

***13th Annual Greater Philadelphia
SeaPerch Challenge
&
The Inaugural SeaGlide Competition

Kick Off***

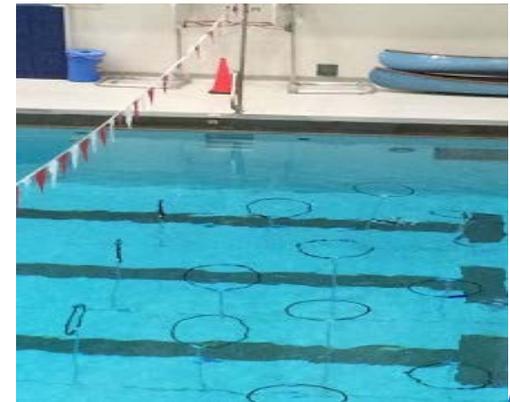
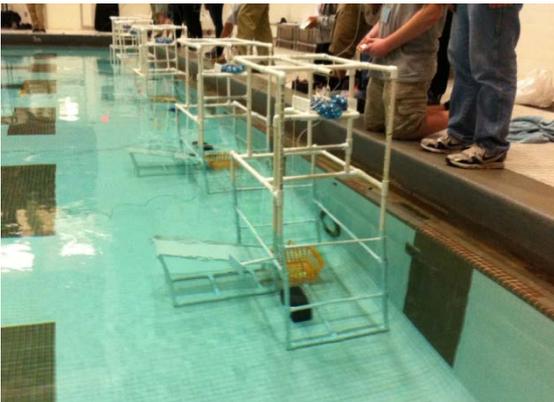


Dr. Robert Palma
La Salle University



What is the Sea Perch Challenge?

- SeaPerch is a Remotely Operated Vehicle (ROV) educational program
 - Consists of an educational tool kit that allows middle and high school students to construct and compete a simple ROV
 - Includes a curriculum-designed program that teaches students about basic marine design skills
 - Naval Architecture
 - Marine Engineering
 - Ocean Engineering
 - Objective is to develop the next generation of naval architects, marine engineers, naval engineers and ocean engineers



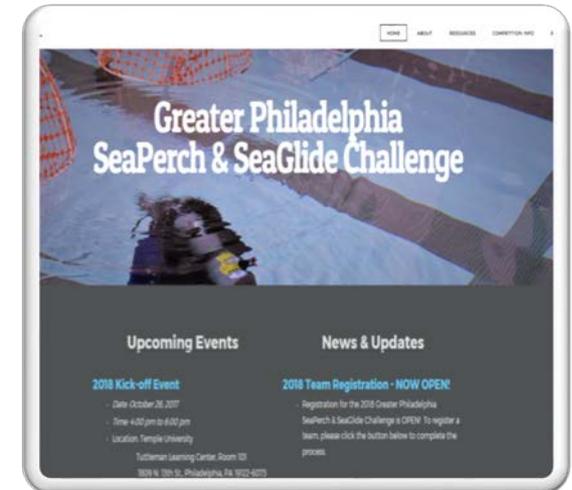
- Program goal is to sustain a long-term effort to address the problem of decreasing college enrollments in engineering and technical programs
 - Increase student interest in STEM related studies through hands-on activities at the middle and high school level
 - Provides awareness of Naval Engineering and Naval Architecture as career fields
 - Helps students prepare for college level work
 - Interface with industry, academia and government engineers
 - Work in collaborative environment
 - Participate in a realistic business
 - Experience a major university campus
 - Participate in a realistic technical scenario

Create a Fun, Challenging and Educational experience for students

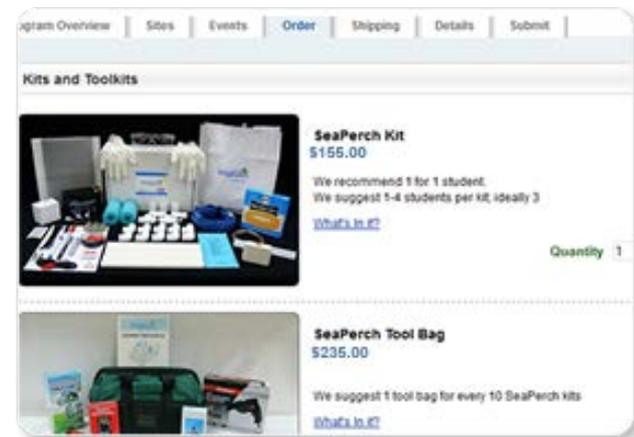
- Online construction manual, parts lists, lesson plans, and other resources via web and social media sites
- Access to Learning Modules and Videos
 - Hydrodynamics
 - Propulsion Systems
 - Control Systems
 - Stability
 - ROVs in the navy
- Construction training for new advisors and mentors
- A naval engineer mentor to visit your team and provide support
- 26 trophies; 4 cash awards

- Program Changes
 - New ASNE-DV SeaPerch Program Chair
 - Steven Krider, NSWCPD Engineer
 - New Web Address | www.phillynavalstem.com
 - No Registration Fee
 - Two Day Teacher Training
 - Teachers can receive ACT 48 credit!
- New Themed Mission
 - 2018 Nuclear Torpedo Recovery Mission
- Reduced Number of SeaPerch High School Teams
- Inaugural SeaGlide Challenge
 - High Schools
 - Teams may participate in both SeaPerch and SeaGlide
 - On competition day separate team members and coaches are required (no crossovers).
 - No accommodations for schedule will be made

www.phillynavalstem.com



- Kits will be available, 1 per team, for first-year teams and for all teams attending both days of the training.
- Kits are available for purchase direct from www.seaperch.org and www.seaglide.net.
- A limited number of kits will be available by email request after the training event.



- Temple University is hosting a two day training event
- November 17-18, 2017 @ 9:00 am – 4:00 pm
 - Day 1: Learning Models
 - Day 2: Build Training
- Act 48 credit available!!
- Additional details forthcoming



48
ACT
GET THE CREDIT

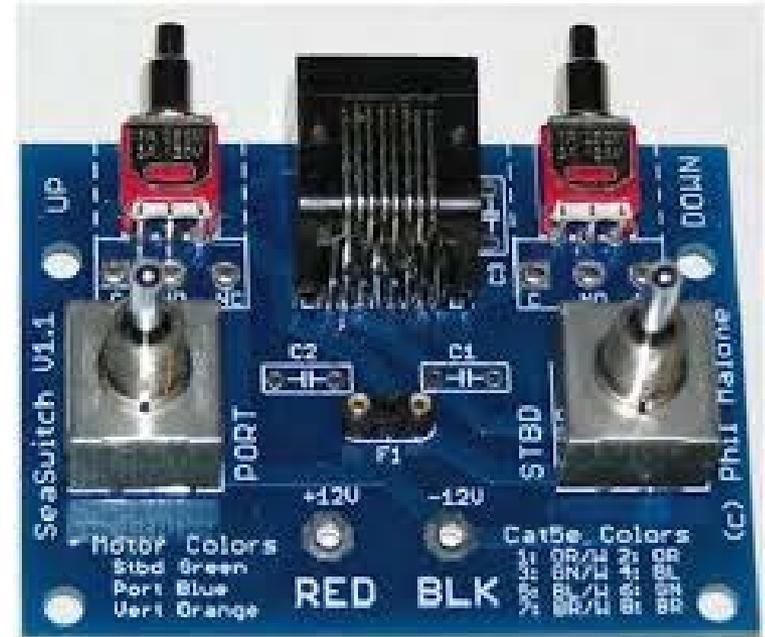


- Check www.phillynavalstem.com frequently for updates and information
- Familiarize yourself with all posted competition rules
- Design, Build and Test SeaPerch (November thru February)
- Competition Challenge practice (Critical for vehicle performance success)
- Oral Power Point Presentation (competition day)
- Vehicle Performance round 1 – obstacle course
- Vehicle Performance round 2 – Nuclear Torpedo Recovery
- Team Spirit and Sportsmanship
- Utilize engineering learning modules and other resources
- Other resources on national site www.seaperch.org

Primary source for all Philadelphia Challenge Information and Questions.

PhillyNavalSTEM.com

- The time to teach the engineering principles involved
 - Use the learning modules and the online resources as guidance, as necessary
 - Use the SeaPerch.org construction manual
- The time to practice
 - Practice in a pool or large tank is essential to achieving successful vehicle performance for competition
- The time to fulfill competition requirements
 - Develop your Design Notebook
 - Work on the Oral Presentation
- The time to work with mentors



- 3D printing of SeaPerch parts to replace or modify minor parts is permissible under the following guidelines:
 - Shall provide technical advantage or innovation
 - Rationale documented in design notebook and presentation
 - Value of 3D part is based upon the value of part it replaces
 - Value of 3D printed parts shall not exceed \$10
 - Included in \$20 design improvement budget limit
 - New 3D printed parts (vs replacement or modified) are only permissible for object manipulation or recovery
 - Part must be used to make physical contact with the mission object



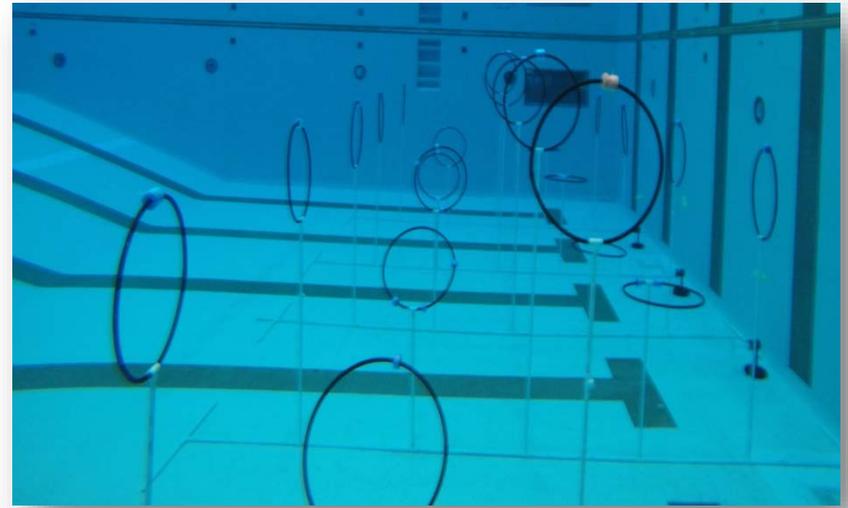
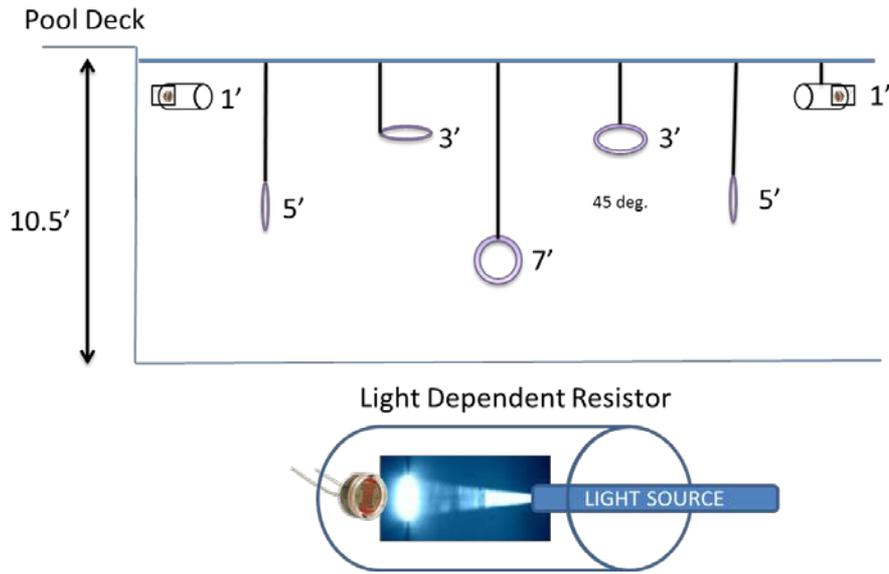
- Acts as your liaison to the Sea Perch Challenge Support Network
 - Answer your questions concerning the competition or craft design
 - Feed back requests for rulings on satisfying competition requirements
- Share career experiences
 - their job as an engineer
 - math and science education
 - how science and math are used in engineering
- Provide help with kit construction
- Assist with the build & troubleshooting
- Provide guidance on competition requirements
- Assist students with troubleshooting
 - Teacher must be present whenever mentors are with teams
 - All communications with mentor must be via the teacher

- Teams must create and prepare a 10 minute Power Point Presentation followed by a 5 minute Q&A
 - Team is a simulated company
 - Seeking navy contract award for their SeaPerch design
 - Focus on Naval Engineering
 - Highlight innovation and creative thinking
 - Time management will affect scoring
 - SeaPerch must be present at presentation
 - All team members must participate in the oral presentation



30% to 50% of presentation score is based upon
“Innovative Product Design”

- Craft Performance Round 1:
Complete the Obstacle Course
 - Maneuver through a submerged obstacle course of pre-arranged hoops
 - Activate light sensors at midway and final point
 - Course setup same for middle and high school teams





Nuclear Torpedo Recovery



- The U.S. has received intelligence that a next generation nuclear torpedo has been lost by an adversary. The U.S. Navy has been tasked to recover the torpedo buried in the sea floor. The Navy is searching for the best company to complete the mission, this is know as Source Selection. The Navy has developed a program to evaluate each company’s SeaPerch (ROV) based on performance in a simulated mission. The company that performs best will secure a navy contract.
- A underwater glider will used to locate the approximate torpedo. Once the approximate location has been identified, an ROV will be deployed to recover the torpedo. After tagging the torpedo with a locator device an Underwater Recover System (URS) will be deployed to free the torpedo from the seabed and lift it to the surface. In a series of, unfortunate and real world events, the URS was damaged requires repair. Once the URS is repaired the ROV will be used to activate the lift feature of the URS. Scientist speculate that the torpedo’s integrity has degraded allowing seawater intrusion. As a result, an internal reaction is producing a continuous thermal event. The nuclear material must be removed to render the torpedo safe.



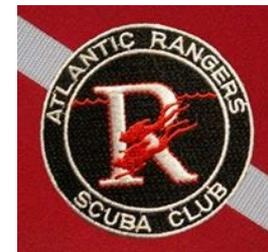
- Objectives:
 - Tag Torpedo with locator device
 - Clear debris and repair Underwater Recover System (URS)
 - Remove blockage from dredge URS
 - Repair three (3) components of the URS
 - Activate URS lifting system to raise torpedo
 - Remove nose cone to gain access to nuclear material
 - Remove nuclear material and place in a containment box.
 - Perform final task to destroy the URS



- The experience is about more than winning
- Teams sit together in bleachers
- Use flags, signs, mascots, cheers, etc. to show your team spirit
- **NO DRUMS, FOG HORNS OR SHAKER BEADS**



- Middle and high schools team trophies awarded for 1st, 2nd, and 3rd place finishes
 - Vehicle performance
 - Oral Presentation
 - Design Notebook
 - Team Spirit
- Overall Championship trophy awarded to (1) middle and (1) high school team based upon final composite scores
- Four (4) Cash Awards
 - \$100 Contract Award to best high and middle school design (based upon innovative design)
 - \$100 cash “Engineering Process Awards”
- “Against All Odds Award” presented by the Atlantic Rangers
 - \$100 cash award



- The Greater Philadelphia Regional High School and Middle School teams awarded 1st and 2nd Place in Pool Performance will be invited to move onto the Inaugural International SeaPerch Challenge .
- Location: New England area
- Tentative Dates: June 1-3, 2018
- Teams may only compete in ONE Regional qualifying competition
- Up to 100 teams will participate

For more info visit:
seaperch.org



The screenshot shows the SeaPerch website homepage. At the top is the logo and navigation links: About, Events, Media, Resources, Order Kits & Parts, W-9 Form, Sign In | Join. The main heading is "FUN UNDERWATER ROBOTICS". Below this is a description: "SeaPerch is an innovative underwater robotics program that equips teachers and students with the resources they need to build an underwater Remotely Operated Vehicle (ROV) in an in-school or out-of-school setting." There are two buttons: "Order Kits and Parts" and "Apply for Kit Grant".

Below the description are three colored boxes representing the program's pillars:

- Teach** (green box): Resources using SeaPerch to help you "TEACH" STEM.
- Build** (orange box): Resources to help you "BUILD" SeaPerch.
- Become** (blue box): Resources to show you what you can "BECOME" after SeaPerch.

At the bottom, there is a section for the "2018 International SeaPerch Challenge" with a photo of a pool event. A testimonial from Patricia G. reads: "I have been an elementary and middle school teacher for 15 years. This is the most empowering program that demonstrates to girls that STEM isn't for boys only. ~ Patricia G."

- Winners invited to participate in the American Society of Naval Engineers bi-annual symposia
- SeaPerch Winners
 - Contract
 - Engineering Process
- SeaGlide Winners
 - Top 2 Overall
- Teams are recognized for accomplishments by the Keynote speaker
- Interact with 500 scientists and engineers on exhibit floor
- Other special events will be planned



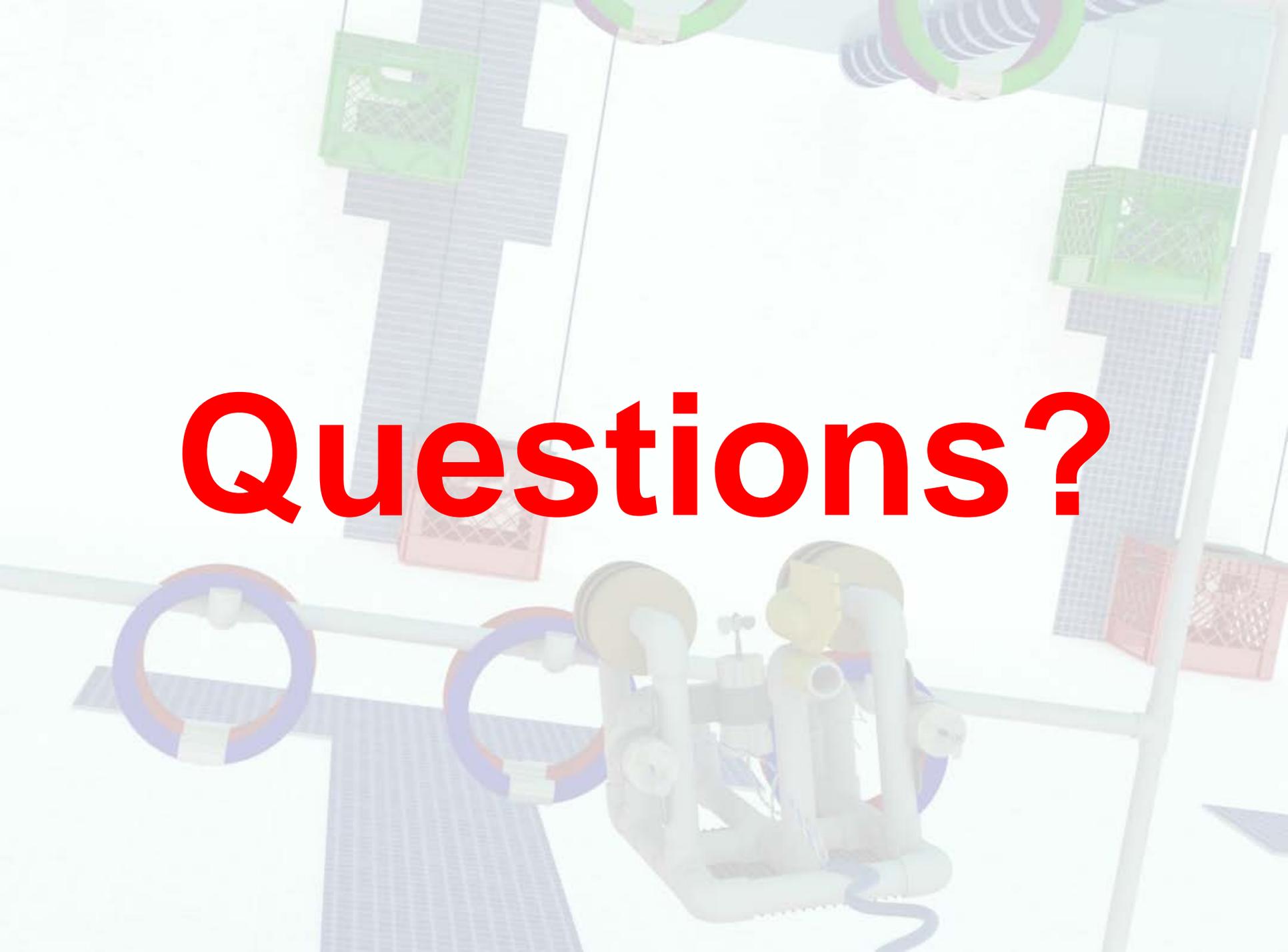
Teacher Training 17 & 18 November

ACT 48 Credit available

Tentative Competition Dates

9th and 10th March

PhillyNavalStem.com

A 3D rendered scene of a child's play area. The scene includes a large blue cross-shaped structure with a green basket hanging from it, a red basket hanging from a vertical pole, and a complex play structure with a yellow figure and a blue ring. The background is a plain white wall.

Questions?