



**GRADES
K-2**
GRADES 3-5
VARIATIONS
INCLUDED



TOGETHER FOR

BIRDS

A THEME-BASED SERIES FOR EDUCATORS

GRADES K-2 ACTIVITIES



Together for Birds is made possible, in part, through funding from American Bird Conservancy (ABC). With an emphasis on achieving results and working in partnership, ABC takes on the greatest challenges facing birds today. Learn more at abcbirds.org.

www.abcbirds.org



Project Learning Tree advances environmental education, forest literacy, and career pathways using trees and forests as windows on the world.

PLT is an initiative of the Sustainable Forestry Initiative.

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The Sustainable Forestry Initiative envisions a world that values and benefits from sustainably managed forests.

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TOGETHER FOR

BIRDS

A THEME-BASED SERIES FOR EDUCATORS

GRADES K-2 ACTIVITIES

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TABLE OF CONTENTS

Trees as Habitats	6
Birds and Bugs	14
Neighborhood Naturalist	20
Poetic Reflection	30



INTRODUCTION

Project Learning Tree's themed Activity Collections organize activities around a theme or topic.

Together for Birds features three PLT activities for educators of students in grades K–2. Each activity also contains age-appropriate adaptations for grades 3–5, which can be found in the VARIATION section at the end of the activity.

Use this PLT Activity Collection to invite students to investigate ways that birds and other living beings depend on their habitat to live.

- **Trees as Habitats:** Students inventory the birds and other organisms living in, on, and around trees and learn how trees help organisms get the things they need to live.
- **Birds and Bugs:** Students discover the value of protective coloration as they model being birds in search of colored bugs.
- **Neighborhood Naturalist:** Students will explore a nearby habitat—their backyard, schoolyard, or other outdoor setting—to look for signs of animals living there.

Designed to be flexible, the activities can be used as stand-alone lessons, or all together as a cohesive unit of instruction using a storyline technique.

Each activity identifies connections to science, English language arts, math, and social studies academic standards, as well as to the United Nation's Sustainable Development Goals. For more details, visit plt.org/alignment-to-standards and un.org/sustainabledevelopment.

BIRDS IN THE NEIGHBORHOOD

Birds are a wonderful introduction to the natural world outside your students' door. Whether in the city or in a forest, a variety of birds are usually within easy eyeshot or earshot. Observing birds helps to instill an appreciation of wildlife and encourages empathy for all living things. It also supports mental health and overall wellbeing. In addition, it can also help students understand how different components of nature work together to support organisms.

Like all living things, birds need food, water, shelter, and space. We call the place where they get these things their **habitat**. Through this collection of activities, students will explore the birds and other organisms that live on or around your site. In doing so, they also consider how this habitat provides the food, water, shelter, and space these organisms need to live.

MEETING THE NEEDS OF DIVERSE LEARNERS

PLT activities are designed to provide engaging and equitable learning experiences for a wide range of students. Depending on your group, you may find it necessary to make accommodations for the unique abilities or challenges of your students. Here are some ideas for making these activities as accessible as possible for diverse learners.

- Choose an outdoor learning site that is accessible.
- Mark off boundaries with physical clues, such as flags or chalk marks.
- Show directions and desired actions using words, pictures, and concrete objects.
- Establish both verbal and nonverbal signals for calling the group together.
- Provide recording devices for children to log thoughts and observations.
- Put learners in pairs for explorations so they can help each other.
- Invite students to use all of their senses when making observations.
- Encourage mindfulness by suggesting that students notice how birds can help create a sense of calm.
- Check out birdability.org for information about making birding more accessible to all.

LEARNING PROGRESSION

Storylines provide connectedness and continuity to individual activities and can serve as the instructional “glue” that holds areas of knowledge and skills together. The activities in *Together for Birds* may be linked together into a unit of instruction using a storyline technique, such as the one that follows.

Guiding Question: What birds live in our community and how do they get what they need to live?

Storyline: Students investigate the birds and other wild animals that live in their community and consider how these animals get the food, water, shelter, and space they need to survive.

The sequence of individual activities supports this storyline:

Beginning with “Trees as Habitats,” introduce students to the notion that trees are prime habitat for birds and other animals and plants. As students inventory organisms that live in, on, and around trees, help them see how trees provide food, shelter, space, and sometimes even water for a variety of animals, including birds.

Use “Birds and Bugs” to explore the ways that the coloration of both birds and their prey help them survive. In this modeling activity, students pretend to be birds in search of prey and also create birds that can “hide” in plain sight in given locations.

Conclude with “Neighborhood Naturalist,” which invites students to look for signs of birds and other animals living in an outdoor site, as well as how the site helps to meet the animals’ needs. Remind them what they learned from Birds and Bugs: that bird colorations and patterns make them very good at hiding! Encourage students to identify ways they could attract more birds to the site or make it a more suitable habitat.

BIRD JOURNALS

Create, decorate, and commit to using Bird Journals to support all activities in this collection. Journaling enables students to record observations and deepen bird knowledge. To support the addition of poetry, see the Poetic Reflection on page 30.



Male Rose-breasted Grosbeak
by Suzan Johnson at iStock.com

ATTEND A PROFESSIONAL DEVELOPMENT WORKSHOP

PLT offers online, blended, and in-person professional development tailored for specific grade levels, academic standards, environmental topics, and formal and nonformal teaching situations. Often recommended to them by colleagues, educators consistently rate PLT workshops as one of the best professional development events they have ever experienced. See plt.org/pd to learn more.

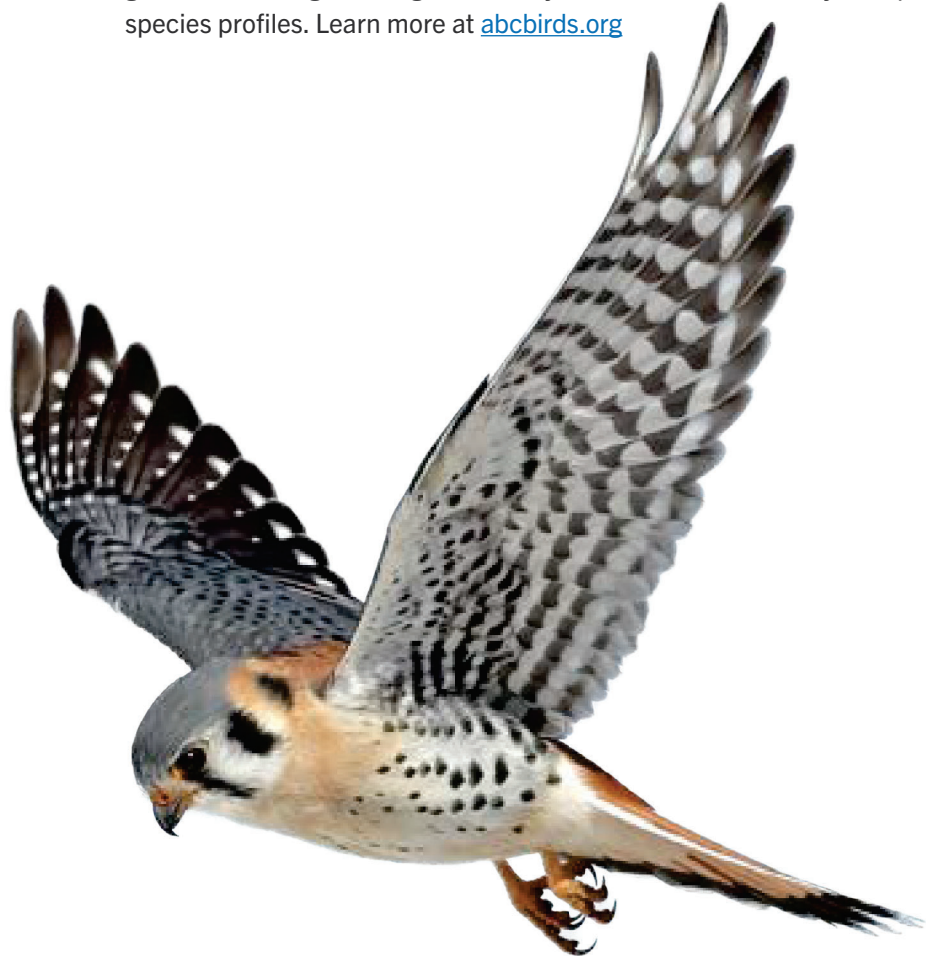
Experience PLT's Professional Development to:

- Gain new teaching skills, deepen your content knowledge, and become comfortable teaching outdoors
- Receive instructional materials tailored to your state's standards
- Experience PLT activities, develop an action plan, and get lesson planning tips specific to your setting
- Get access to a network of professionals and support
- Earn continuing education credits

LEARN MORE ABOUT BIRDS



American Bird Conservancy. *Together for Birds* is made possible, in part, through funding from American Bird Conservancy (ABC), which is dedicated to conserving wild birds and their habitats throughout the Americas. With an emphasis on achieving results and working in partnership, ABC takes on the greatest challenges facing birds today. Visit ABC's Bird Library to explore 400+ species profiles. Learn more at abcbirds.org



American Kestrel by Paul Rossi

WHY WE NEED BIRDS

did you know

Birds play countless roles in healthy ecosystems—and improve our quality of life. One of the best ways to attract birds is to plant a tree. Trees provide birds with food (nuts, fruit, buds, leaves, and sap), water collected in their leaves, shelter, and nesting sites.

Birds are indicators of ecosystem health.

Birds inspire poetry, music, and the visual arts. See the Poetic Reflection on page 30.

Birds inspire scientific inquiry.

Birding is an important source of ecotourism in many parts of the world.

Birds connect us to nature – including cities.

Birds bring color, sound, and beauty to our landscapes.

Birds teach us about climate and the environment.

Birds are essential for dispersing native plant seeds.

Birding activities improve people's mental and physical health.

Birds pollinate plants, which is necessary for our survival.

Birds eat insect pests in gardens and farms.

Turn teaching and learning into

ACTION OF BIRDS

all year long

From their leafy branches to their tangled roots, trees provide habitat for birds, other animals, and plants. Students will inventory living things in, on, and around trees and discover how birds and other living things depend on trees in many ways.

TREES AS HABITATS

SUBJECTS

Science, English Language Arts

PLT CONCEPTS

1.1, 1.2, 2.1

STEM SKILLS

Collaboration, Data Analysis, Technology Use



DIFFERENTIATED INSTRUCTION

Hands-on Learning, Higher-order Thinking, Nonlinguistic Representations

MATERIALS

Part A: Paper tubes, materials for decorations, magnifying glasses, binoculars, digital cameras or electronic tablets, clipboards (or cardboard with paper clips). Optional: Collection of animal signs.

Part B: Journals or paper and clipboards.

Optional: Field guides (for trees, shrubs, insects, and birds), magnifiers, bug boxes, binoculars, digital cameras or electronic tablets.

TIME CONSIDERATIONS

Preparation: 15 minutes

Part A: 40 minutes

Part B: 40 minutes, plus time for data analysis

OBJECTIVES

Students will

- Observe birds and other living things that depend on and influence trees.
- Identify interrelationships between birds and other organisms that depend on trees.

BACKGROUND

A **habitat** is the place where a plant or animal gets all the things it needs to survive, including food, water, shelter, and space for having and raising offspring. A habitat may be as large as 100 square miles (259 km²) of grassland for a lion or as small as single plant for an insect. A tree may serve as part of an organism's habitat, or it may be the organism's entire habitat.

Trees provide optimal habitat for many different bird species, offering spaces for shelter, mating, and feeding. Their branches and limbs provide protection from weather and predators, as well as places to build nests. Birds feed on their seeds, nuts, fruits, buds, nectar, and sap and on insects in their bark. Birds also use tree crevices for hiding and storing food.

Even snags, or standing dead trees, provide habitat for a variety of different species. Tree frogs and beetles live under a snag's bark. Woodpeckers and other birds feed on the insects that live in snags. Owls and chickadees nest in cavities created by woodpeckers, and squirrels and deer mice store food in them.

Note that trees are not the only vital habitat for birds. Many bird species live in grasslands, deserts, aquatic areas, and other habitats with few or no trees. And many woodland birds primarily use the understory shrub habitat beneath the trees.

GETTING READY

- Find an area with several trees (any size) or shrubs for students to examine.
- If you do not have access to trees or shrubs, you may use human-built structures instead. Many birds and other animals live on and around buildings, bridges, fences, and other structures.



SAFETY CHECK! Look for any hazards at the site, such as deep holes, sharp objects, or poisonous plants.

FOREST FACT



Many bird species depend on trees for habitat, while also benefiting the forest. Fruit-eating birds disseminate tree seeds. Insect-eating birds control insect populations. And scavenging birds decompose animal and plant material on the forest floor, providing nutrients.

PART A:


- Gather (or make) paper tubes and collect art supplies for student-made telescopes.
- Make copies of the Bird Observation Bingo student page.

PART B:

- Make copies of the What's the Connection? student page.
- Optional: Collect fallen leaves, twigs, bark, fruit, nuts, or nests that show signs of plant or animal life. Signs may include chewed holes, tunnels, scrapings, egg cases, webs, galls, moss, lichen, or fungus.

DOING THE ACTIVITY

PART A: TREE HOUSE

- 1** Ask: What animals have you seen in or on trees? What were the animals doing in the trees? Do you think a tree can be a home for animals or other plants? How could we find out whether a tree can be a home? Suggest that one way to find out would be to look for signs of birds living in trees.
- 2** Lead students in making “telescopes” out of paper tubes, which can be decorated with tissue paper or paint, as a tool to study tree habitats. You might also provide magnifying glasses, binoculars, digital cameras, or tablets.
- 3**  **HANDS-ON LEARNING** Lead students to a tree and have them use their telescopes to look closely at and around the tree. Distribute copies of the Bird Observation Bingo student page to focus student observations. Allow students plenty of time to complete the worksheet and collect related data.
- 4** Lead a discussion on the findings. Ask students what they saw living on the tree's trunk and branches. What are different ways that birds and other animals depend on trees to live?



Northern Cardinal by CathyKeifer at iStock.com




PART B: LIFE ON TOP

1 Take students outside and show them several trees or shrubs in the same area. For dense urban areas, consider using buildings, fences, or other human-built structures to examine. Ask: Can you name some plants and animals that depend on these trees (or structures)? How might we learn which plants and animals depend on or use them in some way? Point out that one way would be to look carefully at and around the tree (or structure) and take an inventory of what they find.


2 Divide the students into groups of 2–3 and assign each group a specific tree part—trunk, branches, leaves, roots, etc. Challenge students to determine which plants and animals (including humans) visit the tree, live on it, and live in it. In urban areas, consider examining each part of larger structures for signs of life, i.e., windows, eaves, downspouts, railings, etc.

3 Optional: Show students examples of plant or animal signs (see Getting Ready). Ask students to describe what they see and what they think might have caused it.

4  **NONLINGUISTIC REPRESENTATIONS** Distribute materials for journaling and close observation (see Materials). Have students draw, take pictures, or otherwise document all the plants and animals they find, especially those they don't know or have questions about. Invite them to use their sense of hearing to find plants and animals and encourage them to look for supporting clues, such as chewed leaves, bark holes, or carved initials.

5 Optional: Use field guides to help students identify the organisms they find.

6 Using the What's the Connection? student page, have students identify how each plant and animal observed in Step 4 benefits from the tree, and how it affects the tree. They may need to conduct more research about the plants and animals they observed.

7  **HIGHER-ORDER THINKING** Have students organize their collected observations, data, and information into a booklet, portfolio, or other format.

8 Invite teams to share their observations with the whole group. Discuss:

- What plants, animals, or animal signs did you find on the tree (or structure)?
- How does the tree (or structure) benefit these plants and animals?
- Which of these plants and animals seem to harm the tree (or structure)? Why do you think so?
- Do any of the plants and animals you observed seem to benefit the tree (or structure)? In what ways?



American Robin by gurineb at iStock.com





Yellow-headed Blackbirds
by U.S. Fish and Wildlife
Service, Mountain-Prairie

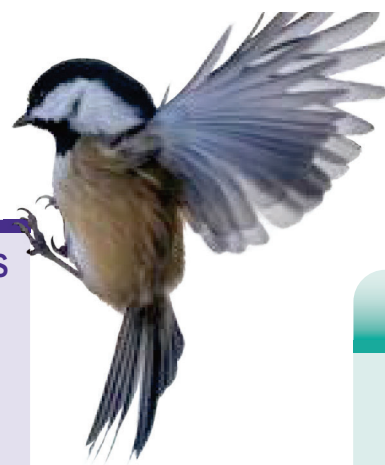
VARIATION: GRADES 3-5

- 1 Invite students to look for organisms—or signs of organisms—living in, on, under, and around trees. Discuss how these organisms use trees as a source of food, water, shelter, or space.
- 2 Make a group list of organisms that use trees as part or all of their habitat. Be sure to include one or more birds on the list.
- 3 Instruct students to choose an organism from the list and to make a mini-report on an index card about it, including a picture. Encourage students to include what their organism eats, what eats it, and how it interacts with trees.
- 4 Create a group “tree of life” mural showing how birds and other animals depend on trees as habitats. Draw a large tree in the center of the mural and invite students to add their mini-reports to the mural. They may use pieces of yard or string to show connections to the tree and to other organisms.

TIPS FOR FINDING BIRDS

1. **Explore where you are.** Birds are wherever you are. You can watch birds from your window or listen to their calls when you first wake up in the morning. You can look for birds in trees along city sidewalks, on wires along highways, in gardens, on ponds and by rivers, in forests and wetlands, or at the beach.
2. **Be quiet.** Birds are easily startled by noises and will head for cover if they hear you coming.
3. **Watch for movement.** Stay still and watch for movement in trees, shrubs, or grass.
4. **Listen for bird songs and sounds.** Many birds stay hidden, but if you keep an ear out, you can often hear them even if you don't see them.
5. **Be patient.** Finding birds often means waiting for the birds to show themselves.
6. **Make it a challenge.** Neurodiverse learners – and others – often enjoy challenges like making lists. Challenge students to find and list as many different bird species as they can, or offer a list of 5-10 local bird species to try finding.





ACADEMIC STANDARDS

SCIENCE

Practices

- Analyzing and interpreting data

Concepts

- Biodiversity and humans
- Natural resources
- Patterns

ENGLISH LANGUAGE ARTS

Practices

- Speaking and listening: comprehension and collaboration
- Speaking and listening: presentation of knowledge and ideas



11 Sustainable Cities and Communities
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage

ASSESSMENT

Ask students to

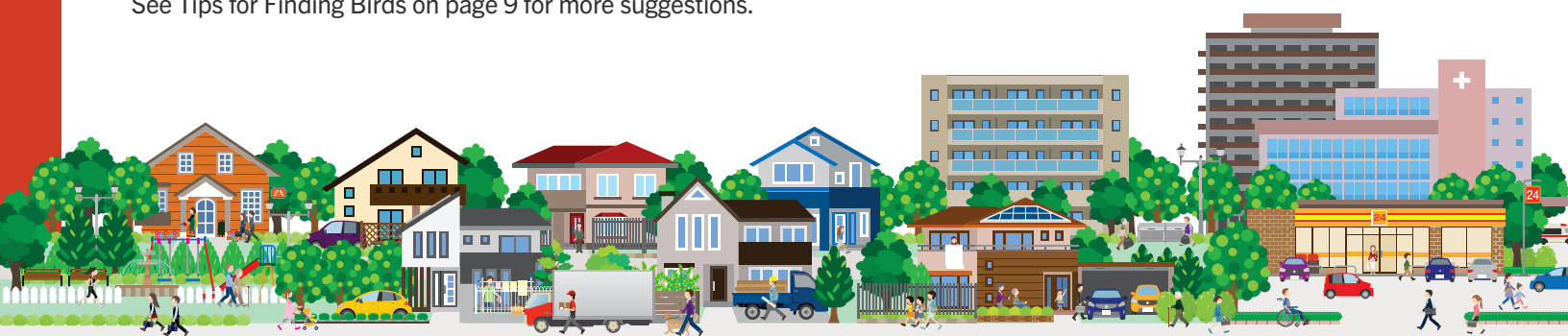
- Conduct an imaginary interview with a tree (providing both questions and answers) or tell a story from a tree's perspective. These pieces should reveal how different plants and animals both depend on and affect trees.
- Explain how birds benefit from and affect trees, using evidence they collected to substantiate their claims.

ENRICHMENT

- Read aloud *Welcome to the Neighborhood* by Shawn Sheehy, *The Busy Tree* by Jennifer Ward, or another story about animals living in or around trees. Have the students make costumes for the different animals, using construction paper and artificial feathers. Read the book again, allowing the students to act out the animals.
- Observe living things inside and outside human-built structures in urban areas, such as houses, bridges, or schools. Have students consider what aspects of the structure attract and support the organisms. Create a graphic organizer (pictured at right) and encourage students to list all the plants and animals living inside and outside the structure. Have students consider how all those living things depend on the structure and how the structure is affected by them.
- Invite students to examine their tree at other times during the year. Have them compare their findings from season to season or create a "Tree Habitat" mural.
- As an engineering challenge, invite students to make a bird's nest using a paper plate as a base and natural materials, such as twigs, leaves, grass, moss, and string. No glue or tape allowed!
- Challenge older students to make a bird house for a specific bird species. Students could research their selected species' habitat, size, diet, and so on, and design a bird house based on their needs.
- Take a walk around the site or the neighborhood to look and listen for birds. Challenge students to imitate the bird sounds they hear using their voice, lips, or other parts of their body. Use a bird identification app, such as the Merlin Birding App at merlin.allaboutbirds.org, to learn the names of birds you find. See Tips for Finding Birds on page 9 for more suggestions.

URBAN STRUCTURES: SAMPLE ORGANIZER

	INSIDE	OUTSIDE
Plants		
Animals		



NAME _____ DATE _____

Look for signs of birds living in and around your tree. Mark each sign you find with an "X." Then, answer the questions.

Location of Tree: _____ Type of Tree: _____

Bird Sound



Savannah Sparrow

Bite Marks on Nut or Fruit



Hole in Trunk of Tree



Bird in Tree



Eastern Bluebird

Other Sign of Bird Living in Tree:

Bird Nest



Bird Droppings



Feather



Bird Flying Around Tree



Barn Swallows

CAREER CORNER

WILDLIFE BIOLOGISTS (buy-ALL-uh-jists) study wild animals and their habitats to find out what they need to live. They may watch animals in trees, forests, and other habitats.

I LOVE MY
GREEN JOB!

NAME _____ DATE _____

**1. How do the plants and animals that live in and around the tree use it?
Name as many ways as you can.**

- _____
- _____
- _____
- _____
- _____
- _____
- _____

2. How might the tree be helped or hurt by the plants and animals that live on it or around it?

- _____
- _____
- _____
- _____
- _____
- _____
- _____



CAREER CORNER

AVIAN REHABILITATORS (ree-hab-ILL-uh-tay-tors) care for injured birds. They diagnose injuries, give medicines or other treatments, and feed the birds. They also observe the birds' behavior.



BIRD JOURNAL

Camouflage is an essential survival strategy in the natural world. Students discover the value of protective coloration as they pretend to be birds in search of colored bugs.

BIRDS AND BUGS

SUBJECTS

Science, Math, Physical Education

PLT CONCEPTS

2.1, 2.2, 2.3

STEM SKILLS

Collaboration, Data Analysis, Nature-based Design, Organization



DIFFERENTIATED INSTRUCTION

Hands-on Learning, Nonlinguistic Representations

MATERIALS

60 small objects in assorted colors (e.g., pipe cleaner segments, colored pieces of yarn, paper shapes, or punched holes) to represent “bugs” (if you are doing this activity outdoors, we recommend using biodegradable items such as colored pasta, beans, popcorn, or breakfast cereal); a large piece of chart paper; crayons or markers. Optional: clothespins or tweezers for picking up bugs, camera.

TIME CONSIDERATIONS

Preparation: 20 minutes

Activity: 50 minutes

OBJECTIVES

Students will

- Participate in a modeling activity to explore how coloration affects an animal’s ability to survive.
- Describe how coloration helps animals survive.

BACKGROUND

Many animals are “color-coordinated” with their surroundings. For example, snowshoe hares and grouse-like birds called ptarmigans (TAR-mih-guhns) change from brown in summer to white in winter. A box turtle’s dappled shell and a fawn’s white spots mimic blotches of sunlight on the forest floor, helping them blend in with the background. And the two-toned appearance of many fish—dark on top and light on bottom—helps them match the background of dark river bottom or pale sky. Any coloration, body shape, or behavior that helps an animal hide is called **camouflage**.

Blending in with the environment is a great **adaptation** to avoid being eaten, but some predators use it too. Camouflage helps them avoid being spotted by a potential meal. For example, an owl’s spots match the patchy sunlight in a tree’s branches, and a bittern’s coloration and stripes help it hide in marsh reeds.

Insect-eating birds consume a wide variety of insects and other invertebrates, such as beetles, grubs, spiders, mosquitoes, and butterflies. The coloring of these invertebrates may resemble their surroundings, or they may have warning coloration that stands out, the opposite of camouflage, to tell predators that they are poisonous or unpalatable.

GETTING READY

- Find one or more large, open areas (indoors or outdoors) for doing the activity. Collect 60 small, colored objects consisting of equal amounts of at least three colors. These will represent bugs. Make sure you have at least one color that matches the area’s surface (e.g., gray for asphalt, green for grass, or brown for carpet). You’ll need 20 each if you have three colors, 15 each of four colors, 12 each of five colors, and so forth.



SAFETY CHECK! Use easily **biodegradable** objects in outdoor settings (see Materials).

- Optional: Create charts in advance for recording the results for Steps 4 and 6. Consider laminating the charts so you can reuse them.
- Before students arrive, scatter the “bugs” throughout the area(s).

DOING THE ACTIVITY



Eastern Screech-Owl by Owen Deutsch, owendeutsch.com


- 1** Ask the group to think about how a bullfrog's green color or a polar bear's white color helps it survive. Invite students to give other examples of animals that blend in with their surroundings and talk about how this can help animals. Ask students what it is called when animals blend in with their surroundings (camouflage).
- 2** Ask students for their ideas about how they might investigate the benefits of camouflage. After discussing their ideas, explain that the group will do an investigation together.
- 3** Divide the group into teams, with the same number of students on each team. Guide students to the area where you scattered the bugs. Tell students that various types of tasty bugs are scattered here and that they are hungry birds. Show them what the bugs look like and ask them to predict what color bug might have the best camouflage in this environment.

TAKE IT OUTSIDE




Repeat this activity in an outdoor setting that offers a different-colored backdrop. For example, if your first simulation was on carpet or tile, try grass. If your first simulation was on grass, try soil, mulch, or asphalt. Discuss how the results differ and have students offer reasons for why.



- 4**  **HANDS-ON LEARNING** Arrange teams in relay race lines. Explain that the teams will race to see who can get every bird fed. When you say, "Go," the first bird in each line should "fly" to the prescribed area and pick up the first bug he or she sees. You might have teams use a clothespin or tweezers (representing a beak) to pick up bugs. Each bird flies immediately back to the line and tags the next bird, who does the same thing. When the last bird returns, everyone on the team sits or raises a hand.



SAFETY CHECK! If you use food items, remind students not to eat them.

- 5**  **NONLINGUISTIC REPRESENTATIONS** When all teams have completed the relay, spread a piece of chart paper on the ground. Make a chart with columns that correspond to the different colors, as in Example 1. Have students place their bugs in the appropriate color column. Have students count and record the number of each color. What color was easiest to find? How does this help the birds survive? What color was hardest to find? How does this help the bugs survive? What color bug has the best camouflage for this environment and why?

You may want to take a picture of the chart for students to use later in graphing.

EXAMPLE 1 RECORDING SHEET: BUGS COLLECTED BY COLOR

RED	GREEN	BROWN	GRAY



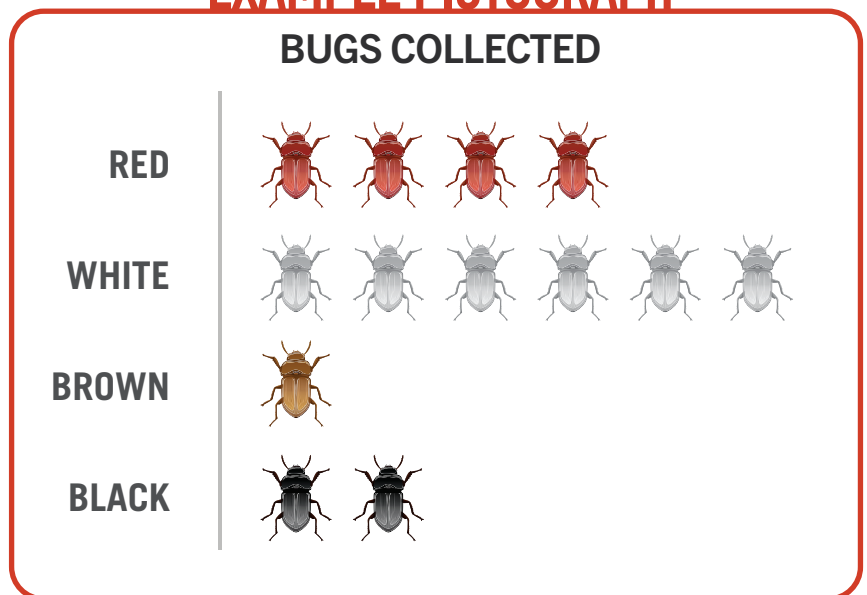
American Robin by Allkindza at iStock.com

- 6** Have teams repeat the simulation to find the remaining bugs. Record results as before, discussing any similarities and differences. Before leaving the study area, make sure students have recovered all the bugs.
- 7** Have students create pictographs or bar graphs to represent the data they collected. Help students interpret the graphs.
- 8** After exploring how coloration affects a “bug’s” ability to survive, invite students to think about how a bird’s coloration could help keep it hidden or make it stand out more. Ask why being hidden would be benefit a bird. Depending on your group, you might also bring in how a bird’s pattern (such as stripes or dots) could help it hide or make it stand out.

- 9** Challenge students to draw a picture of a bird that could hide in plain sight in different outdoor settings. Encourage them to be creative, letting them know that their made-up birds don’t have to be realistic. For the settings, you might suggest a leafy bush, a meadow with dry grass, a snowy forest floor, a tree trunk or branch, or a pond.

- 10** For each setting, ask students to share what they drew and to describe what colors or patterns would help the birds hide the best.

EXAMPLE PICTOGRAPH





FOREST FACT

Forests are home to a wide range of birds, insects, other animals, and plants that interact with and depend on one another. Working to restore or “re-wild” forest habitats, not only benefits birds and other animals, it also helps to create a self-sustaining ecosystem.



Top: Common Merganser hen and ducklings by Larry Master, masterimages.org

Bottom: Bald Eagle by Focus_on_Nature at iStock.com

VARIATION: GRADES 3-5

- HIGHER-ORDER THINKING** Lead students in the above activity, except have them record their findings in a chart that identifies the order in which they found the bugs. Make a chart with as many columns as there are students on each team, as in Example 2. Each column will represent the student’s position in line. The students should each place their bug in the column that corresponds to their position in line (1st, 2nd, and so on).

EXAMPLE 2 RECORDING SHEET: BUGS COLLECTED BY POSITION IN LINE

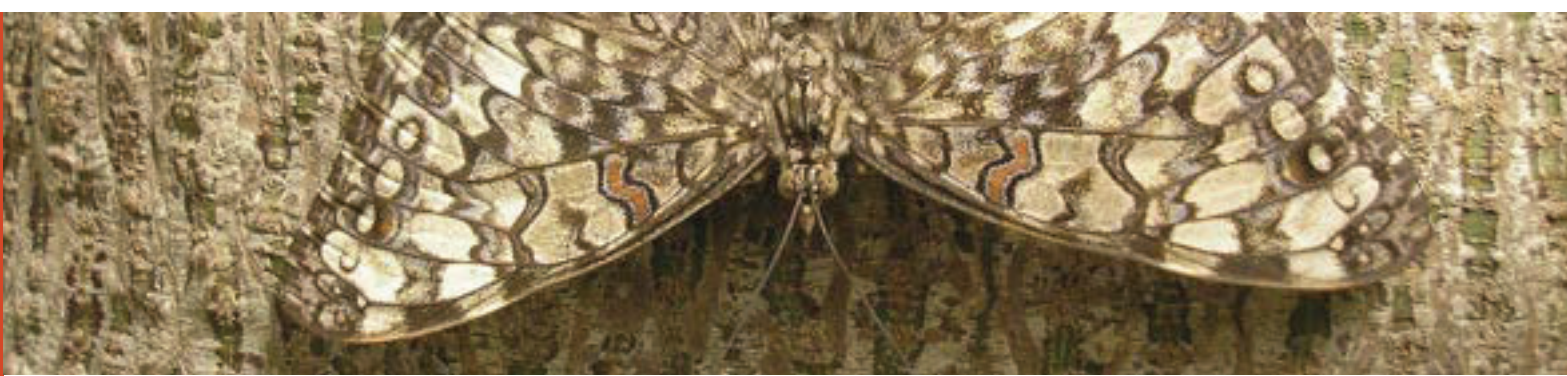
1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH

- Have students total and record the number of colored bugs in each column (e.g., 1st—4 reds, 2nd—3 reds and 1 green, and so on). Is there a pattern to the order in which the bugs were found? What might the pattern tell us?
- Show students pictures of birds with different beak shapes and ask how a bird’s beak shape might help it get food. Invite students to participate in a modeling activity to explore how different beak shapes work with different types of foods.
- Set up a station for each model beak (see Modeling Beak Shapes below). Each station should have all of the different model foods and a few of the same model beak so that several students can explore at once.

MODELING BEAK SHAPES

BIRD	BIRD BEAK	MODEL BEAK	MODEL FOOD
Duck	Spoon-shaped beak with comb-like edges strains aquatic plants from water	Strainer	Tea leaves in water
Eagle, hawk or owl	Sharp, curved beak tears flesh	Scissors	“Rope” of playdough
Hummingbird	Long, slender beak probes flowers for nectar	Eyedropper	Narrow vase or jar with colored water
Sparrow or finch	Short, stout beak cracks open seeds and nuts	Nutcracker	Almonds or other nuts in shells
Woodpecker	Strong, pointed beak drills into wood for insects	Tweezers	Rice grains wedged into bark of a piece of wood

- As students rotate to each station, they should use the model beak to determine which model food is easiest to eat with it and which is hardest.
- Discuss the advantages and disadvantages of each beak shape for each food. Ask what birds each of the model beaks might represent, and share the information in the chart.



ACADEMIC STANDARDS

SCIENCE

Practices

- Analyzing and interpreting data
- Developing and using models
- Constructing explanations and designing solutions

Concepts

- Patterns
- Structure and function

MATH

Practices

- Reason abstractly and quantitatively

Concepts

- Counting and cardinality
- Measurement and data



15 Life on Land

15.9 Integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

ASSESSMENT

Ask students to

- Review pre-selected pictures of local animal species and describe how their coloration helps these animals survive.
- Select another background that they believe would make it more difficult to find the bugs, and repeat the simulation to test their selection.

ENRICHMENT

- Teach students how to identify a few birds using their coloration as a guide. See *Common U.S. Birds* to the right for suggestions.
- Some animals are very brightly colored, standing out against their surroundings. Invite students to research how bright colorations help some animals survive.
- Help students make pinecone bird feeders. First, tie a loop of yarn around a pinecone. Then, mix one part peanut butter with five parts cornmeal and pack the mixture into the crevices of the pinecone. Hang pinecones from trees outside. This Audubon-approved, all-season mixture can attract woodpeckers, chickadees, titmice, and warblers.

COMMON U.S. BIRDS

PHOTO	SPECIES	COLORATION
	Mourning Dove	Light gray and brown. Colors are muted.
	American Robin	Back is brown and chest is reddish-orange.
	American Crow	Iridescent black feathers all over. Beak, feet, and claws are also black.
	Blue Jay	Top of head, back, wings, and tail are blue. Face and chest are white.
	Northern Cardinal	Male is vibrant red, female is reddish olive. Face mask is black on male, gray on female.

For detailed information about individual birds, see American Bird Conservancy's Bird Library at abcbirds.org/birds

Bird images from iStock.com, top to bottom: GreenSprocket, db_beyer, EmilyNorton, GummyBone, CathyKeifer



SAFETY CHECK! Be aware of any food allergies in your group.

BIRD JOURNAL

Every organism needs food, water, shelter, and space. A place that meets all these needs is called a habitat. Students will explore a nearby habitat—their backyard, schoolyard, or other outdoor setting—to look for signs of animals living there. Use this activity to introduce community action.

NEIGHBORHOOD NATURALIST

SUBJECTS

Science, English Language Arts, Visual Arts

PLT CONCEPTS

2.1, 3.2

STEM SKILLS

Investigation, Organization, Technology Use



DIFFERENTIATED INSTRUCTION

Hands-on Learning, Personal Connections, Student Voice

MATERIALS

Optional: Clipboards or writing surfaces, drawing paper, colored pencils or markers, magnifying glasses, camera

TIME CONSIDERATIONS

Preparation: 20 minutes

Activity: 50 minutes

OBJECTIVES

Students will

- Identify signs of birds and animals living in an outdoor site.
- Describe how this habitat meets the needs of the birds and other animals living there.

BACKGROUND

A habitat is the place where an organism lives. A suitable habitat provides an organism with everything it needs to survive, including food, water, shelter, space, and whatever it needs to reproduce.

FOREST FACT

An important aspect of sustainable forestry is ensuring that there is appropriate habitat for a variety of animal species. Prairie warblers, for example, require a very young forest to survive, while red-cockaded woodpeckers require older and larger trees for nesting. Harvesting and replanting trees can create a diversity of conditions over time, enabling a richer mix of species to thrive across the landscape.



Even in the most concrete environment, you can usually find some signs of animal life. Most of the animals and animal signs that your students find will likely be insects and other small creatures and—if they are quiet—birds or bird sounds. In an urban schoolyard, students may find spider webs, ants underneath rocks, insects buzzing around, or birds flying overhead. Students need to understand that all animals, large and small, need food, water, and shelter in order to survive. Remind students that people are animals too. Around the neighborhood they will find plenty of signs of “people life.”

While most students enjoy looking for animals, some may be afraid of certain animals, such as spiders or worms. Be prepared for some students to act timid or scared during the activity. You might help by briefing students in advance on the kinds of animals they are likely to find, and by assuring them that most animals will be scared of them and are not dangerous to them. However, tell them it is smart to be cautious and warn them about animals they should not touch or pick up.

GETTING READY


- You may want to do the activity at a time of year when students are most likely to see animals outdoors, such as spring or fall.
- Collect any of the optional materials you choose. If desired, make copies of the Animal Count student page (or Naturalist Survey student page if you are doing the Variation).



SAFETY CHECK! Always check the outdoor study site before taking students out. Look for potential hazards and risks. Either remove potential dangers or caution students about them. For younger students, arrange to have one or more parents, aides, or older students to help with the activity.



DOING THE ACTIVITY

- 1**  **PERSONAL CONNECTIONS** Ask students whether they have ever heard the word “naturalist,” and ask what kinds of things a naturalist might do. Point out that a naturalist doesn’t have to go to a faraway place, and that they can even explore their own neighborhood. Ask, “What might a naturalist see or hear in our neighborhood?”
- 2** Tell students that they are going to be naturalists at your site. They will look and listen for signs of animals living or visiting there. Explain that students will need to search carefully to find animals, and that they will be more likely to find an animal if they are quiet. Ask students for ideas about where they might look and list their suggestions where all can see. Their suggestions might include on the bark and leaves of trees, in the cracks of sidewalks, among blades of grass, on utility wires, in the soil around plants, along the edges of buildings, and on walls and fences. You might stimulate their imagination by having them pretend that buildings are mountains and cliffs or that the lawn is a jungle.
- 3** Point out to students that in addition to looking for actual animals, they should look and listen for signs of animals. Ask what kinds of signs they might find. Possibilities include insect egg masses, spider webs, leaves that have been nibbled, feathers, nests, animal tracks, bird or insect sounds, or candy wrappers. Remind students that people are animals too, and they can record signs of “people life.”



SAFETY CHECK! Discuss appropriate outdoor behavior. All living things, including plants, should be respected. Talk with students about following this rule: look, learn, leave alone.

COMMUNITY SCIENCE PROJECTS

Look for opportunities to involve your group in a community science project with birds:

- [Audubon Christmas Bird Count](#)
- [Project Feederwatch](#)
- [Great Backyard Bird Count](#)
- [iNaturalist](#)
- [Journey North](#)
- [NestWatch](#)



TheCornellLab
Merlin[®]

The easy-to-use Merlin Bird ID app poses a series of simple questions to help you identify birds you see or hear. See merlin.allaboutbirds.org

White-breasted Nuthatch
@Michael Stubblefield

BIRDS ARE EVERYWHERE!

Understanding specific habitats can help you identify the birds that live there. Spot more bird species by exploring different ecosystems.



Bird images, clockwise from top center:

Western Meadowlark by creighton359 at iStock.com


Cactus Wren by tntphototravis at iStock.com

Chinstrap penguin by amheruko at iStock.com


Red-tailed Hawk by ca2hill at iStock.com

Pileated Woodpecker by WilliamSherman at iStock.com

Shining Honeycreeper by Ondrej Prosimsky at iStock.com

4  **HANDS-ON LEARNING** Divide students into pairs or small teams and hand out the Animal Count student page. Take them outside and give them a few minutes to find animals or signs of animals. Set boundaries so that students don't roam too far.

American Goldfinch by stanley45 at iStock.com

5  **STUDENT VOICE** Bring the group together and have students share their experiences and compare their findings. Focus them on the following questions:

- What animals did you observe living here?
- What evidence did you find of other animals?
- What do these animals need to live? (food, water, air, shelter, space)
- How do these animals get food and water?


6 Discuss what birds or signs of birds students found on their exploration. Ask whether students would want more birds at the site, and what they could do to invite more birds. For example, they might provide bird feeders or a bird bath, or plant flowers that attract birds.



VARIATION: GRADES 3-5

1 As in the activity, invite students to observe animals and signs of animals at the site. Have students use the Naturalist Survey student page for recording their observations.

2 Discuss students' findings, focusing on how the animals living at the site get the food, water, shelter, and space they need.

3  **STUDENT VOICE** Ask students whether there are any animals they would like to see—or see more of—at the site (for example, birds, bees, butterflies, or squirrels). Have student teams research the habitat needs of those animals and possible ways to attract them to the site, such as providing feeders for birds or squirrels, or planting flowers for pollinators.

4 Assist the group in developing a plan for attracting the animals, based on their research. Their plan should include the benefits of attracting the animals, how they would address any potential problems, the steps they propose, the materials needed, and costs. Help them get any necessary permission and then put their plan into action.



ACADEMIC STANDARDS

SCIENCE

Practices

- Constructing explanations and designing solutions

Concepts

- Biodiversity and humans
- Natural resources
- Systems and system models

ENGLISH LANGUAGE ARTS

Practices

- Speaking and listening: presentation of knowledge and ideas



15 Life on Land

15.1 Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.

ASSESSMENT

Ask students to

- Draw a picture or diagram, write a story, or make a diorama showing an animal that lives at the site and how it gets food, water, or shelter.
- Inventory animals living in an area other than the one in the activity, such as the local park, a different part of the playground, or a nearby forest. You may want to assign some of the questions in Step 5 for them to answer.

ENRICHMENT

- Extend the exploration to a larger outdoor setting, such as around the block or neighborhood. Students might focus their investigations by looking for birds and tallying the numbers of different kinds of birds, looking for evidence of animals eating or being eaten by something else, looking for evidence of animals using water, or sketching trees and looking for evidence of how trees help animals (including people).
- Give students a hula hoop to place on the ground and then count how many kinds of plants or animal species they find within it. Repeat in difference places around your site to compare different microhabitats.
- Read aloud *Bird Count* by Susan Edwards Richmond, a fictional account of a young girl who participates in the annual Audubon Bird Count, or *Fly With Me: A Celebration of Birds through Pictures, Poems, and Stories* by Jane Yolen, et al. Arrange for students to participate in a community science project in your area, such as those suggested in Community Science Projects on page 22.

SHARE BIRD STORIES



Look for local or regional stories, legends, or songs about birds to share with students. For example, the traditional native Hawaiian story of the 'Ōhi'a Lehua and Po'opāpale explains the relationship between native honeycreepers and the 'Ōhi'a tree, a primary food source and habitat for many of them. One place to start is the website Native American Birds of Myth and Legend at native-languages.org/legends-bird.htm

Above: 'I'iwi by Rajh Photography, Shutterstock



NAME _____ DATE _____

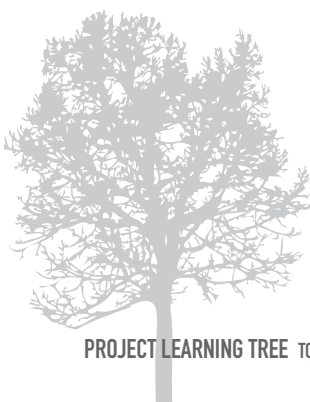
Look and listen for animals and signs of animals. Write down each kind of animal or draw a picture of it. Count how many of each kind you find.

Animal or Animal Sign	How Many?

CAREER CORNER

ORNITHOLOGISTS (or-nih-THAW-luh-jists) are scientists who study birds, bird habitats, and bird behavior. They often conduct surveys – like this one – and record and report on bird activity.

I LOVE MY
GREEN JOB!



NAME _____ DATE _____

Look and listen for animals and signs of animals. Write down each kind of animal or draw a picture of it. Count how many of each kind you observe.

WHAT What animals or signs of animals do you see or hear? List them or draw a picture.	WHERE Where do you find each animal or sign of an animal?	HOW How might that animal get the food, water, and shelter it needs to live here?



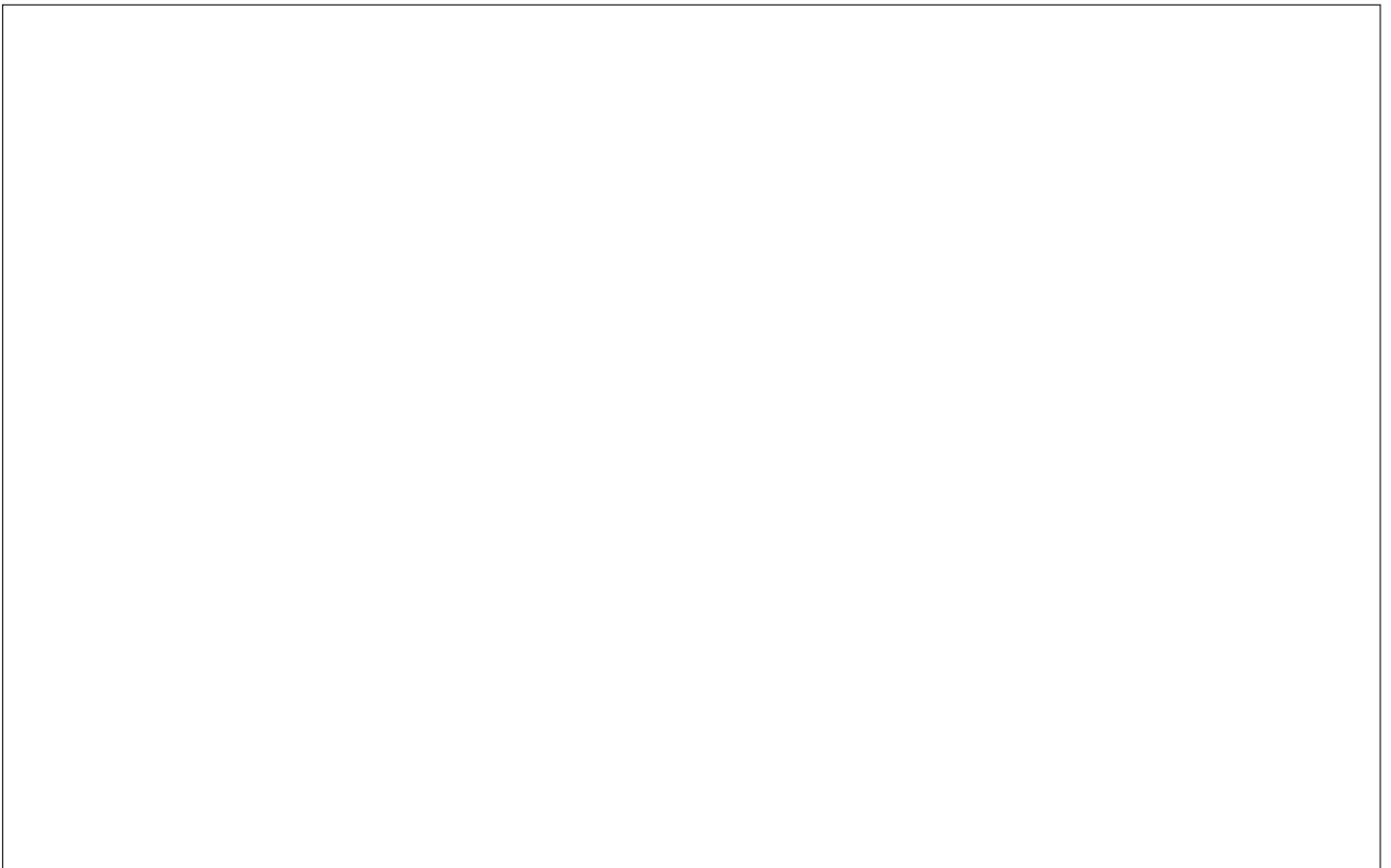
CAREER CORNER

BIRDWATCHING TOUR GUIDES plan and lead trips for people who enjoy looking for birds. They must have good bird-finding skills as well as good leadership skills.



BIRD JOURNAL

BIRD JOURNAL



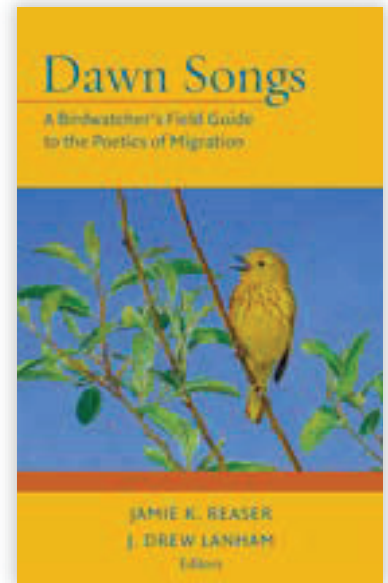
POETIC REFLECTION

Poetry is a great way for students to express their ideas about the environment. Writing and sharing poems gives students an opportunity to express their thoughts, feelings, and beliefs in creative and artistic ways.

American Bird Conservancy is partnering with writers and bird enthusiasts J. Drew Lanham and Jamie K. Reaser on projects and events related to their new collection of poetry, *Dawn Songs: A Birdwatcher's Field Guide to the Poetics of Migration*. A shared goal is to inspire and engage the next generation.

Giving students a specific poetic form helps them structure abstract ideas. Following are some sample poetic forms from *Dawn Songs*. We hope they inspire you and your students to think creatively, embrace reflection, and expand horizons.

To deepen expression of students' environmental perspectives using poetry, have a look at PLT's Poet-Tree activity in the *Explore Your Environment: K-8 Activity Guide* at plt.org/explore-your-environment



All book sale revenue supports American Bird Conservancy's Conservation and Justice Fellowship Program.



Common Loon by Dopeyden at iStock.com

LOON*

Sidney Wade

**Reprinted, with permission, from Dawn Songs, p. 51*

Designed in cold	for lively prey, lightning	from summer to winter,
beautiful lines. Brilliantined	in black, as it sweeps	its unearthly cries haunt our sleep.
black head, fire-red eyes	its waterways with sharp eyes.	They bring splinters of wildness
that defy the darkness	At home in deep cold water,	to our nights as we navigate
of the water in which it thrives.	at home in the dome of the sky,	through dreams and the streaming
In pure lines it dives	at home in flight as it roams	wakes of the trails we earthlings make.

IN THE WOODS*

Jamie K. Reaser

**Reprinted, with permission, from Dawn Songs, p. 33*

I take long walks in the woods, usually up and down mountain slopes. Usually, alone. Alone in that I'm not in the company of another human. I'm never alone, really. I've known this since I was a little girl in braids. The forest is such good company. It can hold you in ways that people can't, even those who would want to. You can be invisible there, yes, but you can also be seen. I think this is important, this being witnessed. I think we have forgotten about it, witnessing. It is a testament and a salve. It used to be initiation. All the while the birds are singing, we miss it. On the branches of the trees:

"I see you. See me."

Instruction.

JAMIE K. REASER



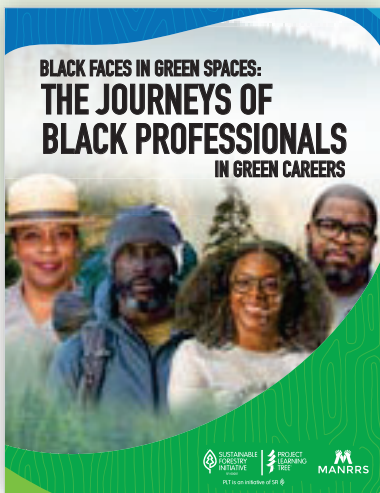
IDENTITY*

J. Drew Lanham

**Excerpted and reprinted, with permission, from Dawn Songs, p. 13*

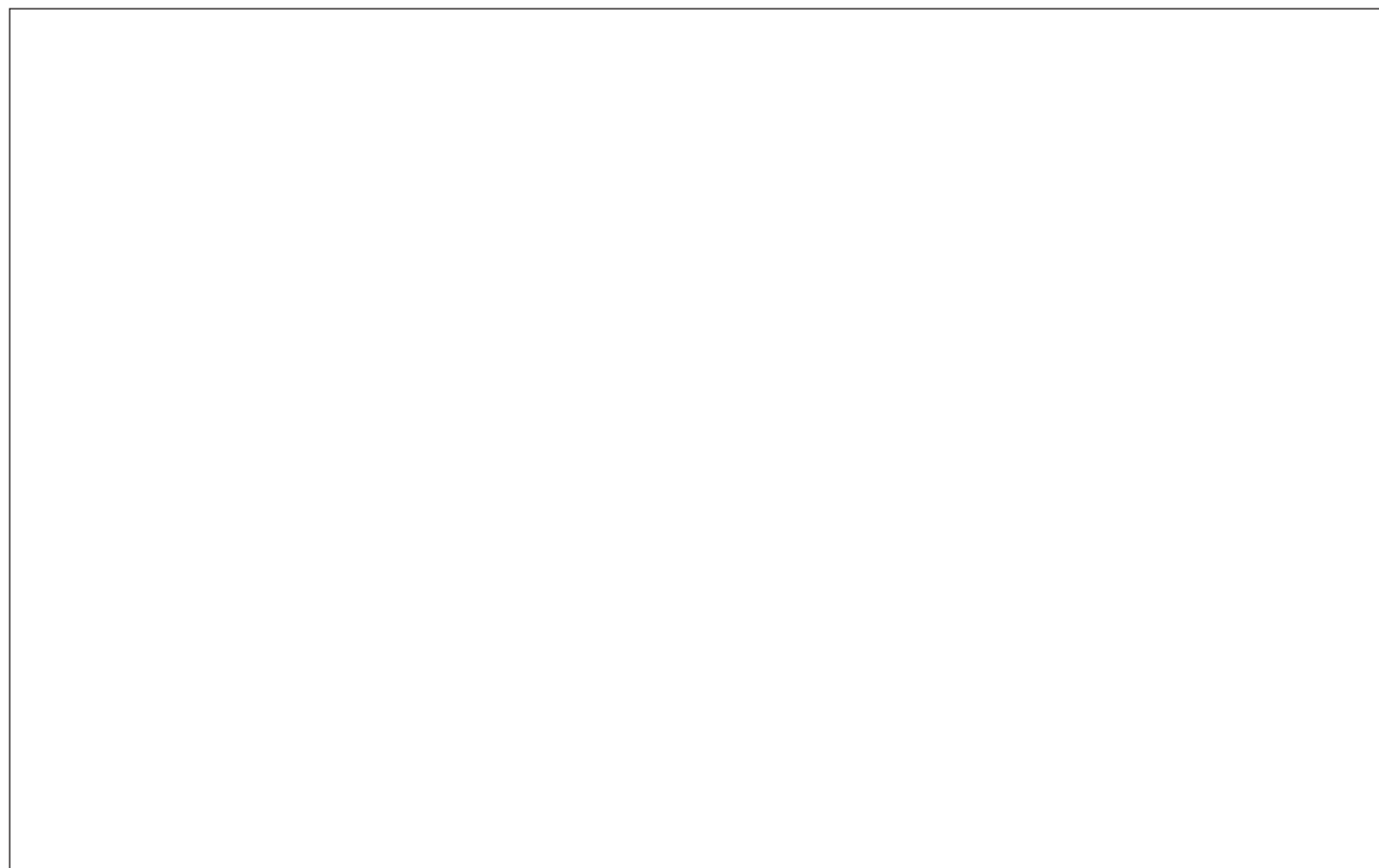
It has been a satisfying journey of discovery to learn birds as fellow Earth travelers. After all, whether winged or not, we share the same air, same water, same soil. We are in common plight, the birds and us. Our ranges – literal and metaphoric – overlap. And so, a great part of the bird-labeling quest has led me to want to be a part somehow of solutions that push my selfish love beyond watching and into more selfless action – to save and conserve.*

J. DREW LANHAM



To learn more about J. Drew Lanham's professional journey, download your free copy of PLT's *Black Faces in Green Spaces: The Journeys of Black Professionals in Green Careers* at plt.org/journeys

POETIC REFLECTION



POETIC REFLECTION



PLT is an initiative of SFI 



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ABOUT THIS SERIES

PLT’s Activity Collections provide content to support an identified theme for a particular grade level. Each collection offers hands-on activities for teachers and nonformal educators, youth group leaders and home schoolers to connect youth to nature and the outdoors.

Visit shop.plt.org to purchase more Activity Collections.

For Grades K–2

SENSATIONAL TREES: Uses sensory exploration to help students understand objects, spaces, people, and interactions.

TOGETHER FOR BIRDS: Introduces learners to why birds matter using the concept of “habitat,” inviting them to find birds and other living things at a nearby outdoor site.

For Grades 3–5

BIODIVERSITY BLITZ: Invites learners to investigate variability among species in an ecosystem, and how this variability—or biodiversity—helps sustain life on Earth.

CONNECTING FOR HEALTH AND PLANET: Investigates how being outside – and among trees, specifically – provides people with many different physical, emotional, social, and learning benefits.

TRILLIONS OF TREES: Introduces students to the identifying features that distinguish different trees and explores how to care for trees in our communities.

For Grades 6–8

DISCOVER YOUR URBAN FOREST: Invites learners to explore their urban environment and investigate environmental issues that affect their urban community.

NATURE OF FIRE: Examines the role of fire and other disturbances in forest ecosystems, including the relationship between climate change and fire.



Red-winged Blackbird by GarysFRP at iStock.com

ABOUT PROJECT LEARNING TREE

Project Learning Tree® (PLT) is committed to advancing environmental education, forest literacy, and green career pathways, using trees and forests as windows on the world. Our award-winning resources offer a lifetime of learning from early childhood through adulthood, and our wide and diverse network provides professional development for educators and opportunities for young adults to explore forests and green careers. Together, we are growing future forest and conservation leaders. PLT is an initiative of the Sustainable Forestry Initiative®, a non-profit charitable organization with the mission of advancing sustainability through forest-focused collaboration.

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