



PROJECT OCEANOLOGY



Marine Debris Shore Program

Overview

Students will learn about the problem of marine debris and participate in a beach-clean up. On the beach students will work in small groups to define the problem of marine debris by discussing how it ends up on the beach and in the water. They will brainstorm potential solutions-ways to reduce the amount of marine debris- and evaluate those solutions as a group.

Performance Expectations (Middle School)

MS-ESS3-3: *Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment*

MS-ETS1-1: *Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions*

Science and Engineering Practices

Asking Questions and Defining Problems: *Students will brainstorm potential sources of marine debris and outline some of the negative impacts this will have on the environment.*

Analyzing and Interpreting Data: *Students will collect data on the marine debris collected and construct a graph, and interpret their results.*

Constructing Explanations and Designing Solutions: *Students will construct explanations about sources and types of marine debris based on their own data, and also on the most collected marine debris items collected world wide. Students will offer ideas to reduce marine debris at the personal, school wide and community levels.*

Crosscutting Concepts

Cause and Effect: Mechanism and Explanation *Students will determine if the marine debris collected during the beach clean up can be traced back to a particular source or identify how the trash may have ended up on the beach.*

Stability and Change: *Students will determine if any plastic marine debris was collected and impact that particular debris is negatively affecting the marine ecosystem.*

Patterns: *As students collect marine debris they will identify patterns in types of materials found and potential sources of the debris.*

Disciplinary Core Ideas

ESS3C: *Human Impacts on Earth Systems*

ETS1.A: *Defining and Delimiting Engineering Problems*