

# Curriculum Enrichment Program

All excursions are suitable for 10 to 20 students and include bus transportation, boat transportation (if applicable), experimental materials, and ASU BIOS educator.

## Plankton | Ocean Food Chains

2.5-hour excursion

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 and identification under microscopes.

Proficiency Scales    P3, P4 & P6 Biology / Food Chains  
                                  S2 Biology / Organisms and their Environment

## The Water Cycle | States of Matter

2.5-hour excursion

Students will review the states of matter and learn about the water cycle. They will participate in laboratory experiments and build their own precipitation graphs with data collected by BIOS scientists. 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 Materials  
                                  P5 Chemistry / Changes to Materials & Earth and Space / Water Cycle  
                                  M1 Chemistry / States of Matter & Earth and Space / Water Cycle

## Identification Keys

2.5-hour excursion

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    M1 Biology / Life Processes  
                                  S1 Biology / Dichotomous Keys

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## Molecular Biology | Fishing for Fingerprints

2.5-hour excursion

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    M3 Biology / Structure and Function

## Corals | Characteristics and Classifications

2.5-hour excursion

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 activity will allow students to examine the skeletons of common hard coral species before viewing live specimens in the laboratory and learning about coral research at BIOS.

Proficiency Scales    P3 Biology / Life Processes  
M1 Biology / Life Processes  
S1 Biology / Characteristics of Living Things

## Career Pathways \*New for 2024/2025

2.5-hour excursion

Students will explore marine research careers at BIOS including what it is like to be a marine biologist, oceanographer and ocean engineer. They will learn how to measure the growth of settled coral larvae, accurately count the number of microbes on a microscope slide and build a prototype for a remotely operated vehicle. In the laboratory, students will practice using scientific equipment such as dissecting microscopes and micropipettes.

[bios.asu.edu/education/curriculum-enrichment-program](https://bios.asu.edu/education/curriculum-enrichment-program)  
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