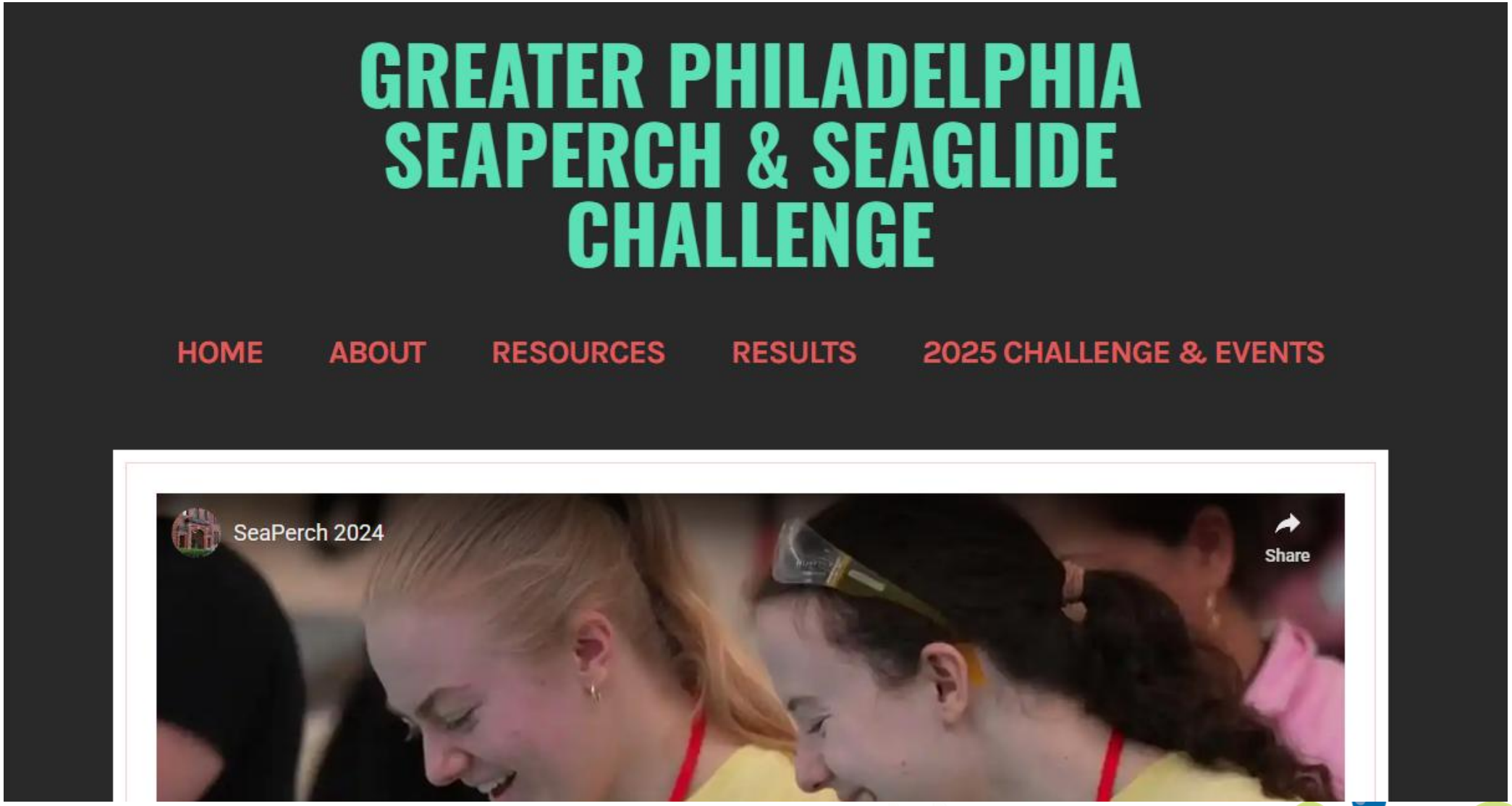
2026 Greater Philadelphia SeaPerch & SeaGlide Challenge Kick Off

December 3, 2025

Program Goals

- Program goal is to sustain a long-term effort to address the need for 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
  - Provide awareness of Naval Engineering and Naval Architecture as career fields
  - Help 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


GREATER PHILADELPHIA SEAPERCH & SEAGLIDE CHALLENGE
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ABOUT
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RESULTS
2025 CHALLENGE & EVENTS
SeaPerch 2024
Share

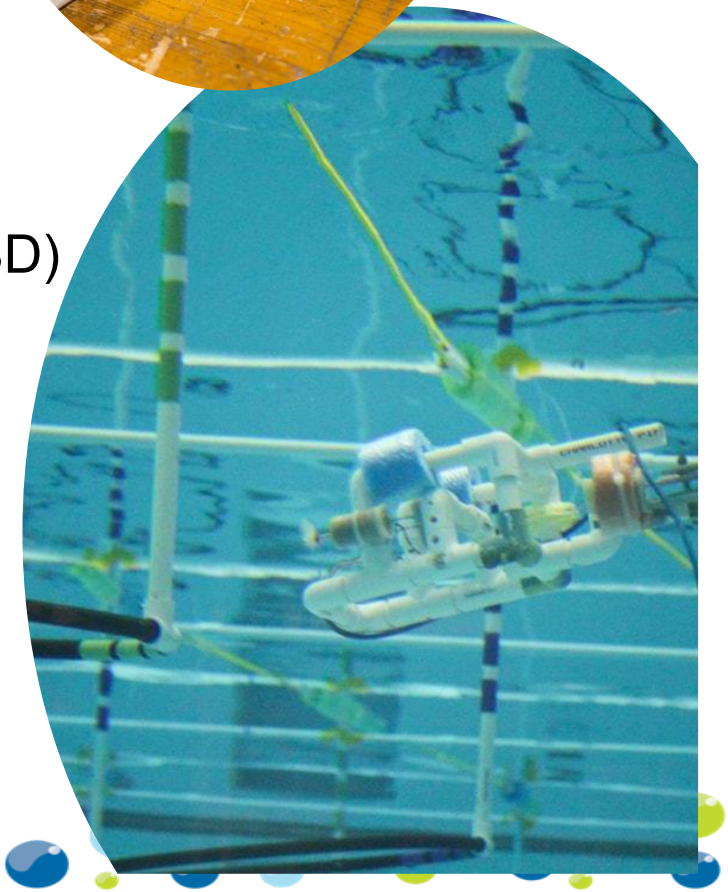
Events

- The Greater Philadelphia SeaPerch and SeaGlide Challenge will be held:

  March 27
  Kroc Center
  4200 Wissahickon Ave
  Philadelphia, PA

- Tentative event schedule:
  - Morning: Middle School SeaPerch
  - Afternoon: High School SeaPerch & SeaGlide
- One team per school / community organization
  - You may want to have multiple students working across multiple teams. We recommend having an internal design competition or building identical robots to do different parts of the mission (SeaPerch) or splitting up responsibilities across multiple technical challenges (SeaGlide).
  - A single organization may have a SeaPerch team and a SeaGlide team, but identical students should not work across multiple programs as that creates scheduling conflicts on event day.
    (Example: Your student may need to be at 2 places at once.) Compliance
- Event Day
  - Each team must complete compliance upon arriving prior to entering the pool deck area
    Our program may be delayed for teams struggling to complete compliance, this is your #1 priority when you arrive.
  - A triage station will be available near the pool deck for teams to get hands-on with meeting compliance.

SeaPerch at a Glance



- 2 Grade Levels (MS & HS)
- 2 Classes (Captain's & Admiral's Class)
  - Captain's ~ Stock Build
  - Admiral's ~ Open Build
- 5 Program Components
  - Presentation (virtual, live, scheduled TBD)
  - Technical Design Report (virtual, asynchronous, deadline TBD)
  - Obstacle Course (in-person, live)
  - Mission Course (in-person, live)
- **Educator Training?**
  - **Would office hours or a troubleshooting day work better?**

SeaGlide at a Glance

- 1 Grade Level (Open to MS & HS)
- 7 Program Components
  - Pool Performance (in-person, live)
  - Upgrades (hybrid, live)
  - Bug Hunt (in-person, live, day-of-event)
  - Circuitry & Coding Challenge (in-person, live, day-of-event)
  - Presentation (virtual, live, scheduled TBD, submit file one day before competition)
    - Slide Presentation
    - Commercial
  - Commercial (virtual, submit file one day before presentation)
  - White Paper (virtual, deadline Sunday before competition)
- **Build Training?**
- **Programming Training?**
  - **Would office hours or a troubleshooting day work better?**

Role of the Mentor

- During registration you will be asked if you would like mentor support. we cannot guarantee mentor support, but we do what we can to secure it.
- Share career experiences
  - their job as an engineer or scientist
  - 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

seaglide

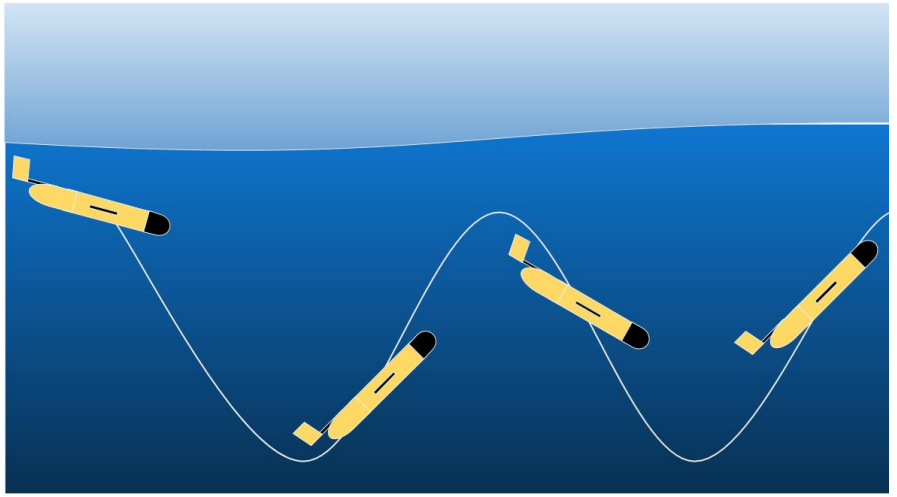
NAVSEA WARFARE CENTERS PHILADELPHIA

TEMPLE UNIVERSITY College of Science and Technology

NSWCPD STEM OUTREACH

What is a SeaGlide?

- A SeaGlide is an autonomous, miniature underwater glider which moves by variable-buoyancy propulsion. A buoyancy engine takes in or expels water, causing it to dive or rise. At the same time it shifts its center of gravity, changing its pitch. This causes the wings to provide lift, and thus propulsion.
- SeaGlide is inspired by full scale underwater gliders which require very little energy and can be fully or partially autonomous, allowing them to deploy for months at a time to collect valuable data about the world's oceans.

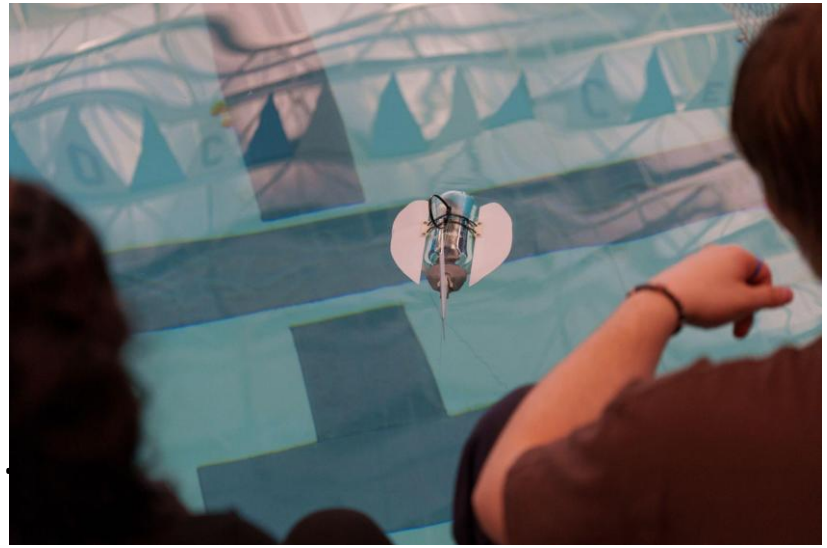


In the news…

- On October 10, 2025, the Redwing glider set out to circumnavigate the world. It is expected to take 5 years.
- Redwing will primarily operate using a buoyancy engine, but it is equipped with a dual-thruster system to help push it through strong currents when necessary.
- Redwing will collect continuous data on salinity, depth, and temperature, building what scientists describe as a “three-dimensional view of the ocean.”

What is the SeaGlide Challenge?

- The SeaGlide Challenge is the culmination of months of research, building and testing. It involves writing a white paper, giving a presentation, and demonstrating the vehicle's performance.
- SeaGlide consists of an educational tool kit that centers on a curriculum-designed program that teaches students about the basics of
  - Naval architecture
  - Marine engineering
  - Computer programming
  - Electrical circuits and microcontrollers
- SeaGlide is an open platform that allows design modifications to incorporate sensor readings, increased maneuverability, and more. *Incorporating modifications beyond what is required, along with research and testing, should be the goal of every team and is key to doing well in the competition.*



Technical and Teaching Resources

seaglide.org

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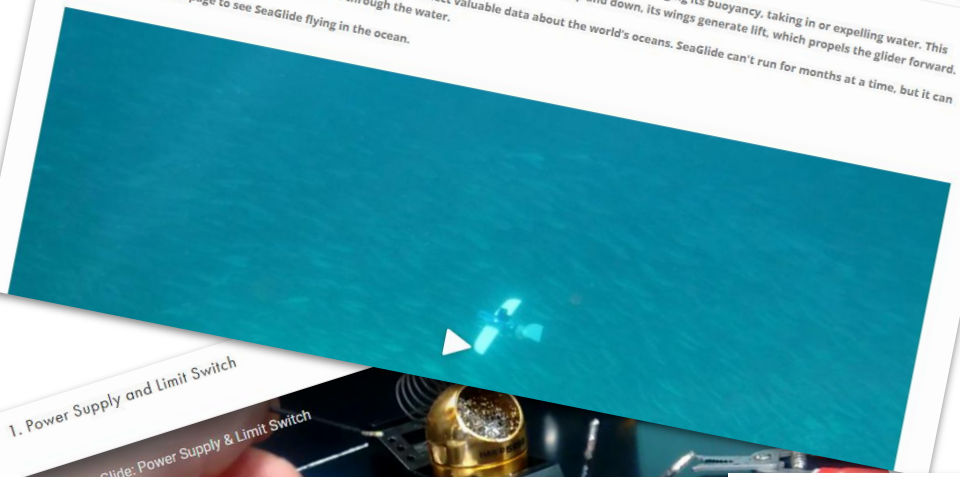
HOME ABOUT BUILD INSTRUCTIONS STUDENT RESOURCES FORUM ORDER A KIT FAQ

SeaGlide is a miniature underwater glider designed to be built by high school students. It moves by changing its buoyancy, taking in or expelling water. This change in buoyancy causes the glider to rise and sink in the water. As the glider travels up and down, its wings generate lift, which propels the glider forward.

Full-scale underwater gliders deploy for months at a time to collect valuable data about the world's oceans. SeaGlide can't run for months at a time, but it can collect temperature and pressure data as it flies through the water.

Check out our Vimeo page to see SeaGlide flying in the ocean.



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HOME ABOUT BUILD INSTRUCTIONS STUDENT RESOURCES FORUM ORDER A KIT FAQ

SEAGLIDE BUILD INSTRUCTIONS

Working through the following steps will get your glider from its box into a pool in no time!

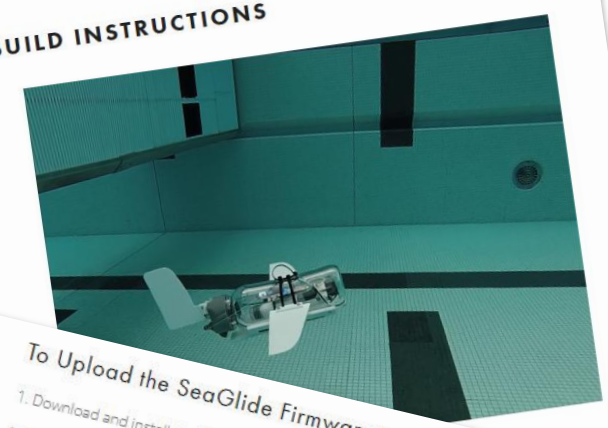
Before you begin, read through the SeaGlide **Introduction**.

You can also take a look at the **Build Videos (OUTDATED)**, which walk through the technical parts of the SeaGlide build. These videos are based on the original SeaGlide kit, but may still be helpful.

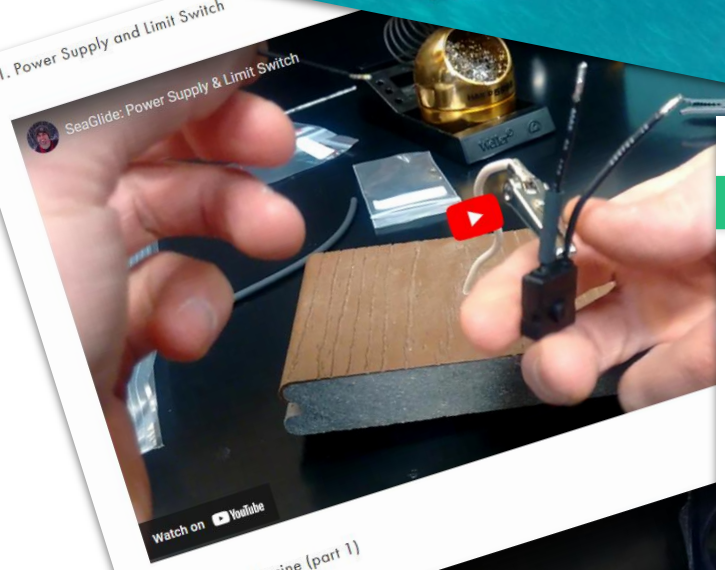
Build instructions —

For v2.1 Kits

SeaGlide Build Manual v2.1 (May 19, 2024 update) - Now in a single PDF



1. Power Supply and Limit Switch



2. Buoyancy Engine (part 1)

Log in to Box to save all files you view in your Recents and return to them at any time.

NAME

- Reference Materials
- Code
- 0. Arduino Intro.pdf
- 1. LEDs, Resistors, & Buttons.pdf
- 3. Servos, Infared, & RGB.pdf
- 2. Sensors, Serial, & Methods.pdf

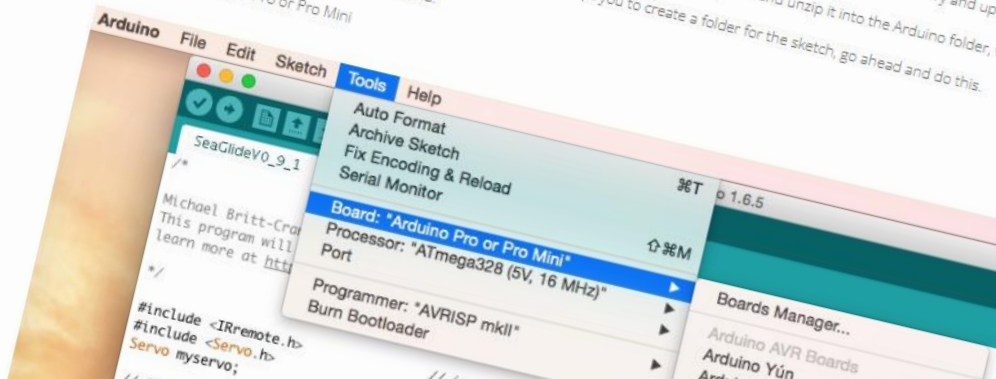
To Upload the SeaGlide Firmware to Your Arduino Board Follow These Steps

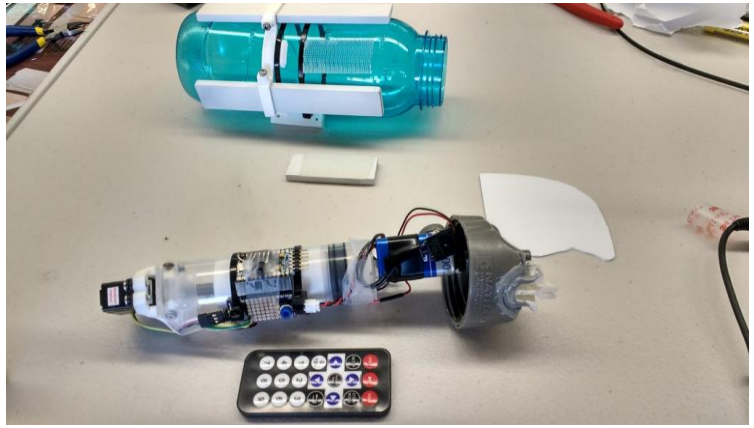
1. Download and install the **Arduino Integrated Development Environment** (IDE)
2. Plug your FTDI board (**it looks like this**) into your computer and wait for your computer to automatically download the correct driver f... can manually download **FTDI driver**. (You may need to restart your computer after doing this)
3. Download the SeaGlide firmware:

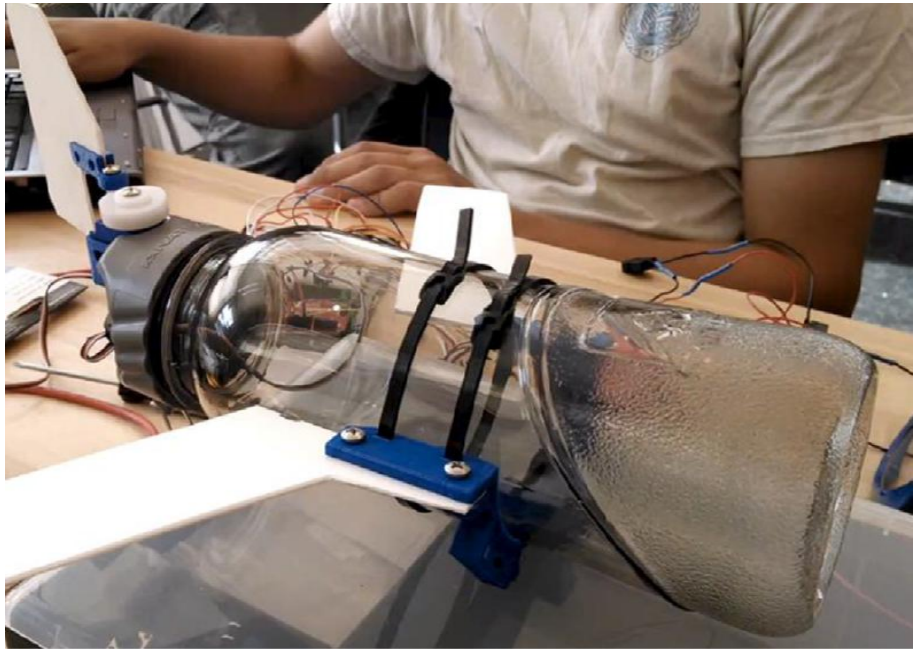
   Setting up the IR Remote to control the glider requires an extra step, because it requires using a separate Arduino Library. To get the... glider, **we will first try running the buoyancy engine without the IR Remote**. After that, we will add the IRremote library and up...

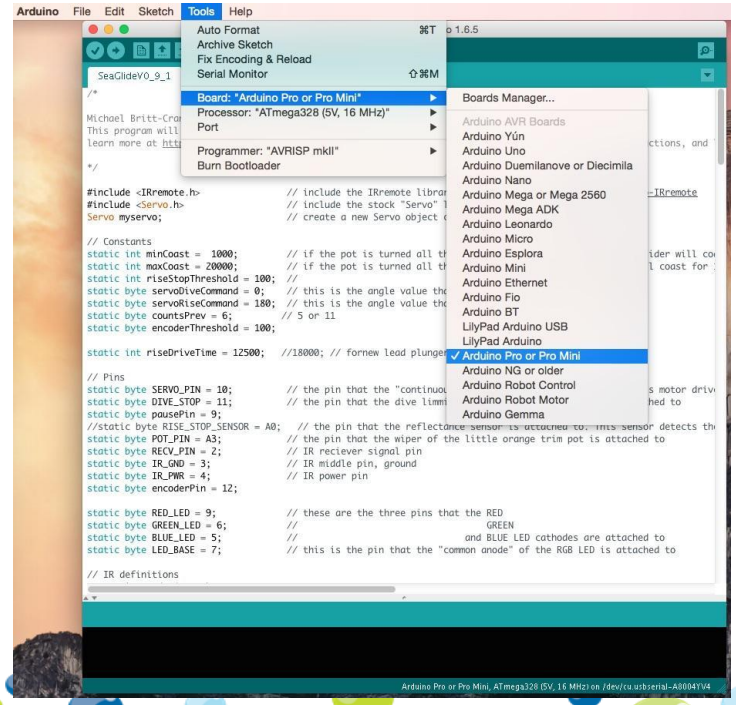
   Save the SeaGlide code that does not use the IR Remote **SeaGlideV0_9noIR.ino** to your computer and unzip it into the Arduino folder...
4. Open the "SeaGlideV0_9noIR.ino" file in the Arduino IDE. Arduino might prompt you to create a folder for the sketch, go ahead and do this.
5. Select the Arduino pro mini board from the Tools menu:

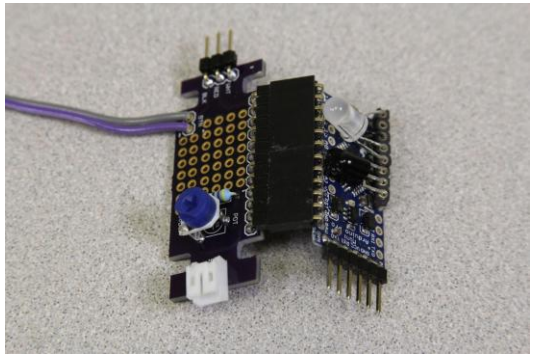
   Tools > Board > Arduino Pro or Pro Mini








Arduino File Edit Sketch Tools Help
Auto Format ⌘T
Archive Sketch
Fix Encoding & Reload
Serial Monitor ⇧⌘M
Board: "Arduino Pro or Pro Mini"
Processor: "ATmega328 (5V, 16 MHz)"
Port
Programmer: "AVRISP mkII"
Burn Bootloader
Boards Manager...
Arduino AVR Boards
Arduino Yún
Arduino Uno
Arduino Duemilanove or Diecimila
Arduino Nano
Arduino Mega or Mega 2560
Arduino Mega ADK
Arduino Leonardo
Arduino Micro
Arduino Esplora
Arduino Mini
Arduino Ethernet
Arduino Fio
Arduino BT
LilyPad Arduino USB
LilyPad Arduino
✓ Arduino Pro or Pro Mini
Arduino NG or older
Arduino Robot Control
Arduino Robot Motor
Arduino Gemma
SeaGlideV0_9_1
#include <IRremote.h>
#include <Servo.h>
Servo myservo;
// Constants
// Pins
// IR definitions
Arduino Pro or Pro Mini, ATmega328 (5V, 16 MHz) on /dev/cu.usbserial-A8004YV4



SeaGlide Challenge Requirements

Technical Upgrades: The SeaGlide build will focus on four types of technical upgrades where students will demonstrate the engineering design process. All four will follow the same rubric and should be part of the white paper and presentation.

- Principal Upgrade: a prompted upgrade that will change annually and may involve housing, circuitry, and coding. This year's Principal Upgrade is to incorporate a sensor for measuring and recording depth of the SeaGlide vessel. The depth measurements should be measured for a set length of time at a set interval, to be selected by the team. For example, depth readings could be measured for a set number of dive-dwell-rise cycles. The values reported should be the root mean square (RMS) value. Both the measurement duration and the starting and stopping time should be easily configurable through code adjustments.
- Implemented Upgrades: These are unprompted technical upgrades that students design and implement on their SeaGlide vehicles.
- Future Upgrades: These are unprompted technical upgrades that students have begun to develop, but have not yet implemented in their SeaGlide vehicles.
- Rudder Upgrade: upgrade for autonomous rudder control.

SeaGlide Challenge Requirements

WHITE PAPER: Teams will write a paper that documents their engineering design process for their technical upgrades (Implemented Upgrades, Future Upgrades, Principal Upgrade, and Rudder Upgrade).

[Virtual – Submitted the Sunday before the competition]

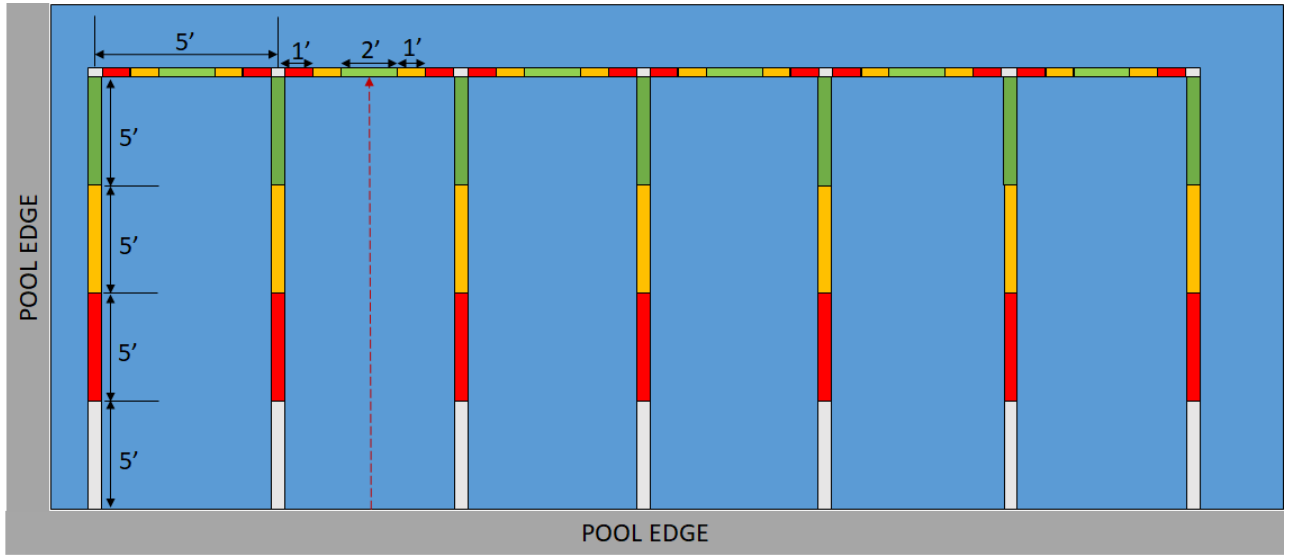
PRESENTATION: Teams will develop a company and present a commercial and slide presentation for their SeaGlide. Both files are submitted one day before the presentation. The commercial will be aired live before the slide presentation. We encourage teams to be inventive with the new digital environment we are operating in and produce something fun for the SeaGlide community. The slideshow presentation should be between 6 and 8 minutes and will be followed by a Q & A. If a school is unable to demonstrate an upgrade (such as by not having access to a pool), they may demonstrate it to a judge in the pool for credit.
[Virtual – Conducted live prior to Event Day (Date TBA)]

VEHICLE PERFORMANCE: Teams will compete in-pool with their SeaGlide vehicles .
[In-person on Event Day]

- Straight-line race

Vehicle Performance

- SeaGlide Overview and Rules document contains clarifications and rubrics.
- Vehicle Performance
  - Unlimited position resets (elapsed time does not reset)
  - Point award system
    - Time to reach each checkpoint, relative to best competition time
    - Accuracy when reaching last checkpoint



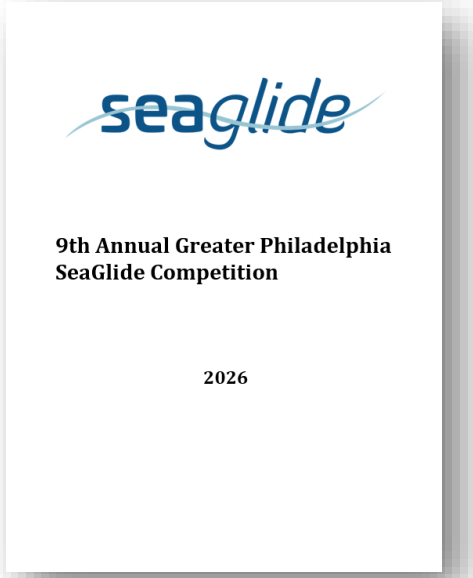
SeaGlide Challenge Requirements

CIRCUITRY & CODING: Three-person teams of students will be presented with a variety of circuitry and coding tasks using the SparkFun Inventor's Kit. Students must configure the circuits and write the code for as many tasks as they can. Each team must provide its own computer. This session may be held concurrently with the Bug Hunt Challenge, necessitating different team members to attend each session separately.
[In-person on Event Day]

BUG HUNT: Three-person teams of students will be presented with a "bugged" Arduino circuit via TinkerCAD. Students will act as in-service engineers and find, document, and fix as many physical misconfigurations and code errors as they can. Each team must provide its own computer. This session may be held concurrently with the Circuitry & Coding Challenge, necessitating different team members to attend each session separately.
[In-person on Event Day]

Read, read, read

Remember to read the GPSSC SeaGlide Overview and Rules Document, including the Competition Section!

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TEACH • BUILD • BECOME


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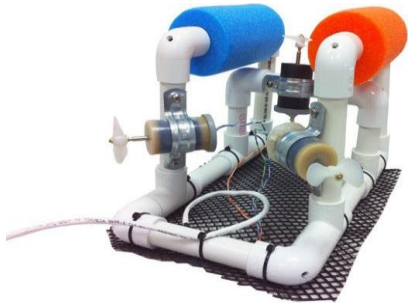
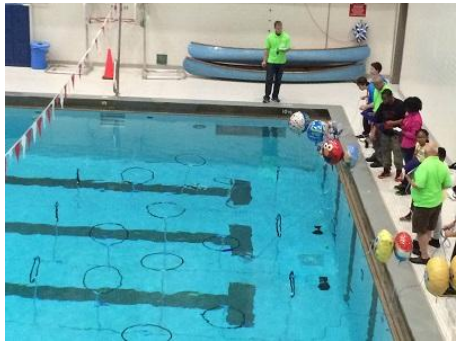
NSWCPD
STEM
OUTREACH

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 a simple ROV
  - Includes a curriculum-designed program that teaches students about basic marine design skills
    - Naval Architecture
    - Marine Engineering
    - Ocean Engineering

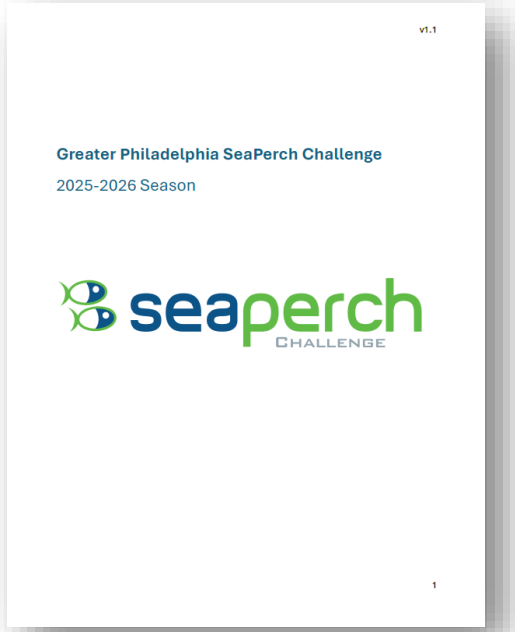




  - Objective is to develop the next generation of naval architects, marine engineers, naval engineers, and ocean engineers

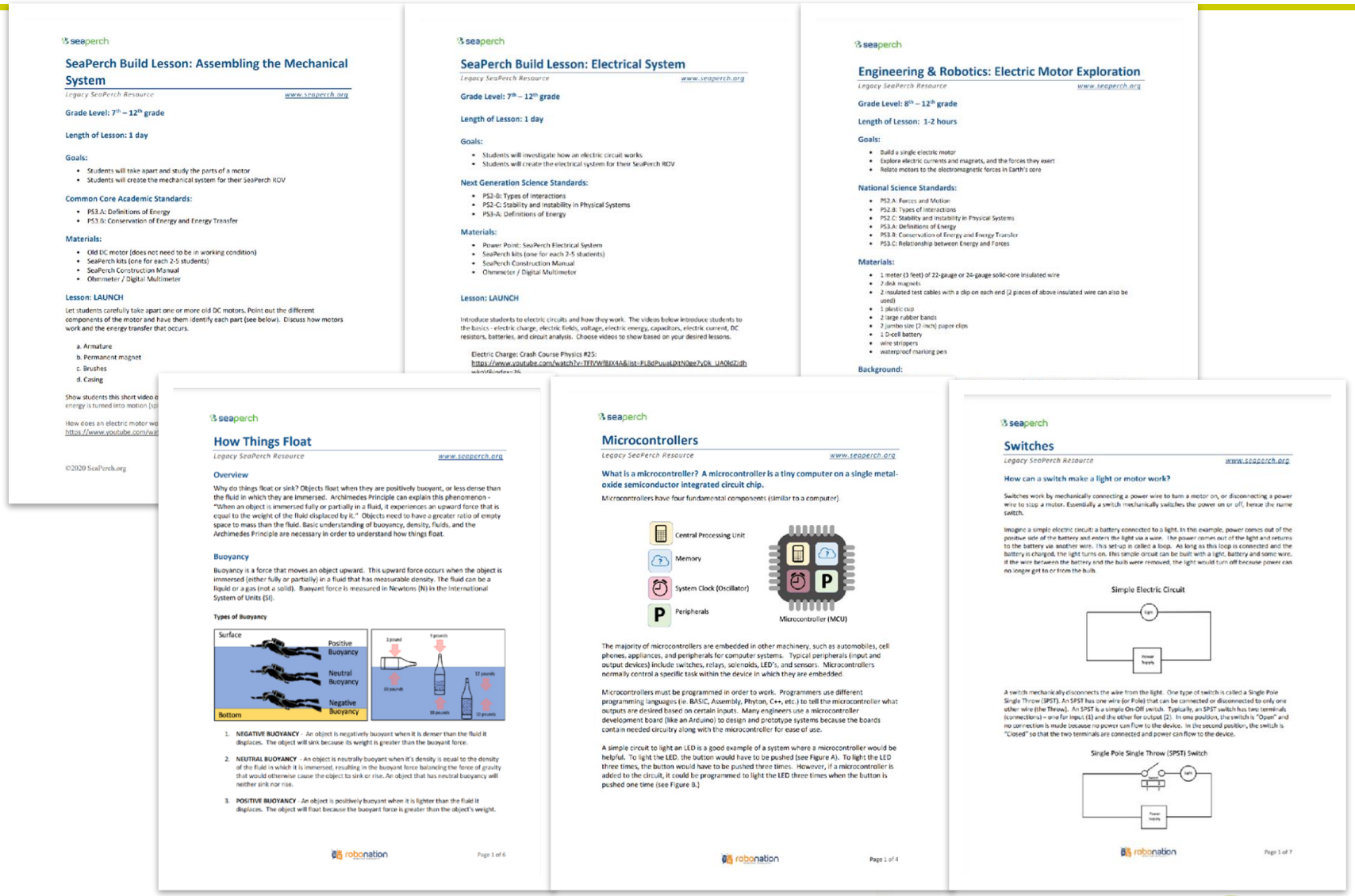
What is provided?

- 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 may be available to visit your team and provide support
- New guiding documentation this season that combines the obstacle, mission, presentation, and TDR guiding documents into one!



Technical and Teaching Resources

SeaPerch Learning Modules



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SeaPerch Build Lesson: Assembling the Mechanical System

Legacy SeaPerch Resource www.seaperch.org

Grade Level: 7th – 12th grade

Length of Lesson: 1 day

Goals:

- Students will take apart and study the parts of a motor
- Students will create the mechanical system for their SeaPerch ROV

Common Core Academic Standards:

- PS3.A: Definitions of Energy
- PS3.B: Conservation of Energy and Energy Transfer

Materials:

- Old DC motor (does not need to be in working condition)
- SeaPerch kits (one for each 2-5 students)
- SeaPerch Construction Manual
- Ohmmeter / Digital Multimeter

Lesson: LAUNCH

Let students carefully take apart one or more old DC motors. Point out the different components of the motor and have them identify each part (see below). Discuss how motors work and the energy transfer that occurs.

a. Armature
b. Permanent magnet
c. Brushes
d. Casing

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SeaPerch Build Lesson: Electrical System

Legacy SeaPerch Resource www.seaperch.org

Grade Level: 7th – 12th grade

Length of Lesson: 1 day

Goals:

- Students will investigate how an electric circuit works
- Students will create the electrical system for their SeaPerch ROV

Next Generation Science Standards:

- PS2-B: Types of Interactions
- PS2-C: Stability and Instability in Physical Systems
- PS3-A: Definitions of Energy

Materials:

- Power Point: SeaPerch Electrical System
- SeaPerch kits (one for each 2-5 students)
- SeaPerch Construction Manual
- Ohmmeter / Digital Multimeter

Lesson: LAUNCH

Introduce students to electric circuits and how they work. The videos below introduce students to the basics - electric charge, electric fields, voltage, electric energy, capacitors, electric current, DC resistors, batteries, and circuit analysis. Choose videos to show based on your desired lessons.

Electric Charge: Crash Course Physics #25:
https://www.youtube.com/watch?v=TFTVWfBJX4A&list=PL8dPuuaLjXtNQee7yDk_UA0kdZidh

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Engineering & Robotics: Electric Motor Exploration

Legacy SeaPerch Resource www.seaperch.org

Grade Level: 8th – 12th grade

Length of Lesson: 1-2 hours

Goals:

- Build a single electric motor
- Explore electric currents and magnets, and the forces they exert
- Relate motors to the electromagnetic forces in Earth's core

National Science Standards:

- PS2.A: Forces and Motion
- PS2.B: Types of Interactions
- PS2.C: Stability and Instability in Physical Systems
- PS3.A: Definitions of Energy
- PS3.B: Conservation of Energy and Energy Transfer
- PS3.C: Relationship between Energy and Forces

Materials:

- 1 meter (3 feet) of 22-gauge or 24-gauge solid-core insulated wire
- 2 disk magnets
- 2 insulated test cables with a clip on each end (2 pieces of above insulated wire can also be used)
- 1 plastic cup
- 2 large rubber bands
- 2 jumbo size (2-inch) paper clips
- 1 D-cell battery
- wire strippers
- waterproof marking pen

Background:

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How Things Float

Legacy SeaPerch Resource www.seaperch.org

Overview

Why do things float or sink? Objects float when they are positively buoyant, or less dense than the fluid in which they are immersed. Archimedes Principle can explain this phenomenon - "When an object is immersed fully or partially in a fluid, it experiences an upward force that is equal to the weight of the fluid displaced by it." Objects need to have a greater ratio of empty space to mass than the fluid. Basic understanding of buoyancy, density, fluids, and the Archimedes Principle are necessary in order to understand how things float.

Buoyancy

Buoyancy is a force that moves an object upward. This upward force occurs when the object is immersed (either fully or partially) in a fluid that has measurable density. The fluid can be a liquid or a gas (not a solid). Buoyant force is measured in Newtons (N) in the International System of Units (SI).

Types of Buoyancy

1. **NEGATIVE BUOYANCY** - An object is negatively buoyant when it is denser than the fluid it displaces. The object will sink because its weight is greater than the buoyant force.
2. **NEUTRAL BUOYANCY** - An object is neutrally buoyant when it's density is equal to the density of the fluid in which it is immersed, resulting in the buoyant force balancing the force of gravity that would otherwise cause the object to sink or rise. An object that has neutral buoyancy will neither sink nor rise.
3. **POSITIVE BUOYANCY** - An object is positively buoyant when it is lighter than the fluid it displaces. The object will float because the buoyant force is greater than the object's weight.

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Microcontrollers

Legacy SeaPerch Resource www.seaperch.org

What is a microcontroller? A microcontroller is a tiny computer on a single metal-oxide semiconductor integrated circuit chip.

Microcontrollers have four fundamental components (similar to a computer).

The majority of microcontrollers are embedded in other machinery, such as automobiles, cell phones, appliances, and peripherals for computer systems. Typical peripherals (input and output devices) include switches, relays, solenoids, LED's, and sensors. Microcontrollers normally control a specific task within the device in which they are embedded.

Microcontrollers must be programmed in order to work. Programmers use different programming languages (ie. BASIC, Assembly, Phyton, C++, etc.) to tell the microcontroller what outputs are desired based on certain inputs. Many engineers use a microcontroller development board (like an Arduino) to design and prototype systems because the boards contain needed circuitry along with the microcontroller for ease of use.

A simple circuit to light an LED is a good example of a system where a microcontroller would be helpful. To light the LED, the button would have to be pushed (see Figure A). To light the LED three times, the button would have to be pushed three times. However, if a microcontroller is added to the circuit, it could be programmed to light the LED three times when the button is pushed one time (see Figure B.)

robonation

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Switches

Legacy SeaPerch Resource www.seaperch.org

How can a switch make a light or motor work?

Switches work by mechanically connecting a power wire to turn a motor on, or disconnecting a power wire to stop a motor. Essentially a switch mechanically switches the power on or off, hence the name switch.

Imagine a simple electric circuit: a battery connected to a light. In this example, power comes out of the positive side of the battery and enters the light via a wire. The power comes out of the light and returns to the battery via another wire. This setup is called a loop. As long as this loop is connected and the battery is charged, the light turns on. This simple circuit can be built with a light, battery and some wire. If the wire between the battery and the bulb were removed, the light would turn off because power can no longer get to or from the bulb.

Simple Electric Circuit

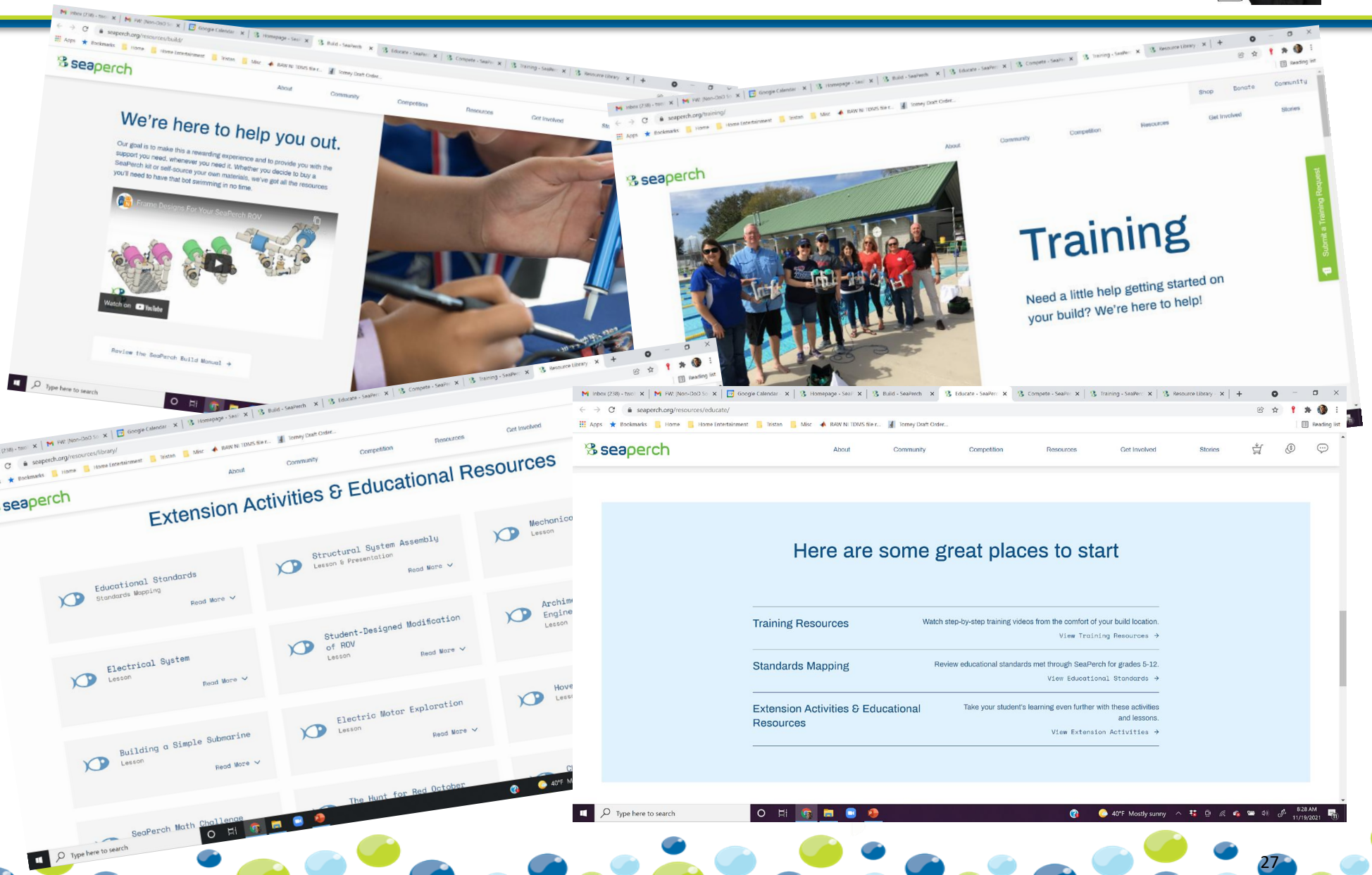
A switch mechanically disconnects the wire from the light. One type of switch is called a Single Pole Single Throw (SPST). An SPST has one wire (or Pole) that can be connected or disconnected to only one other wire (the Throw). An SPST is a simple On-Off switch. Typically, an SPST switch has two terminals (connections) – one for input (1) and the other for output (2). In one position, the switch is "Open" and no connection is made because no power can flow to the device. In the second position, the switch is "Closed" so that the two terminals are connected and power can flow to the device.

Single Pole Single Throw (SPST) Switch

robonation

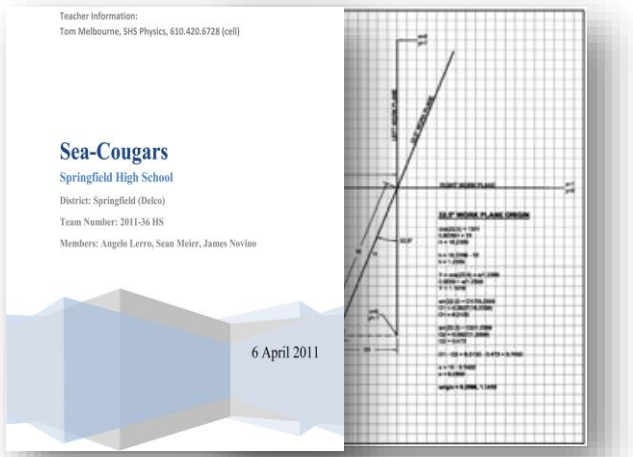
Technical and Teaching Resources

seaperch.org



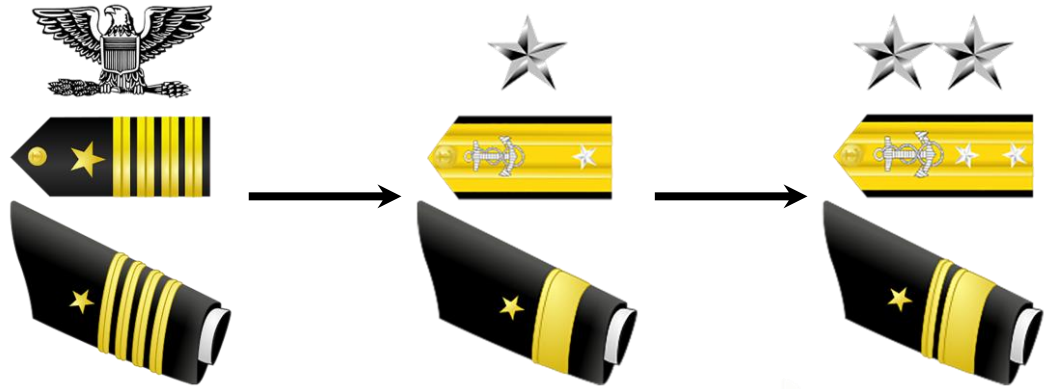
Challenge Overview

- Two Competition Classes
  - Middle School (Open to Elementary School Students as well)
  - High School
- Two Skill Levels
  - Captain
  - Admiral
- Four Competition Categories
  - Technical Design Report
  - Ten Minute Oral Slide Presentation (+ Five Minute Q&A)
  - Vehicle Performance (2 Rounds)
    - Round 1: Obstacle Course
    - Round 2: Mission



2026 SeaPerch Program Reminders

- In the US Navy, it is a great honor for commissioned officers to be promoted in rank.
- To encourage healthy competition in the Greater Philadelphia SeaPerch Challenge, we believe that it is important to similarly encourage exemplary performance and promote our SeaPerch teams as well.
- Teams scoring in 1st or 2nd place overall from the last TWO YEARS will be required to compete in the Admiral's Class. For teams competing as Captain's Class last year, this is similar to the promotion from CAPT to RDML.
- Did you know that the Navy has two different levels referred to as Rear Admirals?
  RDML is known as Rear Admiral (Lower Level) and RADM is known as Rear Admiral (Upper Level)



Teams that should Register as Admiral's Class

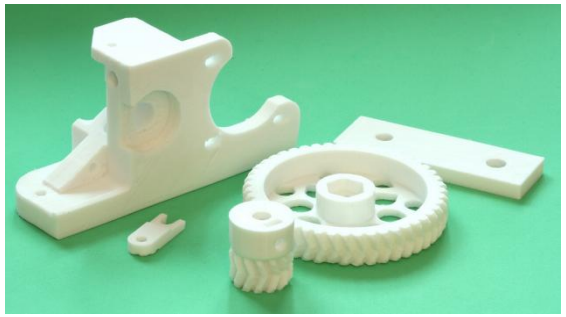
- **MS List of Teams That Should Register as Admiral**:
  - ★ St. Helena (Blue Bell) (1st place Captain 2024, 1st place Admiral 2025) ★★
  - ★ Philadelphia Charter School for Arts & Sciences (2nd place Captain 2024) ★
  - ★ Danville MS (1st place Admiral 2024 & 2nd place Admiral 2025) ★★
  - ★ Haddonfield MS (2nd place Admiral in 2024) ★
  - ★ Our Lady of Mount Carmel (1st place Captain 2025) ★
  - ★ Caring People Alliance (2nd place Captain 2025) ★
- **HS List of Teams That Should Register as Admiral**:
  - ★ Springfield HS (Delco) (1st place Captain 2024) ★
  - ★ Little Flower Catholic HS for Girls (2nd place Captain 2024) ★
  - ★ STEM-UP (1st place Admiral 2024) ★
  - ★ Haddonfield HS (2nd place Admiral 2024 & 2025) ★★
  - ★ Delaware Valley Friends School (1st place Captain 2025) ★
  - ★ Merion Mercy Academy (2nd place Captain 2025) ★
  - ★ Danville HS (1st place Admiral 2025) ★

Design, Build & Test Phase

- 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 Technical Design Report
  - Work on the Oral Slide Presentation
- The time to work with mentors

3D Printing

- 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 Technical Design Report and Oral Presentation
  - Included in $25 design improvement budget limit (Captain’s Class Only)
  - Parts shall be costed out at $0.05 per gram
  - Vehicle's primary structure shall be built using only PVC, CPVC, PEX pipe and fittings (Captain’s Class Only)



Competition – Presentation

- Teams must create and prepare a 10 minute slide 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 slide presentation

THIS IS NOT A POSTER PRESENTATION.

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

Competition – Technical Design Report

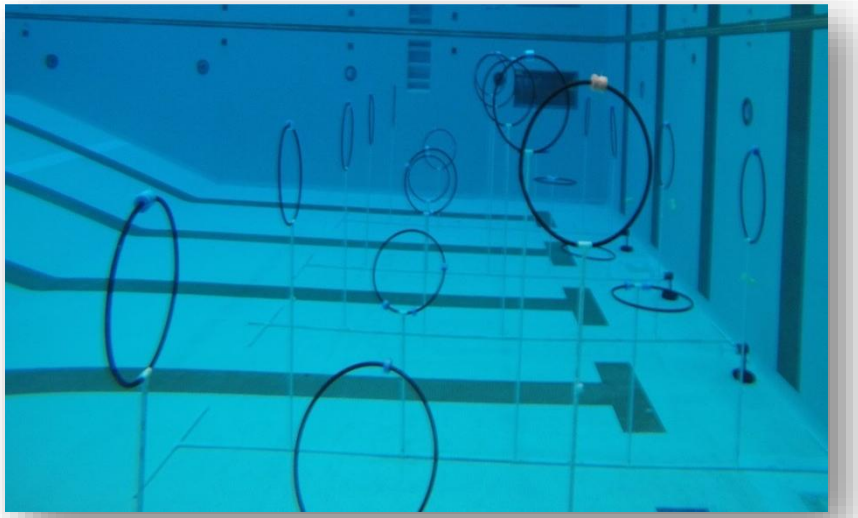
- A Technical Design Report will consists of a written paper with the following six mandatory Sections and two mandatory Appendices describing the team's SeaPerch design
  - Abstract (½ page) - Short summary
  - Task Overview (½ page) - Tasks SeaPerch must complete & how it affected design
  - Design Approach (2 pages) - Strategy & approach to developing your design
  - Experimental Results (1 page) - Description of tests conducted & their results
  - Reflection & Next Steps (1 page) - What are the takeaways? What would be your next steps if you had more time?
  - Acknowledgements
  - References - Use APA style guide
  - Appendix A: Budget - Itemized costs (Captain's Class <= $25, Admiral's Class > $25)
  - Appendix B: Fact Sheet - 1 page Overview "Quad Chart"
  - Appendix C: Additional Info (Optional) - Results, Calculations, Figures, Tables, Engineering Design Notebook, etc.
- Additional sections may be included; however, the overall limit of 5 pages applies (excluding References, Acknowledgements, and Appendices)
- Teams are required to submit Design Notebooks electronically (16 MB limit)

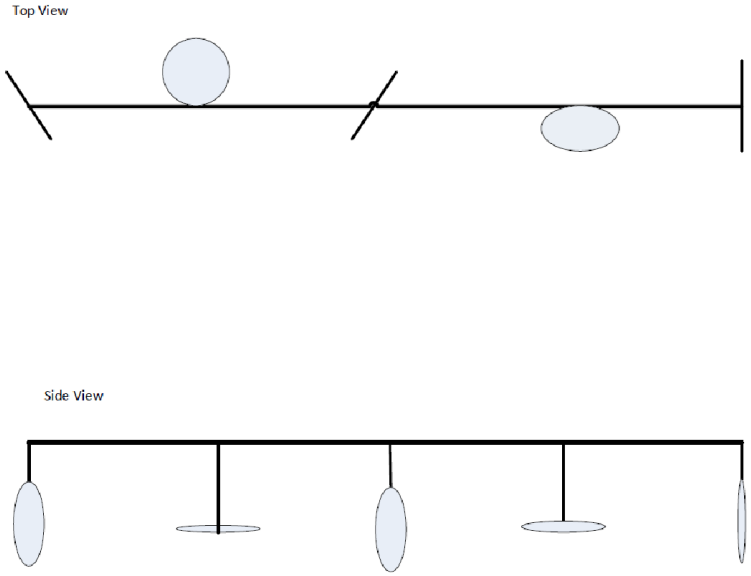
Competition – Obstacle Course

- Craft Performance Round 1:

  Complete the Obstacle Course

  - Maneuver through a submerged obstacle course of 5 pre-arranged hoops
  - SeaPerch must surface after clearing the furthest ring before starting its return
  - All rings at a depth of 4 feet





Competition – Mission Course

This year's Mission Theme is Storm Response

Storm Response explores the power uncrewed systems play in recovery, resilience, and discovery in disaster relief efforts.

US forces launch relief effort in the Philippines after 2 typhoons batter islands

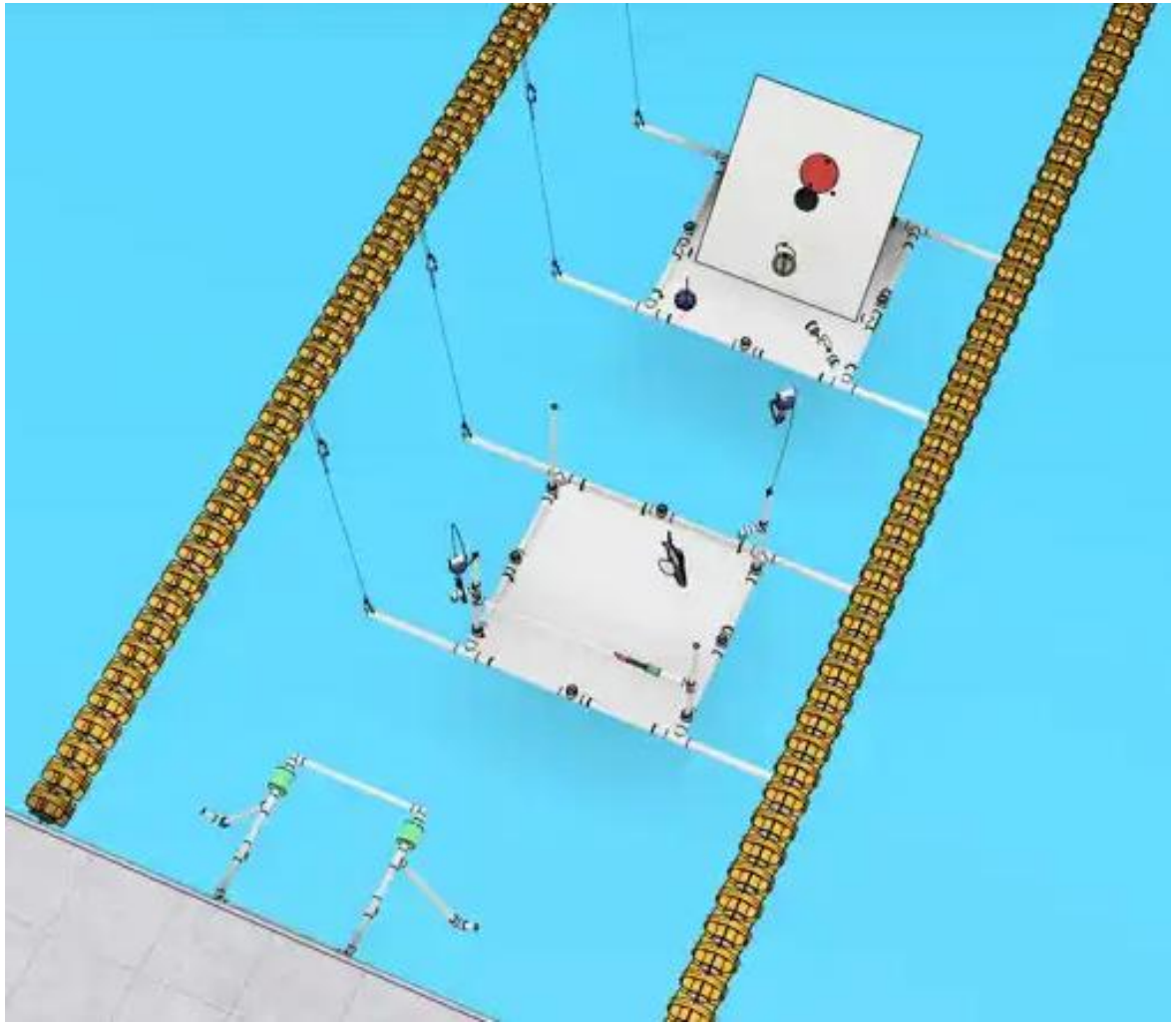
By SETH ROBSON
STARS AND STRIPES • November 13, 2025

Deviations from Internationals:

The International SeaPerch Competition will include suspended Mission platforms.

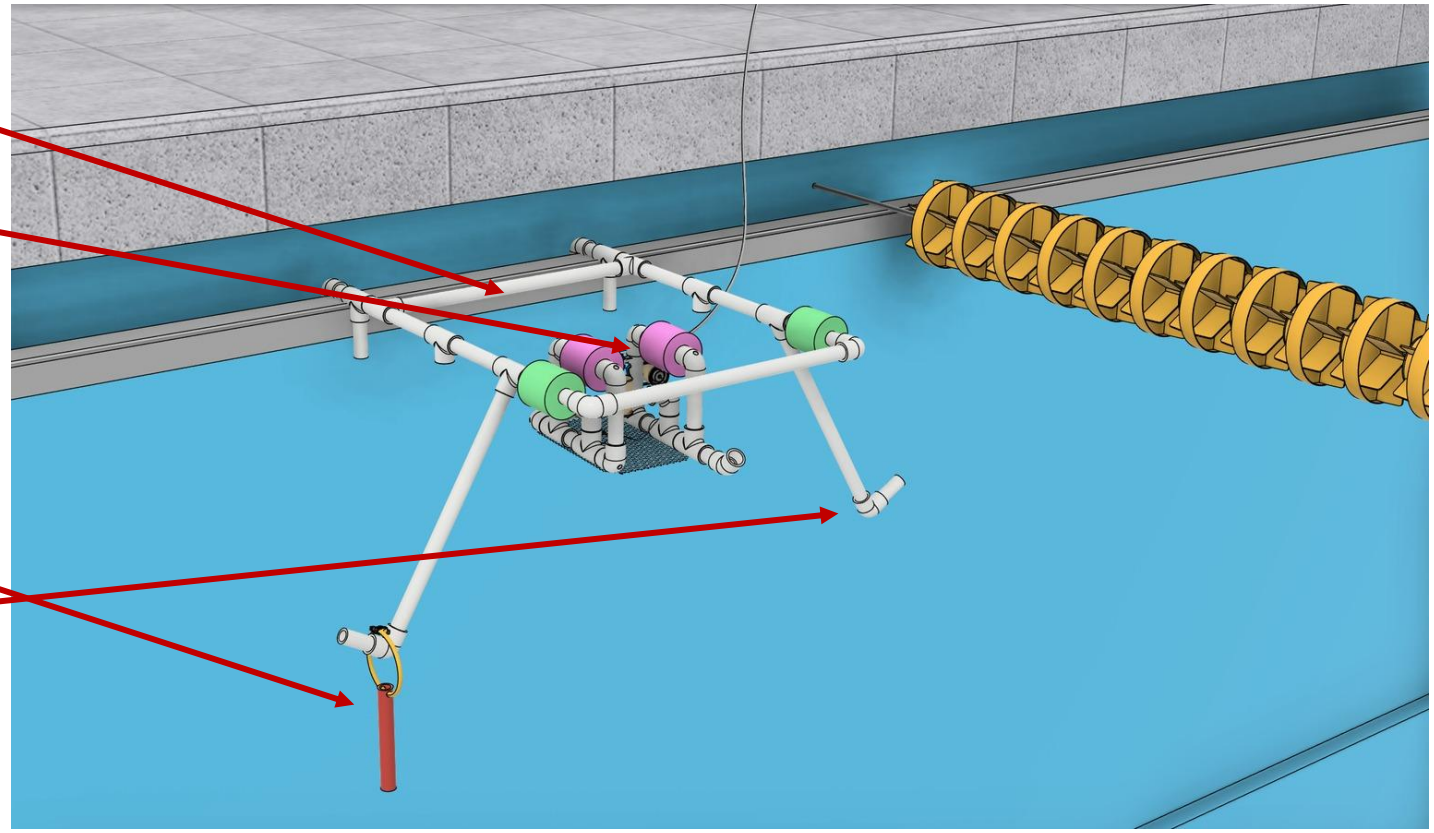
The Greater Philadelphia SeaPerch and SeaGlide Challenge will not use suspended platforms.

We will be using the surface vessel for the first time this season, so the only deviation from Internationals expected this season is opting to use fully submerged platforms sitting on the pool deck instead of platforms suspended from the pool lane dividers.



Surface Vessel

- The surface vessel platform will be used this year.
- Your SeaPerch run will begin and end with your ROV surfaced inside the boundary of the surface vessel.
- The surface vessel also contains the starting position for the “plug”.
- …and the final position for the “water sampler”.



Mission Course Overview

The 2026 Mission is based on the following scenario. A powerful storm swept through, leaving behind damaged infrastructure, disrupted communications, and environmental hazards. Vehicles are deployed to demonstrate how coordinated action can turn disaster into resilience:

- **Task 1: Inspect the Bridge**

The ROV must navigate bridge supports, retrieve the red marker float, repair the support beam, and release the green marker float.

- **Task 2: Survey the Dam**

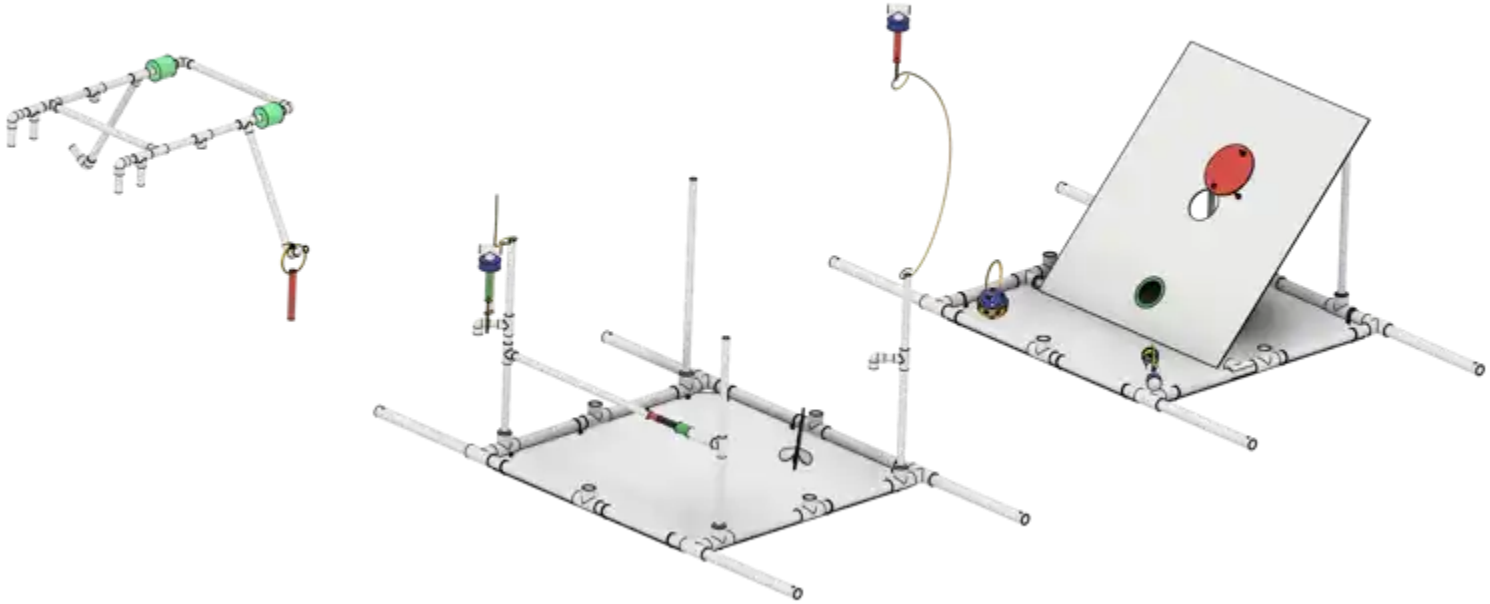
The ROV must move the plug to the hole in the dam, and rotate the cover to close the flood gate.

- **Task 3: Clear the Debris Field**

The debris needs to be cleared to allow for safe navigation and environmental recovery. The ROV must relocate the displaced marine life, and remove the heavy submerged debris.

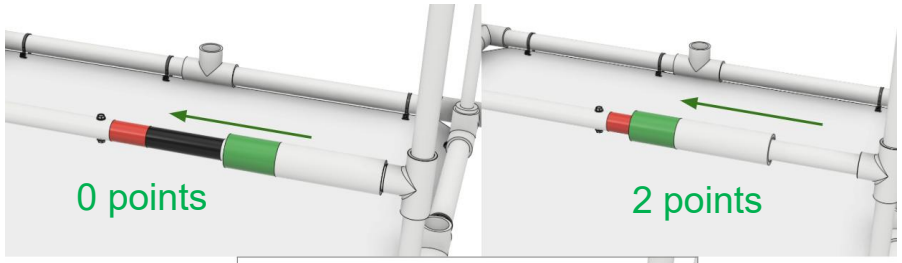
- **Task 4: Sample Water Quality**

The ROV must retrieve the water sampler and return it to the Surface Vessel.



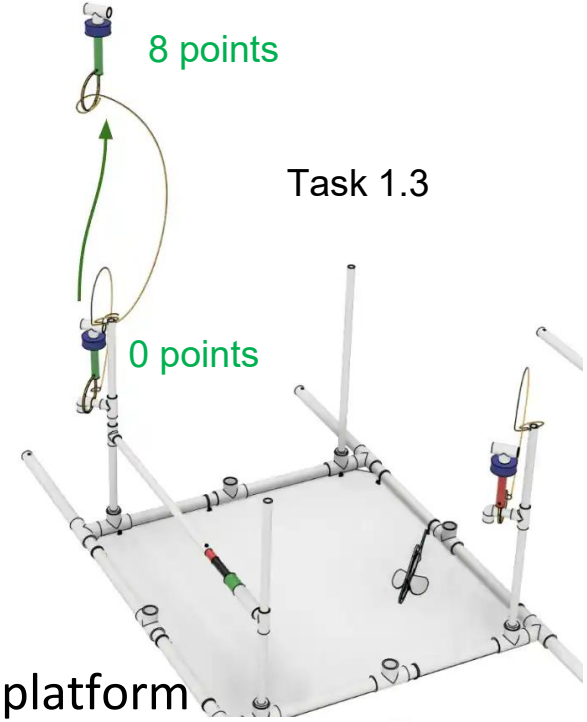
Competition – Mission Course

- **Task 1: Inspect the Bridge**: The ROV must navigate bridge supports, retrieve the red marker float, fix the broken pipe, and release the green marker float. At the start of the run, the red marker float will be floating above the back right bridge pillar, the green marker float will be hooked on the front left bridge pillar, and the broken pipe will be uncovered. All Task 1 elements are located on the Front Platform.
  - Task 1.1: Retrieve the red marker float, and hook on the back right bridge pillar. (8 points)
  - Task 1.2: Slide the cover pipe to the left to fix the support beam. (2+6 points)
  - Task 1.3: Release the green marker float at the front left bridge pillar. (8 points)



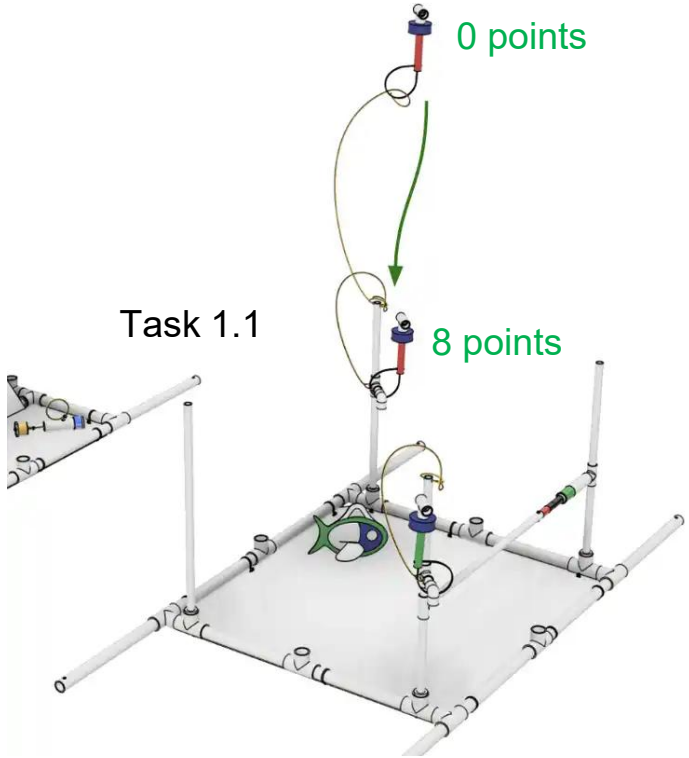
Front platform

Task 1.2



Task 1.3

Front platform



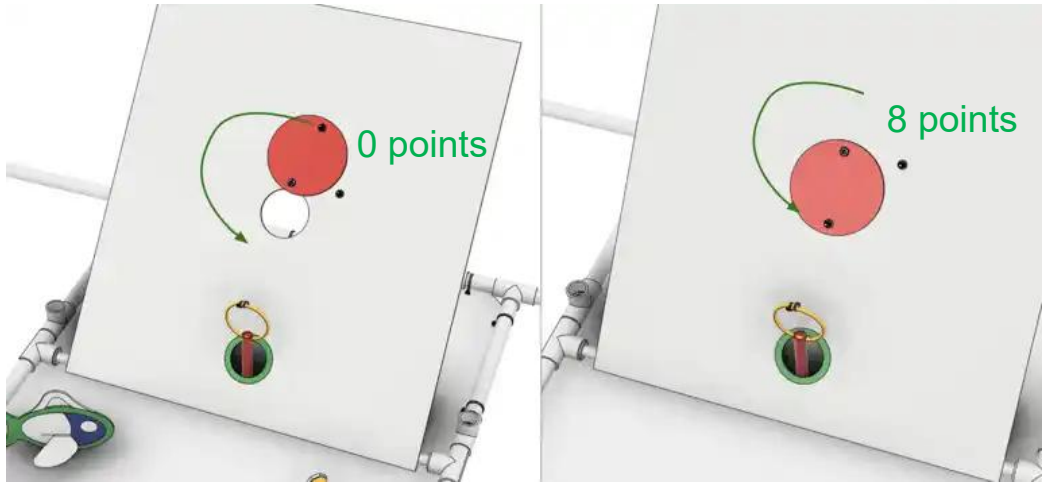
Task 1.1

Front platform

Competition – Mission Course

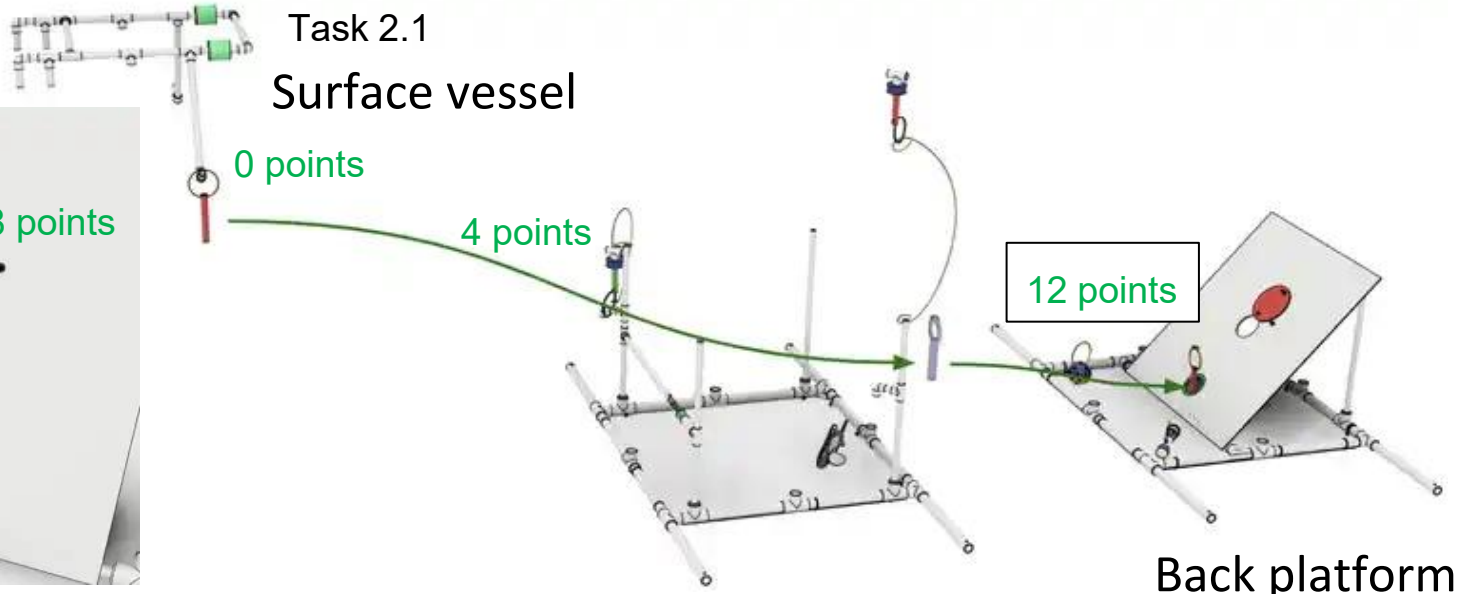
- **Task 2: Survey the Dam**: The ROV must move the plug to the hole in the dam and rotate the cover to close the flood gate. At the start of the run, the red plug will be located on a hook on the Surface Vessel, and the red flood gate will be located on the slanted dam wall on the Back Platform.
  - Task 2.1: Lift and place the plug in the hole on the slanted dam wall. (4+12 points)
  - Task 2.2: Rotate the flood gate cover to close the flood gate. (8 points)

Task 2.2



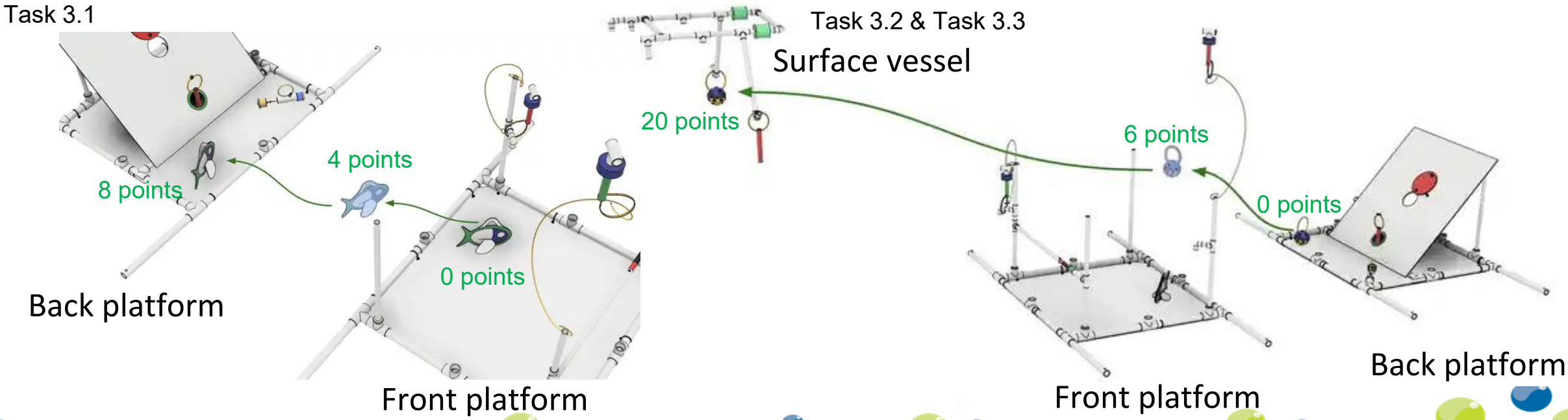
Back platform

Task 2.1



Competition – Mission Course

- **Task 3: Clear the Debris Field**: The ROV must relocate the displaced marine life (SeaPerch fish) and remove the heavy submerged debris (weighted object). At the start of the run, the marine life will be located on the Front Platform, and the debris will be located on the Back Platform.
  - Task 3.1: Retrieve and place marine life on the Back Platform. (4+8 points)
  - Task 3.2: Lift heavy piece of submerged debris. (6 points)
  - Task 3.3: Place heavy piece of submerged debris on a hook on the Surface Vessel. (20 points)

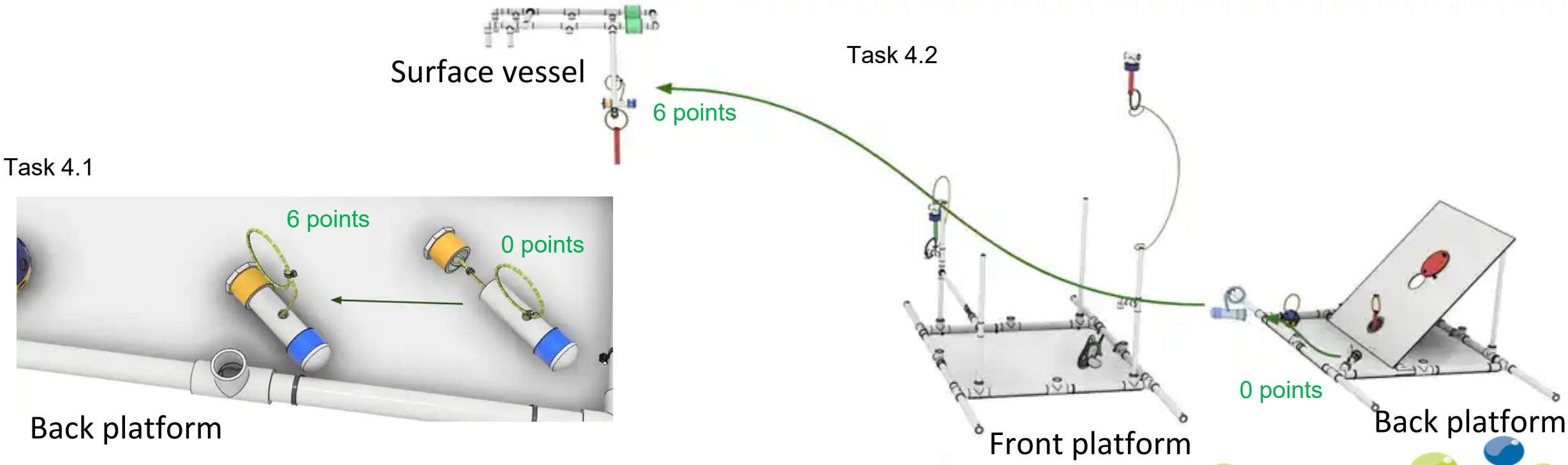


Competition – Mission Course

- **Task 4: Sample Water Quality**: The ROV must retrieve the water sampler and return it to the Surface Vessel.

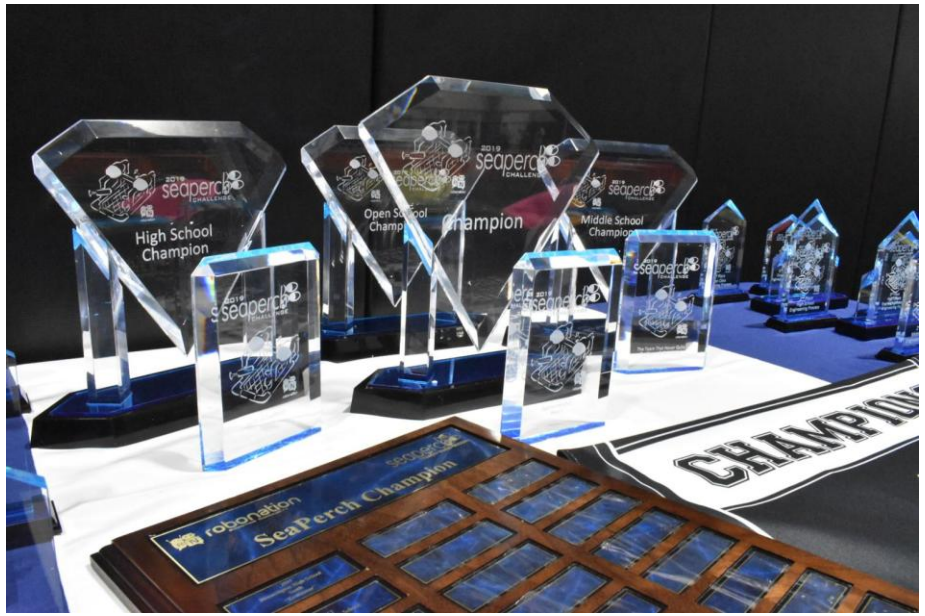
  At the start of the run, the water sampler will be open and located on the Back Platform.

  - Task 4.1: Lift and close the water sampler, positioned on the Back Platform. (6 points)
  - Task 4.2: Place water sampler on a hook on the Surface Vessel. (6 points)



International SeaPerch Challenge

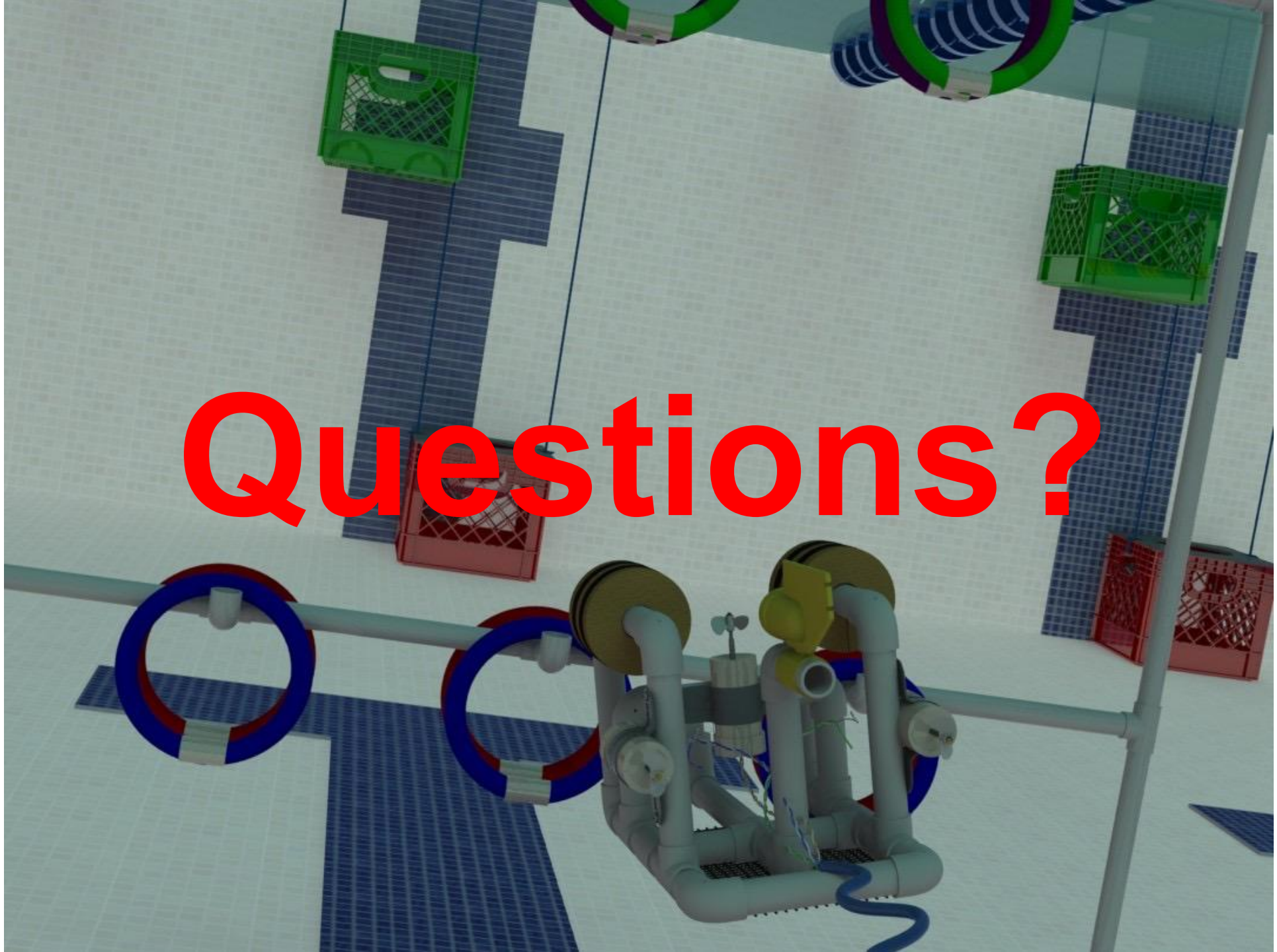
- The Greater Philadelphia Regional High School and Middle School teams awarded 1st Place in Overall Performance in both Captain's Class and Admiral's Class will be invited to move onto the International SeaPerch Challenge
- Location: University of Maryland
- Dates: May 30 – 31, 2026
- Teams may only compete in ONE Regional qualifying competition
- Teams may register for a Wild Card spot, but if they qualify in Philadelphia, they will need to forfeit that spot. (Wild Card registration runs December 1, 2025 - February 1, 2026)



For more info visit:
seaperch.org

It Takes a Village…
Thank You!

TEMPLE UNIVERSITY
College of Science and Technology


Questions?