The Cornell Lab of Ornithology
BirdSleuth K–12

BirdSleuth Explorer's Guidebook

BECOME AN EXPERT OBSERVER!

Follow this step-by-step guide and use your senses to discover the birds in this national wildlife refuge.

U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

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U.S. Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

EVERY KID IN A PARK

Welcome, BirdSleuth Explorer!

Scientists are explorers.
They search for new discoveries and ideas. You can be a scientist, too. Science starts with curiosity and observation. Keep your ears and eyes open and record what you notice. Using these science skills is a great way to explore this national wildlife refuge.

Your Name _____

Refuge Name _____

State _____

Date _____

Scientists and explorers make lots of observations and ask tons of questions.
If you think of a question that you can't answer, don't worry. Just turn to page 11 of your **BirdSleuth Explorer's Guidebook** and write it there. You can find the answer later.

Wake Up Your Ears

Use your sense of hearing to start exploring the world around you!

Find a quiet spot. Sit and listen for five minutes. Use this space to make a map of what you hear, like the girl in the picture. The **X** on the page marks the spot where you are. Use your own symbols to map the sounds around you (like cars, running water, and birds).

Where are the sounds?

X

You are here

What's a Habitat?

Great job! Now that your ears are listening, look for the four parts of a habitat.

A good habitat has everything a bird needs to survive. There are four parts to a habitat. Put a check next to each part you see: food, water, cover, and space.

❑

FOOD: Just like you, birds need a healthy diet. Different birds eat different foods, for example seeds, insects, and fruit.

❑

WATER: From a puddle to a pond, or a ripple to a river, birds need clean water for drinking and bathing.

❑

COVER: Birds need safe places to sleep and raise young, and shelter from bad weather and predators. Birds find cover in trees, bushes, and structures made by people.

❑

SPACE: Birds need room to grow and live. They need to be able to find enough food, water, and cover in the place they call "home."

Habitat Scavenger Hunt

Now you've got the hang of it! How many parts of a habitat can you discover?

This national wildlife refuge might have more than one kind of habitat (such as forests, wetlands, grasslands, and deserts). Observe the habitat around you closely. How many things can you find on the list?

- ❑ insect
- ❑ spider
- ❑ spider web
- ❑ place where a bird can hide
- ❑ plant that is as tall as you
- ❑ mammal
- ❑ leaf bigger than your hand
- ❑ animal making noise
- ❑ something a bird can eat
- ❑ animal track
- ❑ hole in a tree
- ❑ rock bigger than a baseball
- ❑ bird nesting material
- ❑ water for animals

What was the most colorful thing you found? _____

What was your favorite thing you observed? _____

What would you name the habitat you are in? _____

Bird Search

Now that you've explored this habitat, let's see if you can find any birds.

You can find out if birds are here by using your eyes and ears.
How many items can you check off the list below?

Bird evidence

- ❑ feather
- ❑ droppings
- ❑ nest

Birds using habitat—look for them:

- ❑ on a branch
- ❑ on a wire or roof
- ❑ flying or soaring
- ❑ on the ground
- ❑ swimming
- ❑ eating
- ❑ drinking

Variety of birds

- ❑ group of three or more birds
- ❑ two birds together
- ❑ colorful bird
- ❑ bird that is mostly black
- ❑ bird with white on its body
- ❑ bird with a long tail
- ❑ bird with a short tail

Bird illustrations on this page by Evan Barbour, Bartels Science Illustration Intern

Do not take anything that you find in a national wildlife refuge home with you.
Leave everything where you find it so the next explorer can see it, too.
Scientists take notes or photos to remember what they see.

Bird Groups

You're really becoming a great observer and explorer!
Now that we know that birds are all around us, let's start trying to identify them.

There are many different types of birds. They can be grouped by their shape. Species in each group have similar shapes. Here are just a few bird groups you might see as you explore.

Songbirds

Crows

Doves

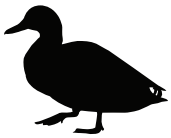
Swallows

Hummingbirds

Woodpeckers

Herons

Geese


Ducks

Gulls

Hawks

Owls

Can you find a bird from any of these groups?
Record the group and where in the habitat you saw it.

Group Name (such as owl)	**Where You Saw It** (such as in a tree)

Identification Clues

Now that you can use shape to determine a bird's group, let's add more details to help identify a bird by species.

Bird watchers use many clues to identify birds. Knowing the shape, size, and color pattern of a bird, and where and when you saw it, can help you identify the birds you see. Focus on one bird and gather information about it!

Your Habitat: _____ **Date:** _____

Where was it? (circle one): At a feeder In the water On the ground In trees or bushes On a fence or wire Soaring or flying

What size was the bird? Put a star on the line closest to the size of the bird you saw.

Circle up to three main colors you saw.

Red Orange Yellow Green Blue

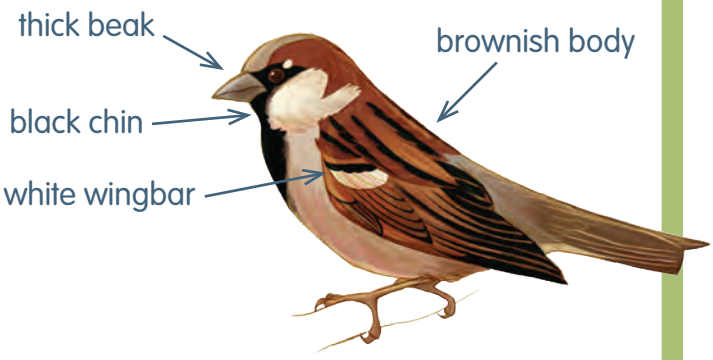
Black Gray White Brown

The bird size graphic is from the Be a Better BIrder tutorial at birds.cornell.edu/courses/home/tutorial ©2016 Cornell University

Did you notice any interesting patterns on the bird? Were there stripes on the head or wings? Sketch or make notes about any patterns you observed.

Sketch and Notes

Example:



I think my bird is: _____

It's okay if you don't know the species. What type of bird do you think it is?

With this information, you have a good chance of identifying your bird. You can use a field guide or app to help you. If you have a smartphone or tablet, the Merlin Bird ID app can give you a list of birds you might have seen. **merlin.allaboutbirds.org**

Bird Count

You've learned a lot about habitat and the birds around you.
Use your new skills to count birds and become a citizen scientist!

Find a good spot to look for birds and carefully collect data during a 5- to 10-minute bird count. If you don't know the name of a bird, make notes or a sketch and look it up later.

Location: _____ Start time: _____

Date: _____ How long was your count: _____

Circle one: Stationary (Did you stay in one place?) Traveling (Did you move from one place to another?)

Species	Number seen

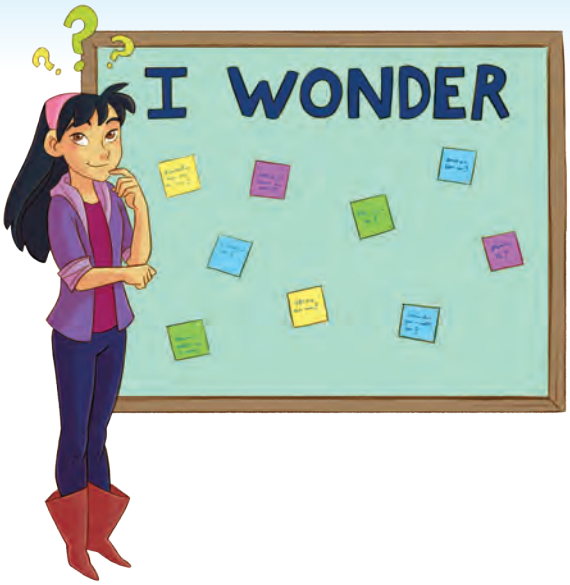
Become a citizen scientist! With the help of an adult, enter your data at **ebird.org** to help scientists learn about the birds you saw!

What is citizen science? Scientists around the world depend on people like you to help collect information, called data. There are lots of different citizen-science projects for studying birds, butterflies, frogs, and more. When you collect data for these projects, you are a citizen scientist!

I Wonder

You've done a great job exploring the national wildlife refuge!
Did you discover anything that you want to learn more about?

Exploring nature can leave you with lots of questions. It's OK if you don't know the answers!
Write down your questions so you can explore these topics later.



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THANKS FOR EXPLORING NATURE WITH BIRDSLEUTH!

Download your **BirdSleuth Explorer's Certificate** at **birdsleuth.org/explorer**.

You may also want to explore these Cornell Lab of Ornithology sites:

- ❑ Visit **allaboutbirds.org** to look up the birds you saw today and learn cool facts about them.
- ❑ You can be a citizen scientist by entering counts for any location into eBird, including your backyard or neighborhood! **ebird.org**
- ❑ Download the Merlin Bird ID app or use the photo identification tool online at **merlin.allaboutbirds.org**.

The National Wildlife Refuge System protects a national network of lands and waters that benefits birds and other wildlife for enjoyment by the American public. National wildlife refuges are home to more than 700 species of birds. For information about visitor programs and bird-viewing opportunities, please visit **fws.gov/refuges/birding/**.

All illustrations by Bartels Science Illustration Intern Anna Rettberg, ©2016 Cornell University, unless otherwise noted.