OCEAN EXPEDITIONS AND MAPS

How can scientists use ocean maps to answer current research questions?

OVERVIEW

Students learn about National Geographic's The Ocean project. Then they read blog entries to analyze scientists' research questions and identify how maps can help answer them.

For the complete activity with media resources, visit:

DIRECTIONS

1. Introduce National Geographic’s The Ocean project.
Go to National Geographic’s The Ocean: Pristine Seas Expeditions web page. Invite a volunteer to read the introduction aloud. Reiterate to students that National Geographic’s Pristine Seas Expeditions is a project to study the last healthy, undisturbed places in the ocean. Ask: What are the scientists studying? What is the focus of their research questions? (Scientists' research questions are focused on how marine ecosystems work without human interference.)

2. Have students identify scientists’ research questions and analyze how maps can help answer those questions.
Go to the blog archives for each of the three expeditions: Cocos Island, Southern Line Islands, and Northern Line Islands. Have students take turns reading selected blog entries aloud. For each expedition, ask:
What are the scientists studying?
What are their research questions?
How can mapmaking help them answer these questions?
What types of information should they map?
How would they use these maps to answer their questions?
What questions do you have about using maps in ocean research?

Extending the Learning

Go to National Geographic’s The Ocean: Live Expedition Tracker to see a map showing expeditions that are being conducted now. Click on any of the expeditions and invite a volunteer to read each project description aloud. For each project, ask the same questions as in step 2 above.

OBJECTIVES

Subjects & Disciplines

Geography
- Physical Geography

Learning Objectives

Students will:
- identify the focus of the research questions in The Ocean project
- describe what the project scientists are studying
- explain how maps can help to answer the research questions

Teaching Approach

- Learning-for-use
Teaching Methods

- Discussions
- Reading
- Visual instruction

Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
  - Analyzing
  - Understanding
- Geographic Skills
  - Analyzing Geographic Information
  - Answering Geographic Questions
  - Asking Geographic Questions

National Standards, Principles, and Practices

NATIONAL GEOGRAPHY STANDARDS

- **Standard 1:**
  How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information
- **Standard 18:**
  How to apply geography to interpret the present and plan for the future
- **Standard 3:**
  How to analyze the spatial organization of people, places, and environments on
PREPARATION

What You’ll Need

REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: 1 computer per classroom, Projector

PHYSICAL SPACE

- Classroom

GROUPING

- Large-group instruction

RESOURCES PROVIDED: WEBSITES

- National Geographic: The Ocean—Pristine Seas Expeditions

RESOURCES PROVIDED: INTERACTIVES

- National Geographic: The Ocean—Live Expedition Tracker

BACKGROUND & VOCABULARY

Background Information

Maps can be extremely valuable in helping ocean scientists answer their research questions. Marine maps can provide information about a variety of
activities, distributions, and earth and ocean features. Comparing maps with all of these features can reveal valuable information about the relationship between these variables and the overall geographic area that has been mapped.

Prior Knowledge

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Recommended Prior Activities

- Ocean Maps
- Real-World Uses of Ocean Maps

Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Part of Speech</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>expedition</td>
<td>noun</td>
<td>journey with a specific purpose, such as exploration.</td>
</tr>
<tr>
<td>marine ecosystem</td>
<td>noun</td>
<td>community of living and nonliving things in the ocean.</td>
</tr>
<tr>
<td>research</td>
<td>noun</td>
<td>scientific observations and investigation into a subject, usually following the scientific method: observation, hypothesis, prediction, experimentation, analysis, and conclusion.</td>
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FUNDER

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