

RESOURCE LIBRARY
ACTIVITY : 15 MINS

Ocean Exploration

Students brainstorm what it means to be an explorer, watch a short video, and write or draw on a world map what they would like to explore in the ocean.

GRADES

3 - 8

SUBJECTS

Earth Science, Oceanography, Geography, Physical Geography

CONTENTS

1 Image, 2 Videos, 1 Link

OVERVIEW

Students brainstorm what it means to be an explorer, watch a short video, and write or draw on a world map what they would like to explore in the ocean.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/ocean-exploration/>

DIRECTIONS

1. Discuss the concept of exploration.

Ask students, *What does it mean to be an explorer?* In their notebooks, have them finish the sentence, *Being an explorer means....* Give students time to complete their thoughts and then have them share their sentences within a small group or with a partner depending on the number of students. Ask groups to share any similarities or differences between their individual definitions with the class.

2. Consider what we know and don't know about the ocean.

Explain to students that they will view a video of the famous ocean explorer, Robert Ballard. An Explorer-in-Residence, Robert Ballard is famous for his discovery of the location of the sunken ship the *Titanic* and for the discovery of hydrothermal vents. Show students the illustration of a hydrothermal vent from the Resource Carousel, and explain that prior to Ballard's discovery of the vents, people did not know they existed. The vents were a true discovery. Ask students to listen for this story while they watch the video. Show students the short video "Exploring the Edge of Existence" from the Resource Carousel.

Discuss student reactions to the video. Ask: *Are you surprised that people know so little about the ocean?* In fact, more than 95 percent of the ocean remains unexplored. Give students an opportunity to adjust their sentences from step 1, and discuss any new insights the video gave them about exploration.

3. Brainstorm about ocean exploration on a world map.

Divide students into eight groups, and give each group a panel from the tabletop version of the World Physical MapMaker Kit. Ask students to draw, color, or write on their panel what they think is waiting to be discovered in their part of the ocean.

4. Students share their ideas with each other.

Assemble the eight sections of the map as a class. Give students time to see what each group showed on their sections. Ask: *What similarities and differences are there between the tiles?* Ask for volunteers to share what they drew and why.

Tip

Laminate the individual sheets of paper and use dry or wet-erase markers so that you can reuse the map.

Tip

You can provide magazines, glue, and any other art supplies to the students for use during their brainstorm on the map panel.

Extending the Learning

Have students do further research on an ocean location they would like to explore. Have them create a presentation about the location and what they think they might find there.

OBJECTIVES

Subjects & Disciplines

Earth Science

- [Oceanography](#)

Geography

- [Physical Geography](#)

Learning Objectives

Students will:

- describe a discovery that has been made by an ocean explorer
- identify an area of the ocean they wish to explore

Teaching Approach

- Learning-for-use

Teaching Methods

- Brainstorming
- Discussions

Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
 - Analyzing
 - Applying
- Geographic Skills
 - Acquiring Geographic Information

National Standards, Principles, and Practices

NATIONAL GEOGRAPHY STANDARDS

• Standard 3:

How to analyze the spatial organization of people, places, and environments on Earth's surface

• Standard 6:

How culture and experience influence people's perceptions of places and regions

OCEAN LITERACY ESSENTIAL PRINCIPLES AND FUNDAMENTAL CONCEPTS

• Principle 5e:

The ocean is three-dimensional, offering vast living space and diverse habitats from the surface through the water column to the seafloor. Most of the living space on Earth is in the ocean.

• Principle 5g:

There are deep ocean ecosystems that are independent of energy from sunlight and photosynthetic organisms. Hydrothermal vents, submarine hot springs, and methane cold seeps rely only on chemical energy and chemosynthetic organisms to support life.

• Principle 7a:

The ocean is the last and largest unexplored place on Earth—less than 5% of it has been explored. This is the great frontier for the next generation's explorers and researchers, where they will find great opportunities for inquiry and investigation.

• Principle 7b:

Understanding the ocean is more than a matter of curiosity. Exploration, inquiry and study are required to better understand ocean systems and processes.

• Principle 7e:

Use of mathematical models is now an essential part of ocean sciences. Models help us understand the complexity of the ocean and of its interaction with Earth's climate. They

process observations and help describe the interactions among systems.

• **Principle 7f:**

Ocean exploration is truly interdisciplinary. It requires close collaboration among biologists, chemists, climatologists, computer programmers, engineers, geologists, meteorologists, and physicists, and new ways of thinking.

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Colored pencils
- Crayons
- Glue sticks
- Magazines
- Markers
- Notebooks
- Pencils
- Pens
- Scissors
- Tape

REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: Printer
- Plug-Ins: Flash

PHYSICAL SPACE

- Classroom

SETUP

Wall or floor space large enough to hang a giant map

GROUPING

- Large-group instruction
- Small-group instruction

OTHER NOTES

Print and assemble the map as a class or on your own before class using the assembly video provided in the resource carousel. If you do not have room for the large map, print several tabletop maps for the students to use in small groups.

BACKGROUND & VOCABULARY

Background Information

The ocean's basins have been explored for many years. Historically, people explored the oceans to find new ways to travel the globe or to establish new trade routes. Today, ocean exploration focuses on the ocean itself, as much of its depths are unexplored.

Prior Knowledge

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Recommended Prior Activities

- None

Vocabulary

Term	Part of Speech	Definition
discovery	<i>noun</i>	something seen, documented, or noticed for the first time.
exploration	<i>noun</i>	study and investigation of unknown places, concepts, or issues.
explorer	<i>noun</i>	person who studies unknown areas.
Explorer-in-Residence	<i>noun</i>	pre-eminent explorers and scientists collaborating with the National Geographic Society to make groundbreaking discoveries that generate critical scientific information, conservation-related initiatives and compelling stories.
hydrothermal	<i>adjective</i>	related to hot water, especially water heated by the Earth's internal temperature.

Term	Part of Speech	Definition
ocean	<i>noun</i>	large body of salt water that covers most of the Earth.
vent	<i>noun</i>	crack in the Earth's crust that spews hot gases and mineral-rich water.

For Further Exploration

Articles & Profiles

- [National Geographic Explorers: Robert Ballard, Ocean Explorer](#)

Websites

- [National Geographic: The Ocean](#)

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