



Education and Research: Testing Hypotheses

Lesson Plan—Ocean Observation

Summary

This activity will help familiarize student with methods scientists use to study the ocean floor, and will encourage them to pose and investigate their own questions about the ocean.

Key Concepts

- Technology enables scientists to study global and local ocean characteristics over long periods of time
- Scientists use technology to help them answer questions about the ocean

Objectives

Students will be able to:

- **Describe** the various methods used by MBARI researchers to study ocean characteristics, events and ecology
- **Apply** information found on Web site to answer questions

Materials

- Computer lab with Internet access or projection screen
- Science journal for each student

Procedure

1. Engage students in a class discussion, considering the following questions:
 - How do scientists study the ocean?
 - How can they “see underwater”?
 - Why is the ocean studied?
 - What do we need to know about the ocean?
 - What are some things you would like to know about the ocean or things that live in the ocean?
2. Ask students to make their own list of questions, write them in their science journal, and share them with a partner.
3. Have students visit the MBARI home page (<http://www.mbari.org>) and work with a partner to investigate research projects, data sets, vessels and vehicles.
 - Click on **News & Info**, then **Researchers** to find out about the researchers who work at MBARI and what questions about the oceans they are trying to answer
 - Click on **Research & Development**, then **Current Projects** to examine the various research projects underway at MBARI

- Click on *Marine Operations*, then *Vessels and Vehicles* to discover some of the tools MBARI researchers use to explore the oceans
 - Click on *Observatories*, then *Technologies & Sensors* to learn about some of the cutting-edge technology MBARI engineers are developing for seafloor observatories
 - Click on *Data & Images* to check out some of the data that MBARI has collected about the oceans
4. Have students explore the MBARI Web site to determine which researchers, projects or tools could help answer the questions they recorded earlier in their science journals.
 5. Have students keep a record in their journal of things they notice and things they wonder about during their exploration. These questions can be used as possible investigation topics for later.
 6. Keep a chart of student questions and refer back to them as answers or connections come up during class study. This helps students see that research begins with questions and recognize the value of asking questions.

Assessment

- **Performance**—Did student participate in discussion and Web investigation sessions and demonstrate an understanding of how scientists study the ocean?
- **Product**—Did student compose appropriate questions for investigation in his/her science journal? Did student accurately describe some of the research projects and technology involved in studying the oceans? Did student apply the information he/she found on the Web site to answer his/her questions?