering research and development area. Additionally, the USNA STEM Center acts as a resource available within USNA to help introduce midshipmen to the rewarding aspects of STEM and to encourage retention of STEM majors at USNA by engaging them in their own studies, often through project-based learning as well as in educational outreach to others. Teacher training workshops focus on workforce preparation of students in critical subject areas.


United States Naval Academy
Angela Moran, amoran@usna.edu
The U.S. Naval Academy has a rich history of providing impactful STEM opportunities to underrepresented K-16 populations.
NAVAL SUPPLY SYSTEMS COMMAND

ABOUT: The Naval Supply Systems Command (NAVSUP) delivers sustained global logistics and quality of life support to the Navy and joint warfighter. It manages supply chains for Navy aircraft, surface ships, submarines and their associated weapons systems. NAVSUP also provides centralized inventory management for the Navy’s non-nuclear ordnance stockpile, supports base and waterfront logistics and operations, coordinates material deliveries, contracts for supplies and services and offers material management and warehousing services. NAVSUP is responsible for many of the quality-of-life programs that touch the lives of Sailors and their families, including Navy Exchanges, Navy Lodges, the Navy Personal Property Program and the Navy Postal System. NAVSUP also administers the Navy Food Service Program, including the policies and procedures governing the daily operations of general messes afloat and ashore.

STEM: NAVSUP Weapon Systems Support (WSS) and Independence Seaport Museum have formed an alliance to guide high school students towards STEM-related occupations through their Educating Acquisition, Global Logistics and Engineering (EAGLE) program.

EAGLE is a four-year government-sponsored program for high school students designed to spark passion for STEM education, college majors and career fields. With the guidance of NAVSUP WSS and Independence Seaport Museum mentors, students complete three hands-on projects through the application of an intensive mathematics and logistics-based curriculum: a remotely-operated submersible, a wooden rowboat and a robot. With their finished projects, participants will compete in the Office of Naval Research (ONR)’s SeaPerch competition, compete against each other with their sailboats, and enter the FIRST Tech Challenge, which is partially sponsored by ONR. At the completion of this program, students will have access to a variety of scholarship opportunities through FIRST as well as through local colleges and universities. Additionally, EAGLE participants will be eligible to apply for co-ops within NAVSUP WSS and the Navy.

STEM CONTACT: Lt. Cmdr. Diana Dalphonse, diana.dalphonse@navy.mil


https://www.facebook.com/eaglestem
https://twitter.com/NAVSUPSYSCOM
https://www.youtube.com/user/NAVSUPHEADQUARTERS

CHIEF OF NAVAL PERSONNEL

ABOUT: The chief of naval personnel (CNP) is a three-star admiral responsible to the chief of naval operations for the Navy’s manpower readiness. Dual-titled, CNP also serves as deputy chief of naval operations (manpower, personnel, training education/N1) and oversees the recruiting, personnel management, training and development of all 325,000 Sailors.

STEM CONTACT: Carol Lynn Judge, carol.judge@navy.mil

FIND US ONLINE: https://navalstem.navylive.dodlive.mil/naval-stem-stakeholders/cnp/

https://www.facebook.com/NavyPersonnel-Command
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SNAPSHOTS: NAVAL STEM ACROSS THE NATION

MCSC: Middle-School Future Engineers design, build and program robots to compete in a double elimination SUMOBOT contest, facilitated by the Marine Corps Tactical Systems Support Activity (MCTSSA) Camp Pendleton CA. (Photo by Wil Williams)

BUMED: Capt. Brian Schnell reviews the chambers of a pig heart during a dissection lab. (Photo by HM2 Alejandro Agbay)

ONR: Rear Adm. Mat Winter, chief of naval research, chatted with young men while visiting SPAWAR Atlantic during National Week at the Labs. (Photo by Joseph Bullinger)

NRL: Two Navy STEM ambassadors learn hands-on activities that they can share with students at INFINITY Science Center and classrooms. (Photo by U.S. Navy)
SNAPSHOTS: NAVAL STEM ACROSS THE NATION

**NAVFAC:** NMCB3 Seabees taught local Girl Scout cadets the fundamentals of STEM on board Fleet Activities Yokosuka, Japan. (Photo by NAVFAC)

**SPAWAR:** Kids compete at a FIRST Lego League Robotics competition. (Photo by Joseph Bullinger)

**NAVFAC:** Students at the DoDEA high school in Guam, participated in a pumpkin drop experiment with civil engineer corps officer assigned to NAVFAC Marianas. (Photo by NAVFAC Marianas Public Affairs Office)

**MCSC:** Sometimes we learn by our failures! (Photo by Monique Randolph)

**MCSC:** Middle-School Future Engineers from five Camp Pendleton Schools shoot for distance in Water Rocket competition, facilitated by the Marine Corps Tactical Systems Support Activity (MCTSSA) Camp Pendleton California. (Photo by Wil Williams)
SNAPSHOTs: NAVAL STEM ACROSS THE NATION

USNA: Midshipman facilitates engineering design project during Girls Only STEM Day. (Photo by USNA STEM Center)

SPAWAR: Kids compete under the watchful eyes of SSC Atlantic computer scientist Jason Morrow. (Photo by Joseph Bullinger)

USNA: Midshipman facilitates engineering design project during Girls Only STEM Day. (Photo by USNA STEM Center)

SPAWAR: Visitors and employees disperse among the poster session representing technical subjects the interns participated in during their summer programs. (Photo by Norman Tancioco)

BUMED: Hospitalman Brandon Hawkins (far left) and Ensign Rochelle Bailey perform a cardiac screening on a newborn at Naval Hospital (NH) Jacksonville’s maternal infant unit as students from Darnell-Cookman School of the Medical Arts observe. The Darnell-Cookman students are participating in the hospital’s annual Science, Service, Medicine and Mentoring program—an intense five-day internship program where selected students participate in workshops, clinical rotations and job shadowing with NH Jacksonville clinicians. (U.S. Navy photo by Jacob Sippel, Naval Hospital Jacksonville Public Affairs)
The Naval STEM Coordination Office serves as the central coordination and information resource for Naval STEM efforts. Under the leadership of the chief of naval research, this office works with the naval research and development enterprise and other naval research and education institutions to leverage resources and maximize the impact of the Department of the Navy’s STEM investments.

These investments support a wide variety of STEM education and workforce programs, including: activities designed to spark younger students’ interest in STEM careers; in-depth, hands-on learning opportunities for middle and high school students; internships and research fellowships for older high school and post-secondary students; and professional development for STEM professionals and faculty.

Please visit http://navalstem.navylive.dodlive.mil for more information about Naval STEM or contact the Naval STEM Coordination Office at naval_STEM@navy.mil.