

Curriculum Enrichment Program

All in-person excursions are suitable for 10 to 20 students and include bus transportation, boat transportation (if applicable), experimental materials, and BIOS educator. Virtual lessons are conducted over Ocean Academy's Zoom platform.

Plankton | Ocean Food Chains

2.5-hour excursion or 45-minute virtual lesson

Students will learn about the roles and importance of phytoplankton and zooplankton in marine food chains. They will participate in a plankton tow aboard R/V *Stommel* and learn the process of net deployment and retrieval. Collected samples will be brought back to the laboratory for examination under microscopes, with various species identified using local ID manuals.

Proficiency Scales P6 Biology / Food Chains
M1 Biology / Food Chains
M3 Biology / Food Webs and Keys

Marine Debris | Plastic Pollution

3.5-hour excursion

Students will learn about the negative impacts that marine debris can have on the environment. They will participate in two aspects of a marine debris clean up: categorizing larger identifiable debris utilizing the Marine Debris tracker application, and sampling quadrats for microplastics at Cooper's Island Nature Reserve. This field excursion offers laboratory-based extensions for further data collection.

Proficiency Scales P4 Biology / Caring for the Environment
P6 Biology / Caring for the Environment
M3 Biology / Caring for the Environment

The Water Cycle | States of Matter

2.5-hour excursion or 45-minute virtual lesson

Students will review the states of matter and participate in their own water density experiments. Students will learn about the water cycle and build their own precipitation graphs, in addition to looking at all factors that influence our day-to-day weather. Classes will have the option of taking home a weather station for one month for use in their classroom.

Proficiency Scales P4 Chemistry / Properties of Matter
P5 Chemistry / Changing States of Matter

Identification Keys

2.5-hour workshop or 45-minute virtual lesson

Students will use identification keys to classify fish and zooplankton found in the ocean around Bermuda. They will participate in a plankton tow aboard R/V *Stommel*, examine the plankton sample under microscopes in the laboratory and use an identification key to determine what type of plankton they have collected.

Proficiency Scales P4 Biology / Identification Keys
M3 Biology / Food Webs and Keys

Molecular Biology | Fishing for Fingerprints

2.5-hour workshop

Students will learn how BIOS scientists are using environmental DNA (eDNA) to understand the biodiversity of Bermuda's marine environment. Students will practice aliquoting solutions with a micropipette, loading a DNA gel and separating DNA strands of different lengths. Students will use gel electrophoresis techniques to decipher species based on DNA base pair lengths and conclude what groups of species were present in their water sample.

Proficiency Scales M1 Biology / Adaptations

Corals | Characteristics and Classifications

2.5-hour workshop

Students will be introduced to the defining characteristics of corals and the ecological importance of coral reefs for Bermuda and globally. A hands-on identification lab will allow students to examine the skeletons of common hard coral species before viewing live specimens and learning about coral research at BIOS.

Proficiency Scales P3 Biology / Classification of living things
M1 Biology / Classification



Bermuda Institute of Ocean Sciences

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