

RESOURCE LIBRARY

ACTIVITY : 1 HR 30 MINS

Internal and External Migration Cues

Students read about the internal and external cues that trigger animals to migrate. They use maps to analyze migration routes, watch videos, and answer questions.

GRADES

5 - 8

SUBJECTS*Biology, Ecology, Experiential Learning, Geography, Physical Geography***CONTENTS**

4 PDFs, 5 Videos, 6 Links

OVERVIEW

Students read about the internal and external cues that trigger animals to migrate. They use maps to analyze migration routes, watch videos, and answer questions.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/internal-and-external-migration-cues/>

Program


GREAT
MIGRATIONS

DIRECTIONS

1. Discuss how animals know when to migrate.

Ask: *How do animals know when to migrate?* Explain to students that they will learn about internal and external signals that cue animals to migrate. Review with students what most

animals need to survive: air, water, food, and the ability to reproduce. Tell students that there are many reasons that animals begin their season of migration. Each animal species might have one or more cues that trigger the movement. Scientists are still studying the complex ways that animals know when to start moving.

2. Have students brainstorm possible migration cues.

Divide students into groups of three. Ask each group to brainstorm any changes in the environment that might signal to a species that it is time to migrate, such as length of day, changes in vegetation, changes in precipitation and temperature, other species' behavior, and human impacts. Have each group generate a list. Then discuss and compile a class list on the board.

3. Build background on internal and external migration cues.

Distribute a copy of the worksheet Migration Cues to each student. Preview the worksheet by reading aloud the directions. Then have students follow along as you introduce the information on external and internal migration cues. Allow students to ask any questions they may have about migration cues.

4. Introduce the video clips from *Great Migrations*.

Divide students into six small groups. Tell students they will watch five video clips from the series *Great Migrations* in order to observe and understand the natural cues that trigger migration in different species. Encourage them to listen for information about internal and external cues as they watch the video clips.

5. Watch a video clip from *Great Migrations* and have groups find additional facts.

Show students the video clip "Wildebeest Migration." Then have small groups identify internal and external migration cues for that species. If time allows, have groups also use the National Geographic Animals: Wildebeest web page to find additional facts about the migration cues for wildebeest. Allow students enough time to complete the row for that species in the worksheet.

6. Repeat the process with four additional video clips.

Show students "Red Crab Mothers" and "Red Crab Eggs" and allow them time to complete the second row in the worksheet, including time to use the National Geographic Animals website to find additional facts about the species. Repeat the same process for the video clips "Sperm Whale Migration" and "Monarch Migration."

7. Have students complete the second worksheet.

Distribute copies of the worksheet What Spurs Migration? to each student and have students complete it independently.

8. Have a whole-class discussion about what triggers migration.

Discuss students' completed worksheets as a class.

Informal Assessment

Have students return to their six small groups. Assign each group one question from the worksheet What Spurs Migration? Allow groups time to discuss their question. Then have each group present their answer to the class. Allow time for questions and answers after each presentation.

Extending the Learning

Explain to students that some animals react to the amount of sunlight in the day. Others react to the changing temperature or precipitation of the shifting seasons. In summer, many animals migrate higher in elevation or latitude because the lower elevations and latitudes are too hot and dry to produce enough water and food. The higher elevations and latitudes offer a cooler climate with more food and water available. In the winter the reverse is true. Have students look at the MapMaker Interactive with the data layers of Precipitation/Rainfall and Surface Air Temperature checked. Then have students use the National Geographic Animals website to compare the interactive map to the maps of these species' ranges: monarch butterflies, wildebeests, and sperm whales. Ask: *What connection, if any, do you see between temperature or precipitation and the direction of the migration routes?*

OBJECTIVES

Subjects & Disciplines

Biology

- Ecology
- Experiential Learning
- **Geography**
 - Physical Geography

Learning Objectives

Students will:

- distinguish between internal and external signals that cue animals to migrate
- describe which cues are involved in the migratory patterns of each species observed in video clips from

Teaching Approach

- Learning-for-use

Teaching Methods

- Discussions
- Hands-on learning
- Multimedia instruction
- Reading
- Research

Skills Summary

This activity targets the following skills:

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

- [Answering Geographic Questions](#)
- [Organizing 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

NATIONAL SCIENCE EDUCATION STANDARDS

- **(5-8) Standard C-1:**

Structure and function in living systems

- **(5-8) Standard C-3:**

Regulation and behavior

- **(5-8) Standard C-4:**

Populations and ecosystems

- **(5-8) Standard C-5:**

Diversity and adaptations of organisms

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Pencils
- Pens

REQUIRED TECHNOLOGY

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

- Plug-Ins: Flash

PHYSICAL SPACE

- Classroom

GROUPING

- Large-group instruction
- Small-group instruction

BACKGROUND & VOCABULARY

Background Information

Animal migration is the large-scale movement of a species from one place to another. Most species migrate during specific seasons, in search of food or water, or for mating reasons. Different species obey different internal and external signals that cue their migration.

Prior Knowledge

["examples of animal migration", "reasons animals migrate"]

Recommended Prior Activities

- [Animal Navigation](#)
- [Many Moves of Migration](#)
- [Why Animals Migrate](#)

Vocabulary

Term	Part of Speech	Definition
migrate	<i>verb</i>	to move from one place or activity to another.
migration cue	<i>noun</i>	natural signal, such as a change in temperature, to which animals respond by migrating to more hospitable habitats.
migration route	<i>noun</i>	path followed by birds or other animals that migrate regularly.

Term	Part of Speech	Definition
precipitation	<i>noun</i>	all forms in which water falls to Earth from the atmosphere.
reproduce	<i>verb</i>	to create offspring, by sexual or asexual means.
species	<i>noun</i>	group of similar organisms that can reproduce with each other.
species range	<i>noun</i>	native, geographic area in which an organism can be found. Range also refers to the geographic distribution of a particular species.
temperature	<i>noun</i>	degree of hotness or coldness measured by a thermometer with a numerical scale.
vegetation	<i>noun</i>	all the plant life of a specific place.

For Further Exploration

Articles & Profiles

- [National Geographic Magazine: Animal Migrations](#)

Audio & Video

- [National Geographic Channel: Red Crab Marathon](#)

Interactives

- [National Geographic Animals: Migrations Quiz](#)
- [National Geographic Channel: Great Migrations—3D Animal Migration Globe](#)

FUNDER

PRESENTED BY

HONDA
The Power of Dreams

