Flyways

Students observe animal migration patterns.

Teacher Notes for Discussion

To prepare for this activity, take some time to become familiar with migration patterns of animals found in your area.

This activity works best as an on-going class activity. Ideally, students should observe a fall through winter migration or winter-spring migration. Set a specified time like a semester or couple of weeks for observation.

In the culminating activity, students write a composition to discuss what they observed through fieldwork, learned in research, and how the two types of information complement one another. For example, if students choose to observe the robin, does their robin fieldwork concur with researched material? Does the data disagree?

Related Standards and Benchmarks

Science

Standard 7. Understands how species depend on one another and on the environment for survival

- knows that organisms can react to internal and environmental stimuli through behavioral response which may be determined by heredity or from past experience
- knows factors that affect the number and types of organisms an ecosystem can support
- knows relationships that exist among organisms in food chains and food webs

Standard 15. Understands the nature of things

- uses appropriate tools and techniques to gather, analyze, and interpret scientific data
- knows that scientific inquiry includes evaluating results of scientific investigations, experiments, observations, theoretical and mathematical models, and explanations proposed by other scientists
- establishes relationships based on evidence and logical argument
- knows possible outcomes of scientific investigations

Language Arts

Standard 4. Gathers and uses information for research purposes.

- uses a variety of resource materials to gather information for research topics
- determines the appropriateness of an information source for a research topic
- writes research papers

Objective

After completing this activity, students should be able to:

- identify migrating species in their community.
- identify questions necessary for scientific inquiry.
- understand the traits of migrating species.
- use scientific techniques to learn about migration and other behaviors of these species.

Time Considerations

Instructor preparation: one hour

Student activity: two classes plus a week to a semester for field observation

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Understand Your Mission

In this activity, you will identify migrating species and look at some of the seasonal movements of birds to learn more about where they are coming from, where they are going, and how they use their surroundings.

Learn the Lingo

habitat	the area or locality in which an organism normally lives
hibernate	to spend the winter inactive or dormant
migration	long distance animal movement, often involving large populations of organisms and often seasonal
raptors	birds of prey
trait	a distinguishing quality or inherited characteristic

Gather Your Supplies

- ❑ binoculars
- ❑ field guides
- ❑ poster board
- ❑ index cards
- ❑ maps of the U.S. and/or Mississippi River valley
- ❑ notebook
- ❑ reference material
- ❑ bulletin board
- ❑ Internet (optional)

Chart a Course for Exploration

An amazing variety of birds migrate through the Mississippi Flyway each spring and again each fall. They follow the north-south riverbed through the central portion of the North American continent.

Part A

Begin by listing all the animals that you know leave your area/town/state for at least one season. Include songbirds, raptors, waterfowl, and insects. Do not include animals that hibernate or die in the winter. If you are not sure about any of the animals, use a field guide, the library, or the Internet to research the animal. Brainstorm a list of everything you already know about migration.

Part B: Generate a list of questions about migration.

Group the questions into two categories:

1. questions that can be answered through library or Internet research, inter views, or guest speakers
2. questions that can be investigated through field research

Part C: Choose two animals to use in your library and field research.

1. Library Research

Choose one of your library/Internet questions and research the answer.

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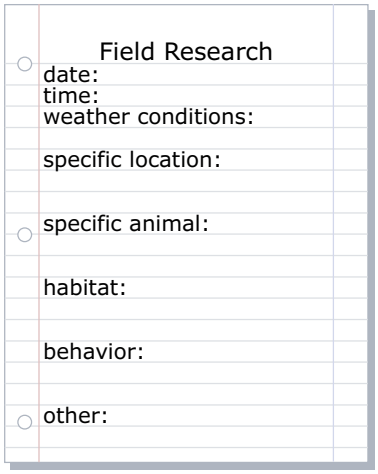
2. Field Research
Observe the animals. Keep a journal in which to record your animal information. Include the date, time, weather conditions, specific location, specific animal, habitat, behavior, and anything else that seems important to (you such as any sounds the subject is making).



Part D: Draw Conclusions
Use the times, dates, locations, weather conditions, and habitats of each species to establish similarities and differences between the two animals. Write the conclusions in your journal.

Part E: Present Your Findings
Use posters, reports, or presentations to present your findings to the rest of the class.

Go Beyond

Report your weekly observations of bird migrations to Wildlife Preservation Trust International's Web site <http://www.wpti.org/> or contact them at the following address to learn what else you can do to help real scientists at work in this field of study.

The Wild Ones

c/o Wildlife Preservation Trust International

1520 Locust Street, Suite 704
Philadelphia, PA 19102 USA

Tel: 215.731.9770

Fax: 215.731.9766

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	EXPERT	PROFICIENT	NOVICE
RESEARCH AND PREPARATION	❑ uses and credits 5 challenging, reliable, and appropriate resources ❑ uses appropriate evidence and examples ❑ uses any extra time	❑ uses several reliable, appropriate resources ❑ credits fewer than 5 resources ❑ makes an effort to use evidence and examples ❑ uses preparation time well	❑ uses few resources ❑ no resources credited ❑ uses little evidence and few examples ❑ spends little time on preparation
CONTENT	❑ includes information on the animal, its young, where it migrates, and how it migrates ❑ incorporates obser-vations with research to hypothesize migration patterns ❑ discusses possible problems the animal encounters ❑ uses a logical order	❑ includes information on the animal, where and how it migrates ❑ includes information gathered from observations ❑ uses a logical order	❑ includes information, field research, personal observations, or textual material ❑ illogical or difficult to understand ❑ omits important information
ILLUSTRATIONS	❑ provides several detailed illustrations ❑ easily understand-able and visually appealing ❑ support purpose	❑ at least two accurate illustrations are provided ❑ easy to understand and show good effort	❑ at least one illustra-tion is provided ❑ shows no connection between illustrations and writing ❑ shows little effort
WRITTEN ELEMENTS	❑ contain no major errors ❑ thoroughly proofread and revised ❑ support main ideas with rich details	❑ have few major errors ❑ support ideas ❑ need more revising	❑ contain errors making it difficult to read ❑ need to be proofread and revised ❑ do not support main ideas

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FURTHER READING

Peterson, R.T. *A Field Guide to the Birds of Eastern United States*. Boston: Houghton Mifflin Co., 1980.

Clark, W.S. & B.K. Wheeler. *A Field Guide to the Hawks of North America.* Boston: Houghton Mifflin Co., 1987.

Bent, A.C. *Life Histories of North American Birds of Prey.* New York: Dover Publications., 1961.

Jodts, Vic. Purple Martin Organizations. Groups, and Clubs <http://www.tyrell.net/~deadbird/organ.htm>, March 13, 2000.

Lovett, Jim. Monarchs: Links to Other Resources. <http://ron.nhm.ukans.edu>, March 13, 2000.

Tarski, Christine. Migration Net Links. <http://birding.miningco.com/msub14-migration.htm>, March 13, 2000.

The Annenberg/CPB Projects. *Journey North: A Global Study of Wildlife Migration*. <http://www.learner.org/jnorth/>, March 13, 2000.

Wetherill, Charles. *Migration Maps for Some North American Neotropical Migrants*. <http://birding.miningco.com/msub14-migration.htm>, March 13, 2000.

Wildlife Preservation Trust International. Bird Migration Project. <http://www.thewildones.org/migration.html>, March 13, 2000.