



Birds and Their Environment

Atlanta Audubon Society's *Learning About Birds* Curriculum Series

EDUCATOR'S GUIDE

Grade Levels
5 - 8

Objective

Students will explore birds' environments examining the relationships they have with other organisms and the roles they place in an ecosystem.

Background

Birds play a significant role in our local ecosystems. They can be consumers and decomposers in food webs, therefore creating dependency within their ecosystem. Conversely, the dynamics of a bird population in an ecosystem is affected when their food resources change.

The habits and behavior of birds can be easily observed and because of this, ornithologists have been able to conduct in-depth studies of species and populations. The nature of birds also provides a great way for students to see firsthand how birds interact with other organisms. This unit will provide a framework for studying birds' roles in their environments, their significance in the energy flow within an ecosystem, their relationships with other organisms, and how they are affected by environmental changes. Understanding birds in their environment can help us predict the outcome of environmental changes imposed by humans and how those changes can be mitigated.

Vocabulary

Community – A group of organisms that interact with each other.

Ecosystem – A place where living and nonliving things interact and exchange energy.

Environment – The habitat and conditions that surround an organism and influence its behavior.

Habitat – A place where an organism meets all of its needs for survival – food, water, shelter, and space.

Population – The number of individual organisms of the same species living in the same geographic area.

Producer – An organism that uses sunlight to make food.

Species - A single group of organisms that can produce offspring; a basic unit of biological classification.

Trophic Level – A position that an organism takes within a food web (see student guide for details on producers, consumers, and decomposers).

Content and Skills aligned to Georgia Performance Standards

Science - S5L1a; S7L1a,b.

Systems and Modeling - S5CS4b.

Communication – S5CS1a,b,c; S5CS5a,b,c,d; S5CS6a,b; S5CS8a,b; S7CS4a; S7CS6a; S7CS10a,c,d.

Activity 1 – Weave the Web

Essential Question: How do birds contribute to the energy flow of an ecosystem?

Suggested Time: 45-60 minutes

Space: Open area for moving around. You may conduct this activity indoors or outdoors.

Materials: Birds and Their Environment student guides; pens; index cards; masking tape; hole punch; glue stick; ball of string or yarn. *Optional:* field guides.

Instructional Methods

3. Ask students to read the sections “What is an Environment” and “Birds are an important part of an ecosystem” on the first page of Birds and Their Environment. Review the trophic levels of a food web with students. Ask students to think of examples of birds that they know of in your area that can represent each trophic level.
4. *Option 1:* Ask students to read over the Chippy Challenge on the second page of Birds and Their Environment. Students should use a pen to complete this activity. Ask students to label at least one organism in each trophic level.
Option 2: Before class, create tags for students to wear to weave an actual web by cutting out each picture of an organism with its description and gluing it to an index card. There should be 21 cards. You can use a hole punch and string/yarn to make them into necklaces or use masking tape to attach them to students' shirts. If you have more than 21 students, have some blank index cards available to create cards for the sun and additional organisms. To weave the web, ask students to form a circle and explain that you will all create a food web. Hand a

Activity 1 – Weave the Web continued

ball of string to a student. Ask him/her to say the organism's name they are wearing and then find another organism around the circle that it eats or is eaten by, hold onto the end of the string, and toss the ball of yarn to that student. Repeat until all students are included and a web is formed. Ask a student who has a bird to lightly tug on his/her yarn and ask students who felt the tug to raise their hands. Those that felt the tug are the organisms that would be affected by the loss of that particular bird from the food web. Repeat this with other birds.

Almost everyone will at some point raise their hand. Ask for students who think they are producers to raise their hands, and repeat with primary, secondary, and tertiary consumers, and decomposers. Ask a couple of students to explain why they represent these trophic level(s).

- Both options will reveal a missing trophic level (decomposer). If students have not noticed, ask them what is missing and why it is important for each trophic level to be represented? (To continue the energy flow within a system; decomposers need to provide nutrients to producers.)
- Wrap up by asking students to read the Rusty Blackbird paragraph in Birds and Their Environment. Summarize the information in a food web.

Activity 2 – Explore Your Environment continued

- Working in pairs or small groups, students will use 2 blocks of time to record observations about their outdoor environment around the school/facility. Students should record (a) types of organisms they see (plant descriptions may be broad) and where, (b) type of soil, (c) climate conditions, (d) weather, (e) landforms, and (f) sources of water. Students may choose any format to record observations. If possible provide field guides, binoculars, hand lenses, and a spade/spoon for digging soil. Be sure students record at least one bird.
- After data collection, students should be able to answer these questions:
 - What was the most numerous organism?
 - What role did the bird(s) have? Do you think it competes with another organism?
 - Identify a mutually beneficial relationship between two organisms.
 - (Instructor: Pick a realistic environmental change that could occur in this environment.) What would result from this environmental change?
 - Would it matter if one individual bird disappeared? How would this affect the population? The species?
- Conduct a group discussion outside to review what different groups discovered.

Activity 2 – Explore Your Environment

Essential Question: What role do birds play in your environment?

Suggested Time: (2-3) 45 minute sessions

Space: Flat surface for students to write and draw both indoors and outdoors.

Materials: Birds and Their Environment student guides; blank paper; clipboards; pencils. *Optional:* field guides; colored pencils; binoculars, hand lenses, spade/spoon.

Instructional Methods

- Instruct students to read through the first page of Birds and Their Environment. Review the definitions of ecosystem, environment, and habitat. Discuss how these concepts are related. (A habitat is part of an environment. An environment and a habitat both pertain to an organism, a population, or a species. An ecosystem contains a community, or group of different types of organisms interacting with each other, and therefore has multiple environments.) Draw a visual aid to help students understand.

Extension Ideas

- Identify the physical and behavioral adaptations that the bird(s) in Activity 2 have. How did they adapt to this environment?
- Obtain information from AAS about the decline and recovery of the Eastern Bluebird. Discuss how human environmental changes affected bluebirds both positively and negatively. What role does citizen science play in bird conservation?

Performance Tasks and Assessments

- If you completed Option 2 from Activity 1, use Option 1 to assess students' understanding.
- Obtain 2 Grow Native for Birds posters from AAS and use the pictures and information as a basis to map out a backyard environment centered around birds. Label the energy flow between organisms.

Additional Resources

