



National Park Service
U.S. Department of the Interior

Old-Growth Bottomland Forest
Research and Education Center

Congaree National Park

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Congaree K12 Lesson Plan: Congaree Birds

Unit: Organisms and Environments

Grade Level: 4th Grade
Duration: 60 Minutes
Objective: To identify common birds of Congaree National Park through sight and sound.
Curricular Areas: Science, English Language Arts, Visual Arts

Unit Description

Birds play an important role in an ecosystem. Not only do birds provide natural control for insects and other organisms (predators), but they also disperse seeds and provide food

for humans and other organisms. Birds can act as barometer of the environments health, and are fun to listen to and observe. Birds have distinct calls and songs.

Bird *song*, usually produced by the male, is an advertisement of territory and breeding availability, and, in most species, is limited to the breeding season. Most often, songs are used to attract a mate. Songs are a relatively long, often melodious, series of notes. Bird *calls* tend to be unmusical, and less complex than songs. Bird calls tend to be brief simple sounds such as a peep, cheep, or squawk. Calls serve a variety of practical functions. Most calls are used to coordinate behavior among other members of the species. For example, calls can be used to share their location, to warn others of a threat, and sharp notes can be used to intimidate or drive away enemies.

Lesson Description:

Students will be introduced to bird ecology at Congaree National Park. Students will explore the role and importance of bird songs. This lesson highlights six birds commonly found at Congaree National Park; some of these are year-round residents, but others are summer residents. One goal is for the students to be able to identify some of these birds using evidence from the sounds of birds. Another goal is for the students to use a field guide to identify common birds.

Essential Questions:

1. What are the characteristics of birds and why are birds important?
2. Why do birds make sounds?
3. How can bird sounds help us identify common birds of Congaree National Park?
4. How can we use field guides help us identify common birds of Congaree National Park?

Preparation:

Teacher Background:

1. This lesson is designed to be taught in one 60 minute session.
2. The instructor is expected to be familiar with the common birds of Congaree National Park and should also be comfortable with identifying, by sight and sound, the birds covered in detail (see list below).

Prerequisite Student Knowledge

- Students are expected to have knowledge of birds as one of five groups of vertebrates (fish, amphibians, reptiles, birds, and mammals) based on their physical characteristics.

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- Students are *not* expected to have previous bird identification experience.

Vocabulary

Behavior
Bird

Habitat
Migration

Senses
Vertebrate

Predator
Prey

Key Materials and Equipment

1. Audio files of bird calls and songs
2. Bird field guides
3. Bird coloring pages (attached)
4. Coloring supplies
5. Globe
6. Optional: Bird photographs or illustrations
7. Binoculars (optional)

Teacher Preparation (20 minutes+)

1. Spend some time learning the bird songs and walk outside to see if you can identify them.
2. Prepare audio files (see resources guide at the end of this lesson plan), field guides, and (optional) bird photographs or illustrations in the classroom.
3. Print bird coloring pages.

Instructional Objectives using the “5E” Model:

Engagement (15 Minutes)

Classroom Engagement (At School Site):

1. Pose the question, “What do you know about birds?”
2. Pair students up with a partner and discuss, then let them share as a group.
3. Record student’s responses on an anchor chart.
4. Read “ White Owl, Barn Owl” by Nicola Davies.

Before reading guide students through a book walk:

- “What do you think this book is about?”
- “What do you know about owls?”
- “What sounds do owls make?”

During and after reading guide students:

- What did the owl eat? Is he a predator or prey?
- What would happen if there were no predators to eat the mice?
- What noises came from the box? Was that what you expected? Why or why not?

*Inform students that they are going to explore more about birds, where they live and the songs and calls they

make when they visit Congaree National Park.

Congaree Engagement (5 minutes) What are the characteristics of birds and why are birds important?

1. Show student's pictures birds common to your geographical region. Discuss what it is and what makes birds unique. (Feathers)
2. Have students brainstorm reasons why birds are important. Five reasons include:
 - a. Birds provide natural control for insects and other organisms (predators)
 - b. Birds disperse seeds
 - c. Birds provide food for humans and other organisms (prey)
 - d. Birds provide important aesthetic elements (bird watching)
 - e. Birds serve as barometers of environmental health. (Use the globe to demonstrate how migratory birds affected in one area may cause changes in the ecology half way around the world.)

Exploration (10 minutes) Why do birds make sounds?

1. Play sounds from two different birds. Play the recording over and over and let the students discriminate between calls and songs. Have students identify a word or phrase to describe the sound.
 - a. *Calls* are shorter, rhythmic sounds used to communicate with each other (warning of predators, warning to other birds, territory marking, etc.)
 - b. *Songs* are more melodious sounds to attract mates or to sing for fun
2. Discuss why birds make sounds, and use this as a framework for defining calls and songs:
 - a. To communicate (contact, food, protection, etc.)
 - b. For courtship
 - c. Simply to provide pleasant sounds
3. Play the bird sound for one of the birds listed below. Ask the students as a class, to identify a word or phrase they could write that would describe the sound the bird is making that could be used to identify the bird outside.
 - a. For example, the Carolina Wren song sounds like "tea-kettle, tea-kettle, tea-kettle"

Elaboration (20 minutes) How can bird sounds help us identify common birds of Congaree National Park?

1. Write the names of each bird on a notecard. Distribute a notecard to each group of 2-3 students, keeping the identification of the bird a secret from the remaining groups.

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2. Listen to bird calls from the following list of birds common to Congaree National Park.
 - a. Play the recording of each bird call and song two or three times so students have an opportunity to listen to their assigned bird. Identify each bird sound as it is being played and have students listen for their bird.
 - b. Students should listen for their bird call and create words or phrases they might use to remember the calls. These phrases are often listed in field guides and make remembering much easier.
 - c. Once all recordings have been heard and students have had an opportunity to create their word or phrase, have each student group display their word or phrase on the wall. Do NOT have students identify their bird.
 - d. Replay the bird calls again and have the class match the bird sound to the word or phrase. Identify birds as you go through the playlist again.

Bird List (Congaree National Park)

Songbirds

- b. Carolina Wren (Song: “tea-kettle, tea-kettle, tea-kettle”)
- c. Eastern Wood Peewee (Song: ”pee-ah-wee”)
- d. Summer Tanager (Call: “pit-i-tuck”)

Owls

- a. Barred Owl (Call: “who-cooks-for-you, who-cooks-for-you-all”)

Woodpeckers

- a. Red-bellied Woodpecker (Call: “kwirr, churr, chaw”)
- b. Pileated Woodpecker (Call: “kuk-kuk-kuk”)

Alternate Bird List (common, distinct, year-round residents of urban central South Carolina)

- a. Carolina Wren (Song: “tea-kettle, tea-kettle, tea-kettle”)
- b. Northern Cardinal (Piercing, sliding whistle: “Kee-eer, Kee-eer”)
- c. Tufted Titmouse (Call: “Tsit Tsit Sree-hee-hee-hee”)
- d. Fish Crow (Nasal Call “Huh-uh... Huh-uh”)
- e. Carolina Chickadee (High pitched, descending Song: “Bee-Burr-Bee-Burr”, Call High pitched “Bee-Burr,” followed by lower “Chickadee-dee-dee-dee-dee”)

Extension 1 (15 minutes) How can field guides help us identify common birds of Congaree National Park?

1. Provide students with the bird coloring pages. Have them use the field guides to look up the birds' physical characteristics and to emulate those characteristics when coloring.
2. Have students look up one or more birds in field guides and record facts, be sure to encourage rotation of field guides among campers.
3. Write the class decided word or phrase for the birds sound on the coloring page.

Extension 2 (15 minutes)

1. Go on a bird walk alone around your area (home or school site). Listen for birds common in your area. Find pictures of these birds to be used on the walk with students. If pigeons are the only birds around your area, then that is what you want students to listen for.
2. Choose one or two birds for students to listen for while taking a walk around your area. Use the pictures to help students find the birds if possible. Encourage students to walk quietly.

Extension 3 (1 Month+)

1. Choose one or two "Bird(s) of the week" for several weeks. Play the calls regularly during the day. Have the students research the "Bird(s) of the week". Working on one bird at a time repetitively gives students ample opportunity to really become "fluent" with the call.
2. In weeks 2-4, mostly focus on the bird(s) of the week, but begin to mix in some of the previous calls to help students practice their identification skills.

Evaluation (10 minutes)

1. Students are encouraged to answer the journal question: "If you could be any bird at Congaree for a day, which one would you choose and why?"

Standards

Core Science Standards (2005):

- 4-2.1: Classify organisms into major groups (including plants or animals, flowering or nonflowering plants, and vertebrates [fish, amphibians, reptiles, birds, and mammals] or invertebrates) according to their physical characteristics.
- 4-2.3: Explain how humans and other animals use their senses and sensory organs to detect signals from the environment and how their behaviors are influenced by these signals.

4-2.5: Explain how an organism's patterns of behavior are related to its environment (including the kinds and the number of other organisms present, the availability of food and other resources, and the physical characteristics of the environment).

4-2.6: Explain how organisms cause changes in their environment.

Core Science Standards (2014):

4.P.1A.2 Develop, use, and refine models to (1) understand or represent phenomena, processes and relationships, (2) test devices or solutions, or (3) communicate ideas to others.

4.P.1A.4 Analyze and interpret data from...observations...to (1) reveal patterns and construct meaning or (2) support explanations, claims, or designs.

4.P.1A.6 Construct explanations of phenomena using (1) scientific evidence and models, ...(3) predictions based on observations and measurements...

4.L.5B.1 Develop and use models to compare how humans and other animals use their sensory organs to detect and respond to signals from the environment.

4.L.5B.3 Construct explanations for how structural adaptations allow animals to survive in their environment.

Other Science and Allied Standards:

English Language Arts (2009)

4-R1.1: Demonstrate the ability to use a variety of strategies to derive meaning from texts and to read fluently.

4-R1.7: Demonstrate the ability to ask and answer questions about texts.

4-R1.13: Demonstrate the ability to distinguish between fact and opinion.

4-C1.3: Begin using language and vocabulary appropriate for the purpose and audience.

4-C1.4: Demonstrate the ability to participate and contribute to conversations and discussions by responding appropriately.

4-C2.2: Demonstrate the ability to listen for meaning in conversations and discussions.

4-C2.3: Demonstrate the ability to summarize conversations and discussions.

4-C2.5: Demonstrate the ability to distinguish between fact and opinion, comparing and contrasting information and ideas, and making inferences with regard to what he or she has heard.

4-C3.3: Demonstrate the ability to summarize information that he or she receives from nonprint sources.

4-RS1.2: Demonstrate the ability to construct questions about a topic.

Visual Arts

1.B: Use a variety of media, techniques, and processes to communicate ideas, experiences, and stories through their artworks.

1.C: Use art materials and tools in a safe and responsible manner.

VI.B: Identify connections among the visual art, other arts disciplines, and other content areas across the curriculum.

Attachments:

- Bird coloring pages

Resources:

1. Congaree National Park website: www.nps.gov/cong
2. Find audio recordings of bird calls and songs:
 - a. E-nature - www.enature.com/birding/audio.asp

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- b. Macaulay Library at the Cornell Laboratory of Ornithology - <http://macaulaylibrary.org/index.do>
 - c. WhatBird.com - <http://www.whatbird.com/>
 - d. Cornell Laboratory of Ornithology All About Birds Website – <http://www.allaboutbirds.org>
 - e. Stokes, Donald, Lillian Stokes, and Lang Elliott. *Stokes Field Guide to Bird Songs: Eastern Region*. Hachette Audio: 1997.
3. Please contact for more information:
Old-Growth Bottomland Forest Research and Education Center
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Acknowledgements:

This lesson was originally designed by Gail Johnson (volunteer and retired teacher) and Krista Tomaro (Student Conservation Association (SCA) intern) at the Old-Growth Bottomland Forest Research and Education Center at Congaree National Park. The bird coloring sheets were created by Stacey Montebello as a Student Conservation Association (SCA) Environmental Education Intern, at the Old-Growth Bottomland Forest Research and Education Center. This lesson received significant editing and revision by Dana Hutto with the Center for Science Education at the University of South Carolina. Funding for the editing and related supplies for teacher workshops was provided by a generous grant from the Richland County Conservation Commission (SC).

Congaree Coloring Sheets



Summer Tanager (*Piranga rubra*)

Description: Males are rose red all over, with dark underwings. Females are greenish yellow. Summer Tanagers have a large pale-colored bill and eat insects and fruits. **Habitat:** Woods and groves, especially where oak trees are present.

Congaree Coloring Sheets



Barred Owl (*Strix varia*)

Description: The barred owl is a large gray-brown, puffy-headed woodland owl with big brown eyes, a barred pattern across chest, and white and brown streaks down the belly. Barred Owls are nocturnal and eat crayfish, fish, insects, rodents and reptiles. In one recent research project at Congaree National Park, researchers analyzed forest sound recordings for barred owl calls. When compared with other forests around the southeast, the results indicate that Congaree has one of the highest barred owl densities in the region! **Habitat:** Woodlands, wooded river bottoms, and wooded swamps.

Congaree Coloring Sheets



Carolina Wren (*Thryomanes ludovicianus*)

Description: Large wren, reddish brown on top, off-white on bottom, large white eyebrow stripes.

Carolina Wrens have slender, slightly de-curved bills and eat insects and other invertebrates. **Habitat:** Tangles, brushy undergrowth, suburban gardens, and towns.

Congaree Coloring Sheets



Pileated Woodpecker (*Dryocopus pileatus*)

Description: Very large, black woodpecker with a flaming red crest and white underwings. Their chisel-shaped bills help Pileated Woodpeckers forage for insects, acorns and berries. **Habitat:** Conifer, mixed, and Hardwood forests.