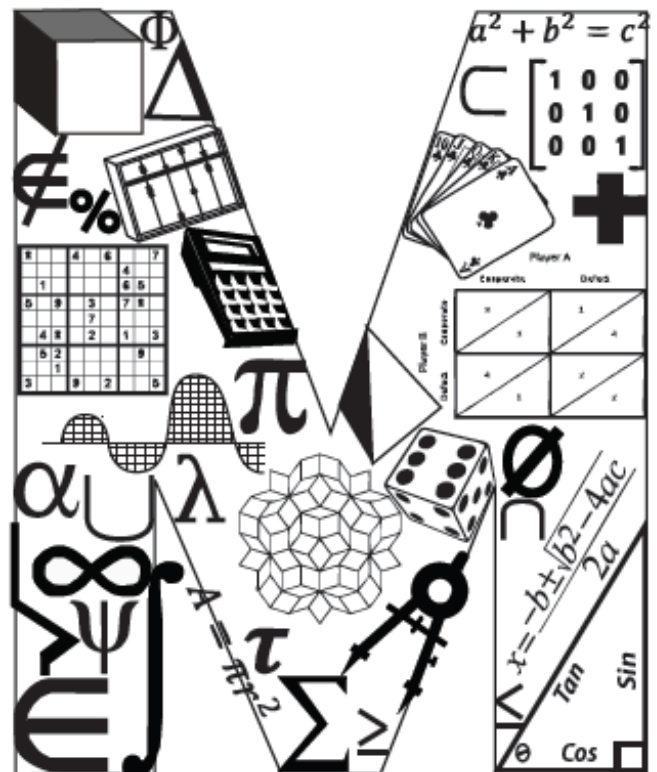
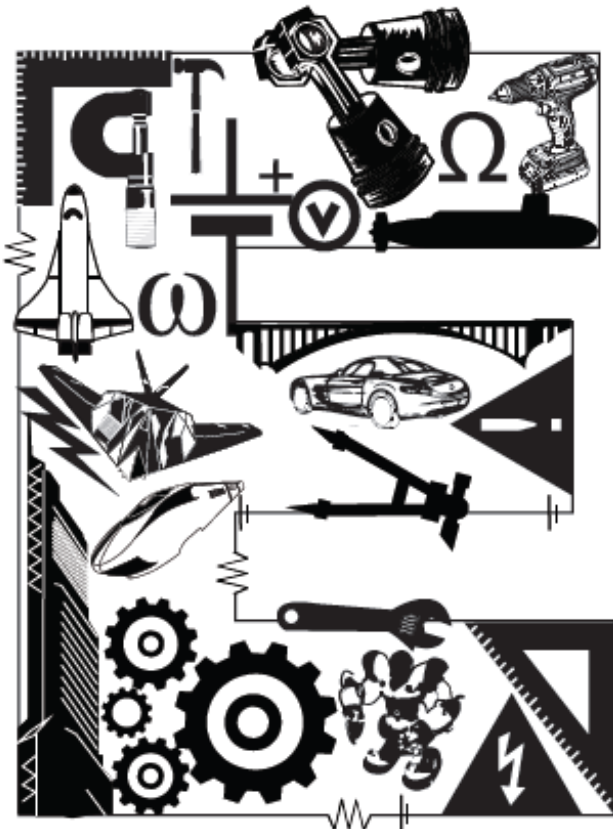
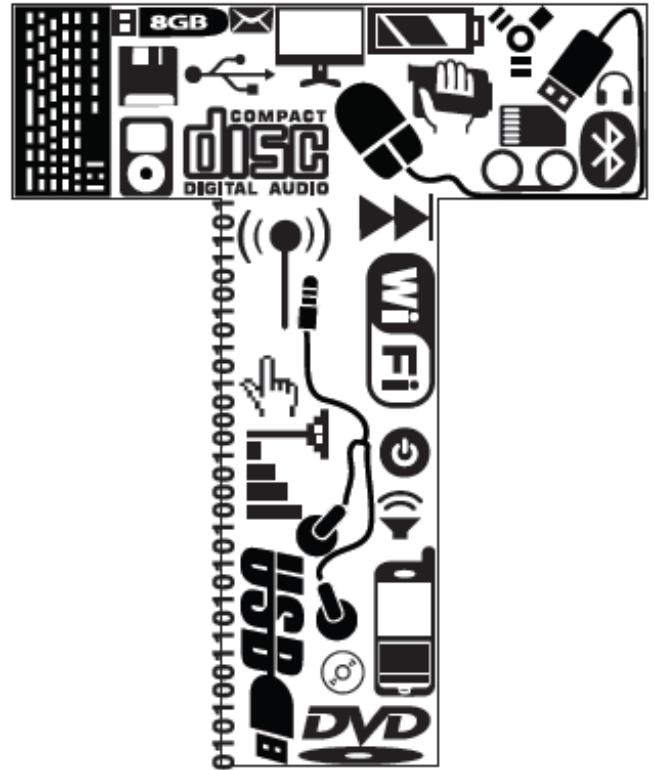


# United States Naval Academy



# STEM

At the United States Naval Academy

*Science \* Technology \* Engineering \* Mathematics*

*The USNA STEM office is focused on addressing an urgent national priority—persuading more young people to pursue careers in science, technology, engineering, and mathematics while engaging our own midshipmen in quality STEM*

*The Odgers Professorship was established in 2010 by a private testamentary gift to the US Naval Academy Foundation from the Carol and Ralph E. Odgers Family Trust.*

Looking ahead for fall...upcoming STEM events include the following

## **OCTOBER**

- 8th - *SeaPerch Teacher Training*
- 14th - *Ministem Camp*
- 15th - *Expanding Your Horizons*
- 27th - *SeaPerch Teacher Training*
- 28th - *Candidate Visit STEM Tours*

## **NOVEMBER**

- 12th - *ROV Build at the Patriots Technology Center*
- 18th - *Ministem Camp*
- 19th - *ROV Build at the Patriots Technology Center*

## **DECEMBER**

- 2nd - *Candidate Visit STEM Tours*
- 3rd - *Winter SeaPerch Trials and Competition*



# Ensign Outreach: Summer 2011

ENS Matt Roukema and ENS Jeremiah Derrick spent every Wednesday through July and August helping out with STEM Summer Camps at the Stanton Center and Tyler Heights Elementary School. They built SeaPerch with the kids at the Stanton Center in the mornings and assisted in Rocket Club at Tyler Heights in the afternoons.

On August 4<sup>th</sup> and 5<sup>th</sup>, the ensigns helped the kids launch their SeaPerch at local pools. The final launch event was attended by Josh Cohen, the Mayor of Annapolis.



Ready for a dive in the pool, ENS Derrick gets the crowds ready for SeaPerch Trials.



ENS Roukema builds underwater ROVs and rockets with the campers.

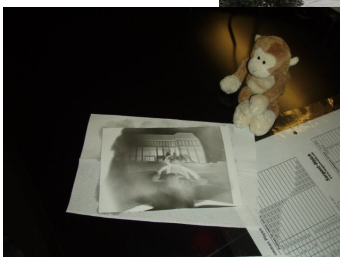




# S(TEM)E(DUCATOR)T(RAINING) SAIL at USNA SUMMER 2011



USNA and NDEP hosted two Stem Educator Training Workshops this July. Topics included fluids, mechanics, math, simulation and modeling, forensics chemistry, photography, electronics, materials science and engineering design. Middle school and high school teachers were nominated by their military lab or center affiliates and came from Florida, California, Ohio, Maryland, Oklahoma, New Jersey and Michigan. Attendees worked in small groups to accomplish goals, build systems, solve problems and complete experimentation. Particular emphasis was placed on successfully replicating curriculum in the classroom with limited expense. The USNA STEM Office and the NDEP K-12 hosted these STEM workshops to provide relevant and meaningful informal learning experiences that offered teachers the opportunity to discover, explore, test ideas and, most importantly, learn how science and technology impact real-world research and challenges.



Mitch was the subject of photos taken and developed by the teachers in chem. module.





# STEM MIDS REACTIVATE for Fall

STEM Mids prepped for the Candidate Visit Tours by reviewing the new tour posters which explain lab and research activities, equipment, and midshipmen design projects on the lab decks in Rickover, Maury, Michelson and Chauvenet.

The first tour was held 23 September and the next ones will be on 28 October and December this fall. Each tour includes about 250 candidates and their parents. Mids from Division 1 and 2 take visitors through the lab spaces to see faculty and mids working on research and projects. Posters provided by our faculty and ensigns highlight activities in each lab space.



STEM mids can also be part of the MGSP program. These mids earn academic credit for assisting with events.

# STEM MIDS ON TOUR



Some highlights from the September 23rd tour



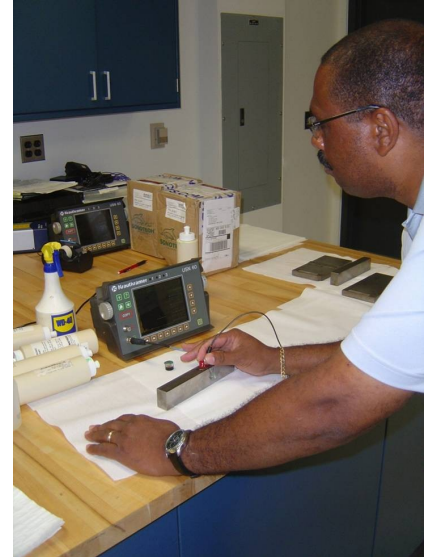
# Technicians Provide Stellar Support for STEM



Marcus Sydnor demonstrates a game controlled via eye movement to a group of STEM students.



Behind the scenes of the many USNA STEM Events are technical support personnel prepping samples, calibrating equipment, readying demonstrations, stocking supplies and much more to assure successful learning outcomes for the students.



Mike Spencer prepares samples prior to student arrival for a Non-Destructive Testing activity.

Steve Crutchley takes questions about nanostructures in the electron microscopy lab.

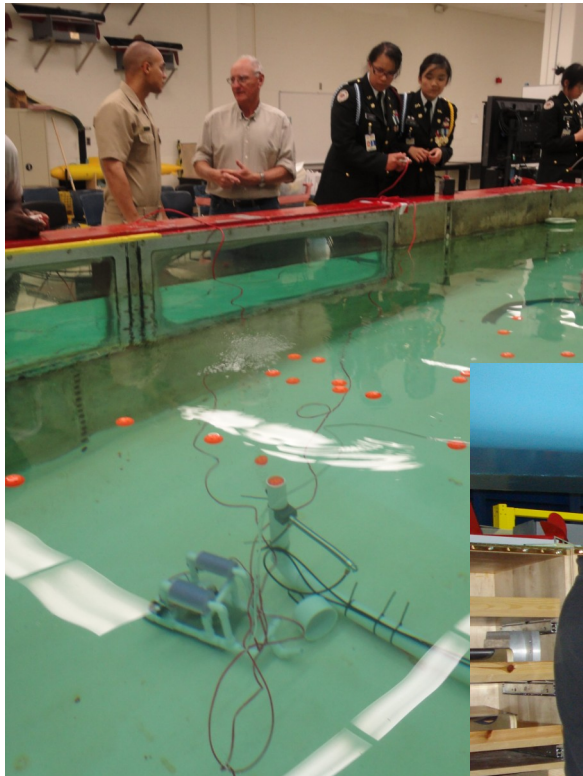


Fritz Woolford directs students on rocket design in the Aero Lab .



Facial recognition is a popular technology in the Biometrics Lab. Tech Bill Stanton demonstrates.





Don Bunker supports ROV mission development in the Hydro Lab.

Rusty Foard explains the dynamics of wind tunnel measurements in the Aero Lab.



The Project Support branch designs and fabricates many of the kits used in the STEM programs. The Shops are visited regularly during STEM tours and house extensive machining, welding, and fabrication equipment as well as wood and composites facilities.

USNA's Electric Car is a favorite point of interest on STEM tours. The Electrical Engineering techs keep it running and also support the STEM soldering, electronics and robotics activities.





# Math In A Box

The STEM Office is proud to announce the recent implementation of 'Math In A Box', a fun and interactive after school program for grade school students, developed by Dr. Beth Mutch from the Academy's Academic Center and STEM Office.

Each 'box' consists of different math-related activities to engage students in learning over numerous weeks. Activities include a variety of logic and strategy games that appeal to students. Students will be encouraged to complete each activity in order to receive their certificate of achievement in the program.

In addition, participating schools will be invited to attend 'Math Day' at the Naval Academy in the spring of 2012 where students will be rewarded for their achievement. Math in a Box will be offered to 4th-6th grade students in Prince George County Schools initially, with the idea of expanding the program to other local county schools next year.

## *Math In Box: 'Box' Contents*

Each premier edition of Math in a Box contains: Teacher's guide and handouts with logic problems, math teasers, and written activities, as well as the following strategy games.

- Gobblet
- Batik
- Pylos
- Quoridor
- Chess and Checkers
- Several versions of the 24 game
- Cups and Dice

Beth will be offering Teacher Training for Prince George County School teachers who are interested in implementing the program in their respective schools this fall.



*Coming Soon...*

## Expanding Your Horizons Hosted at USNA on October 15

Expanding Your Horizons (EYH) is a day long conference that was developed in order to encourage young women to pursue education and careers in the STEM fields.

This is the first year that USNA and the Office of Naval Research (ONR) have sponsored this event.

The day-long event will include hands-on activities in STEM fields. The participants will learn about various careers, such as aerospace engineering, systems engineering, medicine, physical sciences and naval intelligence. Students will be interacting with STEM faculty from USNA all day, as well as meeting other potential role models, including female officers from other commands at the career fair. Twenty or more midshipmen will also be participating by leading and facilitating workshops, acting as escorts and providing logistics support.



In the next edition...

- \*October and December Minitem Camp Highlights*
- \*Pictures and Perceptions - Expanding Your Horizons*
- \*Building with the Patriots at their Technology Center*