

◆ Assembling the SeaPerch Electrical System ◆

Grade Level: 7th-12th

Length of Lesson: 1 day

Goals:

- Students will investigate the challenges of working in an airless environment
- Students will create the electrical system for their SeaPerch ROV

National Science Standards:

- PS2.B: Types of Interactions
- PS2.C: Stability and Instability in Physical Systems

Materials:

- PowerPoint 3: SeaPerch Electrical System
- SeaPerch kits (one for each 2-5 students)
- SeaPerch Construction Manual
- Ohm meter

Lesson: LAUNCH

Show students this short video of a spacewalk hit by a brief power outage. This will show the students some of the difficulties and challenges of working in an environment without air. Though the video documents an assignment in space, a water environment is very similar.

[Spacewalk hit by power outage VIDEO](#)

Lesson: INVESTIGATE

Ask students to take out their **SeaPerch Construction Manuals** that they should have received on the first day of the structural build. Direct them to Section Three, “Assembly of Subsystem Three: The Control Box.” Show the students the electrical components that they will work with. Present the **SeaPerch Electrical Systems PowerPoint** (PowerPoint 3).

SeaPerch Build Lesson 4: Assembling the SeaPerch Electrical System

Explain the process for electrical system construction and soldering. Make sure that the students know to follow the correct order when adding components to the circuit board, or it will become difficult to solder pieces on the board.

Lesson: PRACTICE

While the other students are working on the other SeaPerch systems, help the electrical engineers to create their control box for their ROV. Students should visually inspect their soldering to ensure there are no short circuits, and should conduct a continuity test with an Ohm meter.

