



Education and Research: Testing Hypotheses

Lesson Plan—Critter Characteristics

Summary

This activity encourages students to apply their knowledge of natural selection, ocean life, and ocean zones to observe and analyze the unique adaptations needed by organisms that exist in the deep ocean.

Key Concepts

- Identify questions that can be answered through scientific investigations
- Use appropriate tools and techniques to gather, analyze, and interpret data
- Think critically and logically to make the relationships between evidence and explanations
- Communicate scientific procedures and explanations

Objectives

Students will be able to:

- View video to **observe** and **identify** a variety of deep-sea organisms that are attracted to the *Eye in the Sea* instrumentation
- **Record** species count data and observable characteristics for each deep-sea species observed during the video clips
- **Determine** the physical, physiological, and behavioral adaptations for a deep-sea organism
- **Communicate** results during a PowerPoint presentation to the class

Materials

- Computers with Internet access
- *Eye In the Sea* video clips downloaded onto computers, or broadband access to the EARTH Website and Flash Media Player
- *Critter Characteristics* Data Sheet
- Deep-Sea Organisms Presentation Rubric
- Computer projection system

Procedure

1. Review
 - a. Review student understanding of natural selection (e.g., adaptations of species relevant to their niche)
 - b. Review ocean life zones and ocean life forms
2. Introduction
 - a. Introduce *Eye in the Sea* technology while viewing the msnbc.com article and video “Scientists capture giant squid on camera.”

- b. Demonstrate the computer procedures needed to access the video clips and complete the data sheet
 - c. Display the identification key and encourage students to refer to the key as they begin the Critter Identification and Census activity
 3. Critter Identification and Census Activity
 - a. Divide students into pairs and distribute the *Critter Characteristics* Data Sheets
 - b. Monitor students as they complete the data sheet: census and observed characteristics
 - c. Lead a class discussion to check for data sheet accuracy and students' observations
 - d. Encourage student inquiry about unique characteristics needed for survival in the deep sea
 4. Application of Prior Knowledge
 - a. Group students (2 – 4 per group) and review the presentation rubric
 - b. Assign each group one of the deep-sea organisms observed in the video clips for their research and Power Point presentation

Assessment

- **Product**—students will work in cooperative groups to develop a 10-minute PowerPoint presentation that:
 - Illustrates the niche (including depth) of their deep-sea organism
 - Illustrates the global habitat of their critter using a world map
 - Illustrates adaptations and describe the physical, physiological, and behavioral adaptations that help the critter to survive the deep sea
 - Identifies unusual or interesting characteristics discovered about their critter