

Build a Buoy Pre-Trip Classroom Activity

PowerPoint – Build a Buoy PPT

- View and discuss slides 2-5

Watch YouTube Videos

- “Wireless is Limitless” - <https://youtu.be/oS1RJOxwlnM>
 - Who uses buoy data?
 - Charter captains
 - Watermen
 - Environmental biologists
 - Teachers/students
 - Many more!
 - What are some important data the buoys collect?
 - Wind, current, direction, waves
 - Oxygen, salinity
 - Plus more
 - Why is collecting this data important?
 - Environmental biologists study data
 - Improve weather forecasting
 - Improve catch for watermen
- “From the Field: Chesapeake Bay Interpretive Buoy System” - <https://youtu.be/0q7gzrvq3Ao>
 - What are some challenges the buoy team faces when repairing buoys?
 - Weather
 - Water conditions
 - Complicated system – difficult to repair on the water

Discuss engineering process

- Explain Build a Buoy task
 - During the field trip, your group will be tasked with designing a new buoy that can be deployed in the Chesapeake Bay as part of the CBIBS (Chesapeake Bay Interpretive Buoy System) network.
- To build an effective buoy, what should we do before starting to build?
 - Give each student a sticky note. Have the student write the very first thing he/she thinks they should do before starting to build.
 - Divide students into teams and have them discuss their starting points. Organize the starting point suggestions into categories – group similar ideas together, order the ideas – are there tasks that should come before others?
 - Have each group present their suggestions
 - Introduce the Engineering Design Process. Discuss in relation to the Build a Buoy project. Show the “Engineering Design Process” diagram. Ask students to figure out in which step their suggestion fits.
 - Identify the problem/Ask – determine what your buoy will need to do
 - Explore/Imagine – brainstorm designs, explore available materials, discuss with teammates
 - Design/Plan – think, sketch, discuss
 - Create/Try it Out – build a model and test it
- What do you do if/when your model does not work as you want it to?
 - Improve! Identify any problems or areas where improvements can be made, imagine solutions, plan, create, and test. Continue to improve!