

How Birds Make a Living

Grade Level: 4-6

Nutshell

Students receive food-gathering tools representing different bird beaks. Using these tools, they gather “food” from 4 different habitats. Later, these tools are related to bird beaks through the use of mounted bird specimens. Students discuss how birds have special structures to do certain “jobs” and how birds have adapted to specific habitats.

Objective

Upon completion of this lesson, students will be able to:

- List at least 4 characteristics unique to birds;
- Compare the functions of 4 tools with the functions of bird beaks;
- Given a birds beak shape and structure, suggest one possible food eaten by the bird;
- Based on their adaptations, place 4 birds in appropriate habitats.

How Birds Make a Living Pre-visit Activities

The following materials are aids to help prepare your students for their visit to the Central Wisconsin Environmental Station. The vocabulary list contains terms and concepts your students will encounter in their visit. Please modify the definitions as needed. The activities listed below are merely options- it is not necessary to do them all or to follow any particular order. Keep in mind that your student's learning experiences at CWES will be enhanced if they are familiar with these concepts and terms prior to the on-site activities.

Vocabulary

Adaptation: Anything physical or behavioral that an organism has or does that helps it survive in its environment.

Habitat: the surroundings in which an animal lives, where all its needs for life are found; the address of a species

Niche: the job or role that a living thing has in its community or habitat. For example, it may be a consumer, producer, or decomposer.

Activity #1

Introduce the vocabulary words to the students and give some examples using familiar animals (except birds.) For example, a fox's sense of smell is an adaptation to help it hunt. Its niche is that of a predator (it helps control the population of rodents) and its habitat is fields or forests.

Next, have each student pick one Wisconsin animal (not a bird.) Choose from mammals, reptiles, fish, amphibians, or insects. Using books from the library, the students should prepare a brief report on their animal and find out

- What type of habitat the animal requires (not its geographical range.)
- What special features (adaptations) the animal has to help it survive in its environment, and
- What the animal's job (niche) is in the natural community.

The report should include a photograph or drawing of the animal showing at least one of the following: 1) habitat, 2) niche, or 3) adaptation.

Set aside some time and have the students present their findings to the group. Post the pictures and reports on a bulletin board with an appropriate title.

Follow up with a brief discussion about the animals. Try and include some of the following questions:

- Do you think every animal has a habitat? Adaptations? A niche? (*Yes, they do.*)
- Can two different types of animals have the same type of habitat? (*Yes, field mice and grasshoppers both live in fields and meadows.*)
- Could two different animals fill the exact same niche? (*No, at least not in the same place at the same time. Such competition to fill similar needs would result in reducing or eliminating both species. Owls and hawks, for example, can live in the same habitat and have the same niche – feeding on small mammals – but hawks are active during the day and owls are active at night.*)
- How might habitat, adaptations, and niche be related? (*An animal lives where it can make the best use of its adaptations to live and do its natural job.*)

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Activity #2

Re-use throwaway or recyclable containers to create a homemade (or class-made) bird feeder. This can be easily done by placing dowels through the sides of 2-liter soda bottles to create perches for the birds to stand on. Flip the bottle upside down, and cut holes for the seed above the dowels. Hang the bottles on nearby trees where you can observe them through your classroom or home windows. Keep a journal of the activities you observe around your bird feeding station. If it is fall or winter, please remember to keep the bird feeders filled, because the birds will come to depend on your food source.

Activity #3

Have the students write and illustrate a story about a day in the life of one bird they have observed. Encourage them to be creative, and to give their bird a unique name. How does this bird make it's living? Is the day they are describing a typical or unusually exciting day? Have field guides available for them to discover information about what the bird eats, where it might live, and what it does in winter (i.e. does it take a vacation to a tropical place or stay and enjoy the snow?) Have the students share the stories with each other. You could even put together a class book of birds.

How Birds Make a Living Post-visit Activities

A visit to the Central Wisconsin Environmental Station can be a school-year highlight for both students and their educators. We feel the knowledge and concepts gained during a Station visit apply outside the Station as well. The following activities will allow students to expand their knowledge and help them incorporate those lessons into their everyday lives. Feel free to pick from and modify the activities as best suits your group.

Vocabulary

Natural selection: the process by which populations of plants and animals become modified in response to the environment.

Endangered species: a species that is in danger of becoming extinct.

Extinct: a species that is no longer found alive on Earth.

Activity #1

In class, review the concept that adaptations are characteristics of living things, which help them to survive in their habitat. Living things cannot develop adaptations quickly. Adaptations are developed over a long period of time through a process called natural selection.

In discussion, ask what might happen to an animal if its habitat were changed suddenly and drastically. Make sure to ask for several examples (e.g. fish in a forest, squirrel in a pond.) Try to get answers to the following questions for each example.

- What would happen if you moved a Wisconsin deer to a desert?
- Could the animal use its old adaptations in the new environment? *Sometimes yes, and sometimes no.*
- Would the animal need different adaptations to survive? *Probably it would.*
- What adaptations would be needed?"

Now ask the students "how might an animal's habitat be changed? (*fire, windstorms, floods, earthquakes, construction, logging, and pollution are possible answers.*) Make a list of reasonable answers. Have the students find or create before and after a picture of habitats before and during or after a drastic change has occurred. Create a bulletin board of the pictures. Ask if humans cause any of these changes. Ask students which changes are caused by humans and what effect these changes have on the animals living there. Ask them why they think it is important to preserve animal habitats. What type of habitat do they think their own school was built on? Are the same animals here today that were there before the school was built? Does anyone have any ideas how we can protect animals' habitats?

Activity #2

Discuss the idea that loss of habitat is the main cause leading to a plant or animal becoming an endangered species. Explain that the term "endangered" is close in both meaning and spelling to the phrase "in danger". Species is the term given to one type of plant or animal, so endangered species refers to certain types of plants or animals that are under the threat or "in danger" or being eliminated from the earth.

Make up two sets of cards with the names of familiar Wisconsin plants or animals on them. These should be distributed randomly in the class so that each student has a card and an unidentified partner in the class with the same animal. Tell the students to imagine it is 30 years from now and their animal is now extinct (not alive on

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earth.) How would they describe the animal to a person who had never seen it? Instruct them to neatly (so other students can read it) answer the following questions in short sentences on the back of a card:

- Describe the animal without using its name.
- Where did the animal live? What kind of area? How big was this area?
- What special features did it have to help it live where it did?

When they are finished, tell the students to hold their cards against their bodies so that the name cannot be read, but the descriptions can be. Have them move around the room and find the other person with their animal without talking, only reading the descriptions. When they have found their partners, have them brainstorm possible changes that might have actually occurred in their animal's habitat to cause (imaginary) extinction, and how their animal would have to adapt in order to survive.

Activity #3

Explore the topic of how birds communicate with each other. Some common ways they send messages to each other include territorial songs, alarm calls, flashing color patches (e.g. rump feathers) and postures (e.g. crane dances or mallard talk shakes.) Scientists have closely studied some birds' communication behaviors. For example, the blue jay uses its crest (elongated crown feathers) to "send" messages. In moments of high excitement or surprise, or to show acts of aggression, the blue crest may not be fully erected and bristled slightly forward of the perpendicular. However, when it is feeding close to other jays, is resting, or is ready to flee, its crest is laid flat on the top of its head. If it is frightened, the blue jay bristles the crest feathers out like a bottlebrush. Research how other birds communicate with one another and, if possible, get outside to observe some birds. Compare the different methods that they use to communicate with one another.

Now compare the different ways that humans may communicate with each other (e.g. body language, clothing, makeup, yelling, whispering, wearing a group insignia, smoke signals, fences, signs, license plates, music.) Discuss how important communication may be in natural and human-made environments.

Activity #4

"When the bird and the book disagree, always believe the bird."

- Birdwatcher's Proverb

Explore the meaning of the above saying. Do you agree? What do you think this infers about how we gather information as we do research projects inside the classroom? What about as we research outside the classroom? (Proverb excerpted from Cornell, Joseph. 1987. *Listening to Nature: How to Deepen Your Awareness of Nature*. Dawn Publications.)

Activity #5

Ask the students to bring some examples of birds in art from home. Ideas include porcelain creations, books of Audubon paintings, woodcarvings, origami birds, jewelry, and pottery. What do the samples say about birds in our culture? What about other cultures' representations of birds in art?

Activity #6

Over a one-month time period, categorize news feature stories and articles of similar content (e.g. endangered species, bird rehabilitation and release, backyard bird feeding and house buildings, etc.) Analyze the results. What do you think the results might mean about birds and humans today? Tomorrow?

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How Birds Make a Living Resources

Teacher Resources

Pettit, Theodore S. 1970. Bird Feeders and Shelters You Can Make. New York: Putnam.

Ranger Rick's NatureScope. Birds, Birds, Birds. Washington D.C.: National Wildlife Federation.

Youth Resources

Brownlie, Betty. 1992. The Life Cycle of the Common Sparrow. New York: Scholastic, Inc. (grades K-9)

Fichter, George S. 1993. Cardinals, Robins, and Other Birds. Racine, WI: Western Publishing Company, Inc. (grades K-4)

Flanagan, Alice. 1996. Songbirds. New York: Children's Press.

Johnsgard, Paul A. 1981. Those of the Gray Wind: The Sandhill Cranes. Lincoln, NE: University of Nebraska Press.

Matthews, Downs. 1990. Skimmers. New York: Simon and Schuster, Inc. (grades K-4)

Pembleton, Seliesa. 1989. The Pileated Woodpecker. Minneapolis, MN: Dillon Press, Inc. (grades K-9)

Sattler, Helen Roney. 1989. The Book of Eagles. New York: Lothrop, Lee and Shepard Books. (grades 4-6)

Williams, Nick. 1997. How Birds Fly. New York: Benchmark Books.

Yolen, Jane. 1990. Bird Watch. New York: Philomel Books. (grades K-6)