NATIONAL GEOGRAPHIC

RESOURCE LIBRARY
ACTIVITY : 30 MINS

Mapping Blue Whale Migration

Students study whale migration routes using a map scale. They create stories of whale migrations drawing upon the reasons behind animal migration.

GRADES

3 - 8

SUBJECTS

Earth Science, Geology, Oceanography, Geography, Physical Geography

CONTENTS

1 Image, 1 Video, 1 Link

OVERVIEW

Students study whale migration routes using a map scale. They create stories of whale migrations drawing upon the reasons behind animal migration.

For the complete activity with media resources, visit:
http://www.nationalgeographic.org/activity/mapping-blue-whale-migration/

DIRECTIONS

1. Brainstorm marine organisms that migrate throughout the ocean.

Ask students: *Can you name some animals that migrate?* Write their responses on the board, then refer to their list and ask: *Which of these animals use the ocean during their migration?* Draw circles around the animals that students name, and give students an opportunity to add any new ideas to the list.

2. Discuss reasons for animal migration and reasons for studying it.

Ask students: *Why do animals migrate?* Explain that many marine organisms migrate because of seasonal environmental changes. Animals need to move to find food and water, to mate, to lay their eggs or give birth, or to find places to raise their young. Scientists want to better understand the exact triggers of migrations. Specifically, it is difficult to determine how animals "know" when it is time to migrate. To study migration, scientists often tag animals with a special technology that allows them to track and map their movements.

3. Map North Pacific blue whale migration routes.

Display the Whale Migration photo from the Resource Carousel and ask students what they think this map represents. Explain to students that each colored line represents an actual North Pacific blue whale's migration. This map was created using data that researchers were able to collect by tagging whales.

Break students into three groups and assign each group a migration path (white, light brown, or dark brown). Have each group draw their whale's migration route on a printed World Physical MapMaker tabletop map. Students replications will not be exact, but ask them to include as many details as they can.

4. Measure migration distance on the World Physical MapMaker Kit.

Using the scale on the map and a string to measure distance, have students calculate the distance their assigned whales traveled during their migrations. Explain that a map scale translates distance on a map into distance in the real world. Have student groups compare their measurements with one another and create a class chart with their data so that all the groups know how far each whale traveled.

5. Students pretend to be scientists and create stories about the whales' migrations.

Have students pretend to be scientists studying animal migrations. Ask: *Why did the three whales travel different distances and different places?* Ask each group to come up with a story about why their assigned whale traveled where it did. Ask: *What happened along its*

migration route that led the whale to travel the places it did? Remind students to incorporate reasons for animal migrations in their stories. Animals need to move to find food and water, to mate, to lay their eggs or give birth, or to find places to raise their young. Encourage students to attach specific events to locations along the migration route they plotted earlier in the activity. What happened where to the whale? Have each group share their whale's story with the rest of the class using the map as a visual aide.

6. Discuss the difficulties in studying animal migration routes.

Discuss how studying animal migrations is challenging for scientists as they evaluate how events at different stages, or locations animals visit during their migrations, add up to impact the overall health of a species. Illustrate this point by having a class discussion on the similarities and differences in the stories they created about their whales.

Tip

Laminate the individual sheets of the MapMaker Kit map so you can re-use it for several years.

Tip

When students are coming up with their stories about the whales, encourage them to be creative. There is no right or wrong answer as to why the whales went where they did.

Modification

You can adapt the activity for different MapMaker Kit sizes as needed for different settings.

Extending the Learning

- Have students follow real-time marine organisms for a week. Start each day by logging on to GTOPP (Global Tagging of Pelagic Predators). Have students plot different migrations on the map.

- Discuss the human impact on animal migrations. Point to various locations along the whales' migrations and ask how human activities there might have impacted an animal's journey. Factors such as warming climate can confuse species about when to migrate. Shipping routes often result in collisions with migrating whales, and light pollution in coastal areas can confuse species that normally follow the light of the moon when nesting. Animals often encounter a location that has changed with development of what used to be a natural area. By studying migration, humans can better protect places that animals need for survival.

OBJECTIVES

Subjects & Disciplines

Earth Science

- Geology
- Oceanography

Geography

- Physical Geography

Learning Objectives

Students will:

- identify a major migration route taken by blue whales
- use a map scale to calculate the distances of migrations of several marine organisms
- consider human impacts on whales and other migrating marine species

Teaching Approach

- Learning-for-use

Teaching Methods

- Brainstorming
- Cooperative learning
- Discovery learning
- Discussions

Skills Summary

This activity targets the following skills:

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

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 3:**
How to analyze the spatial organization of people, places, and environments on Earth's surface

OCEAN LITERACY ESSENTIAL PRINCIPLES AND FUNDAMENTAL CONCEPTS

• **Principle 5a:**
Ocean life ranges in size from the smallest virus to the largest animal that has lived on Earth, the blue whale.

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Markers

- Scissors
- String
- Tape

REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: 1 computer per classroom, Printer
- Plug-Ins: Flash

PHYSICAL SPACE

- Classroom

SETUP

Students at several tables with printed tabletop maps

GROUPING

- Large-group instruction

BACKGROUND & VOCABULARY

Background Information

Many species of marine animals migrate seasonally, annually, or several times over the course of their lifetimes. Organisms travel great distances in search of food, mates, or places to raise their young. By studying migrations, scientists can learn how to better protect the traveling organisms.

Prior Knowledge

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Recommended Prior Activities

- None

Vocabulary

Term	Part of Speech	Definition
blue whale	*noun*	species of marine mammal that is the largest animal to have ever lived.
conservation	*noun*	management of a natural resource to prevent exploitation, destruction, or neglect.
map scale	*noun*	relationship between distance on a map and distance on the ground.
migration	*noun*	movement of a group of people or animals from one place to another.
migration route	*noun*	path followed by birds or other animals that migrate regularly.
ocean	*noun*	large body of salt water that covers most of the Earth.
seasonal	*adjective*	likely to change with the seasons.
seasonal migration	*noun*	movement of animals or other organisms determined by the changing weather or seasons, or in response to labor or climate conditions. For animals, seasonal migration usually refers to movement to a warmer climate during the winter and a cooler climate during the summer. For humans, seasonal migration may happen because of drivers such as crop and livestock management or tourism.
trigger	*verb*	to cause or begin a chain of events.

For Further Exploration

Websites

- National Geographic: The Ocean
- National Geographic Animals: Blue Whale
- Global Tagging of Pelagic Predators (GTOPP): About

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