

Name:

Date:



Sleuth

Bird Survivor!

Find out what you know about nesting birds!
There may be some surprises.

Nesting Birds Quiz

What Do You Think?

Some of these statements about nesting birds are true—but some are just fiction!
Circle “Fact” or “Fiction” for each statement.

FACT	FICTION	All birds lay eggs.
FACT	FICTION	All birds build nests.
FACT	FICTION	Most birds live in their nests year-round.
FACT	FICTION	Most bird species can breed at any time of year.
FACT	FICTION	Bluebird populations have increased over the last 20 years because people have been providing nest boxes for them.
FACT	FICTION	Most baby birds are fed a diet of seeds and berries.
FACT	FICTION	Birds sing to attract mates and defend territories.
FACT	FICTION	There are about 700 species of birds which breed in North America.
FACT	FICTION	Birds can breathe inside their egg before hatching.
FACT	FICTION	Most chicks peck their own way out of their egg.



Name:

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BIRD

Sleuth

Should I Stay Or Should I Go?

Not all birds migrate.

Why do some stay and some go?

My Favorite Bird

My favorite bird is: _____

Describe and draw a map showing where this species lives and migrates.

Does this species migrate (circle one):

YES

NO

If so, how far does it migrate?

This bird spends the summers in:

This bird spends the winters in:

Share some "cool facts" about this bird:



Name:

Date:



**BIRD
Sleuth**

Meet A Scientist

Real scientists are always working to understand birds better.

Draw a Scientist

Draw a picture of a scientist at work. Include clues about what you think a scientist looks like, wears, and does.



Name:

Date:

Meet A Scientist

Meet A Scientist

Use this page to record what you learn from reading the Meet the Scientist report about Nate Sennar and his work.

1. What questions did Nate and his team ask?
2. Why was he interested in those questions?
3. How are Nate and his team trying to answer their questions?
What was the investigation like?
4. What kind of information and data did Nate and his team collect?
How did they collect this information?
5. What has Nate learned as a result of his or her investigation?



Name:

Date:

Shared Birds, Shared Habitats

Making a Difference for Migrating Birds

Our migratory bird: _____

This bird's summer habitat: _____

Main conservation challenges facing this habitat:

Brainstorm some actions that you think YOU could do to make a positive difference for this habitat:

Brainstorm some things that you think ADULTS (such as your parents, politicians, or people living in this habitat) could do to make a positive difference for this habitat.

This bird's winter habitat: _____

Main conservation challenges facing this habitat:

Brainstorm some things that you think YOU could do to make a difference for this habitat:

Brainstorm some things that you think ADULTS (such as your parents, politicians, or people living in this habitat) could do to make a difference for this habitat.



Name:

Date:

Meet A Scientist

Me, The Scientist

Fill out this page with your own research on a question you are interested in!

My Question: _____

How I will answer it (including the names of reference materials):

What I learned:

What I am still wondering about:

What I can do to learn more:

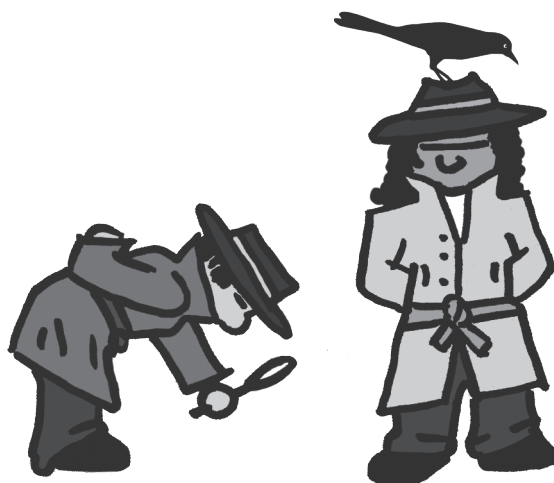


Name:

Date:

My "I Wonder" Questions

Research your questions and submit your favorite report, photo, or drawing online at the BirdSleuth website. Thank you!



Name: _____

Date: _____

Sleuthing Silhouettes

Bird Watch Report

Time Started _____ Time Finished _____

Weather Conditions _____

Number of people in my group _____

Species of Bird	Behaviors	Number Seen

Total number of bird species seen _____

Total number of birds seen _____



Name:

Date:



BIRD

Sleuth

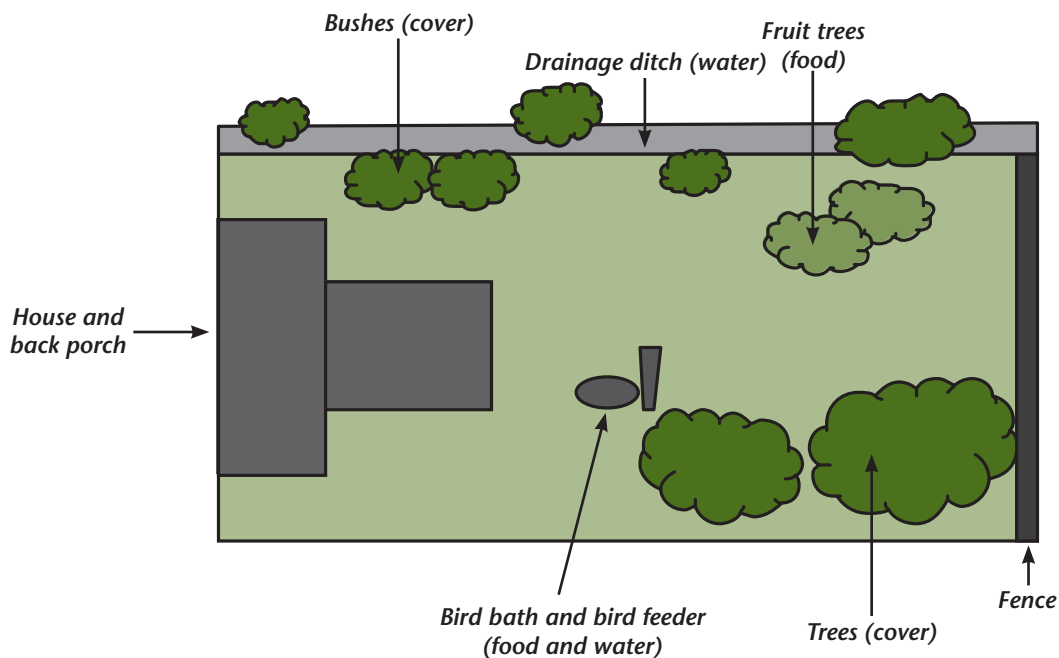
What's That Habitat?

Go outdoors to discover the importance of habitat to bird survival.

Habitat Sketch

Every living thing needs a habitat—a place that provides the food, water, cover, and space that it needs to survive. If it cannot find these items in an area, it won't live there. Birds and other living things have special adaptations that help them to live in specific areas, such as on a lake, in a forest, or in a city. A bird can't live in all areas because not all areas meet its specific needs.

You will be going outside to investigate a habitat. After you have looked it over, draw a map or sketch of the habitat from a bird's eye view (aerial view). An example is provided below. Use the space on the next page to draw your habitat.



Name:

Date:

What's That Habitat?

Habitat Design

1. In the space below, draw your habitat. Label three habitat features and indicate what they provide for a bird's survival. For example: "berries (FOOD)" or "pond (WATER, FOOD)." The more you label, the more you will know about this habitat!



Name:

Date:

What's That Habitat?

Outdoor Bird Observation

2. While you are outside, try to observe one bird for a few minutes. In the space below, record information about its behavior.

Bird I was watching _____

Observation start time _____ Observation end time _____

Weather conditions _____

Behaviors I saw _____

Other interesting observations _____

3. Imagine you are a bird like the one you just saw. Write or draw how you would get the things you need from this habitat.

Food:

Water:

Cover:

Space:



Name: _____

Date: _____

What's That Habitat?

Take Action!

After learning about birds and habitats, I am committed to bird and habitat conservation.
I will try my best to take the following actions to help birds:

- ☐ Observe birds and their habitats in my schoolyard or backyard
- ☐ Monitor birds through a citizen science project
- ☐ Plant native, bird-friendly plants that provide food and shelter for birds
- ☐ Keep my pet cats indoors, especially when baby birds are leaving their nests
- ☐ Share my knowledge of birds and conservation with others
- ☐ Participate in a clean-up event
- ☐ Walk or bike to school more often
- ☐ Turn of the lights when I leave a room
- ☐ Turn of the power when something is not being used
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____



Signature: _____

Date: _____

Red-bellied Woodpecker by Emma, Age 9
Send us a scan of your bird's eye view of your habitat site!



Bird Survivor Cards

<p>Find and Defend a Territory</p> <p><i>You successfully defend a large territory within a protected wildlife refuge.</i></p> <p>Take two steps forward.</p>	<p>Find and Defend a Territory</p> <p><i>The forest you nested in last year has become very fragmented and nest predators are everywhere.</i></p> <p>Take two steps back</p>
<p>Find and Defend a Territory</p> <p><i>You land at a school where students have created a schoolyard habitat, complete with a bird feeder and several nest boxes.</i></p> <p>Take one step forward.</p>	<p>Find and Defend a Territory</p> <p><i>You exert a lot of energy defending a potential nest site against European Starlings.</i></p> <p>Take one step back.</p>
<p>Find and Defend a Territory</p> <p><i>You begin migrating early so you can find the best territory. Though the weather seemed good when you left, an early spring snowstorm hits, and you freeze.</i></p> <p><i>Sorry, the game is over for you.</i></p> <p>Go back to your seat</p>	<p>Find a Mate</p> <p><i>After some elaborate courtship displays, you finally have a mate.</i></p> <p>Take one step forward.</p>



Bird Survivor Cards

Find a Mate

You find a mate, but while feeding at a nearby bird feeder, your mate is killed by a Cooper's Hawk.

Take two steps back

Find a Mate

You find a mate but another male is also courting her.

Stay in place while you continue singing your heart out.

Find a Mate

You're in luck; your mate from last year has survived the winter and you quickly form a pair bond!

Take two steps forward.

Build a Nest and Lay Eggs

You and your mate quickly build a nest and immediately begin laying your eggs.

Take two steps forward.

Build a Nest and Lay Eggs

Pesticides have been sprayed near your nest and eggs, and you get sick.

Take two steps back.

Build a Nest and Lay Eggs

You have trouble locating a nest cavity to build your nest in, but finally find a tree hole.

Stay in place.



Birds Survivor Cards

Build a Nest and Lay Eggs

A Brown-headed Cowbird has laid an egg in your nest.

Take one step back.

Incubate Eggs

A snake eats three of your eggs.

Take two steps back.

Incubate Eggs

Your mate guards you and feeds you throughout the incubation period.

Take two steps forward.

Incubate Eggs

The weather forecast during your two-week incubation is mild and food is plentiful.

Take one step forward.

Incubate Eggs

Your mate dies during incubation, forcing you to leave your eggs unattended while you find your own food.

Take one step back.

Feed and Raise Nestlings

None of your eggs hatch and you'll have to try again next year.

Sorry, the game is over for you.

Go back to your seat.



Bird Survivor Cards

Feed and Raise Nestlings

All of your eggs hatch and you begin feeding your nestlings all day long!

Take two steps forward.

Feed and Raise Nestlings

Only three of your eggs hatch, but food is plentiful.

Take one step forward.

Feed and Raise Nestlings

Your eggs hatch but the weather is unusually dry and it is hard to find enough food.

Take one step back.

Fledge From the Nest

Days after your eggs hatch, a raccoon finds the nest and eats all the young birds. Sorry, the game is over for you.

Go back to your seat.

Fledge From the Nest

Food is plentiful, and you are able to keep your young safe in their nest until fledging day! Congratulations, all of your babies fledge from the nest!

Take two steps forward.

Fledge From the Nest

Your babies are weak when they leave the nest because they have mites.

Stay in place and hope they survive.



Nesting Birds Quiz Key

Quiz Key

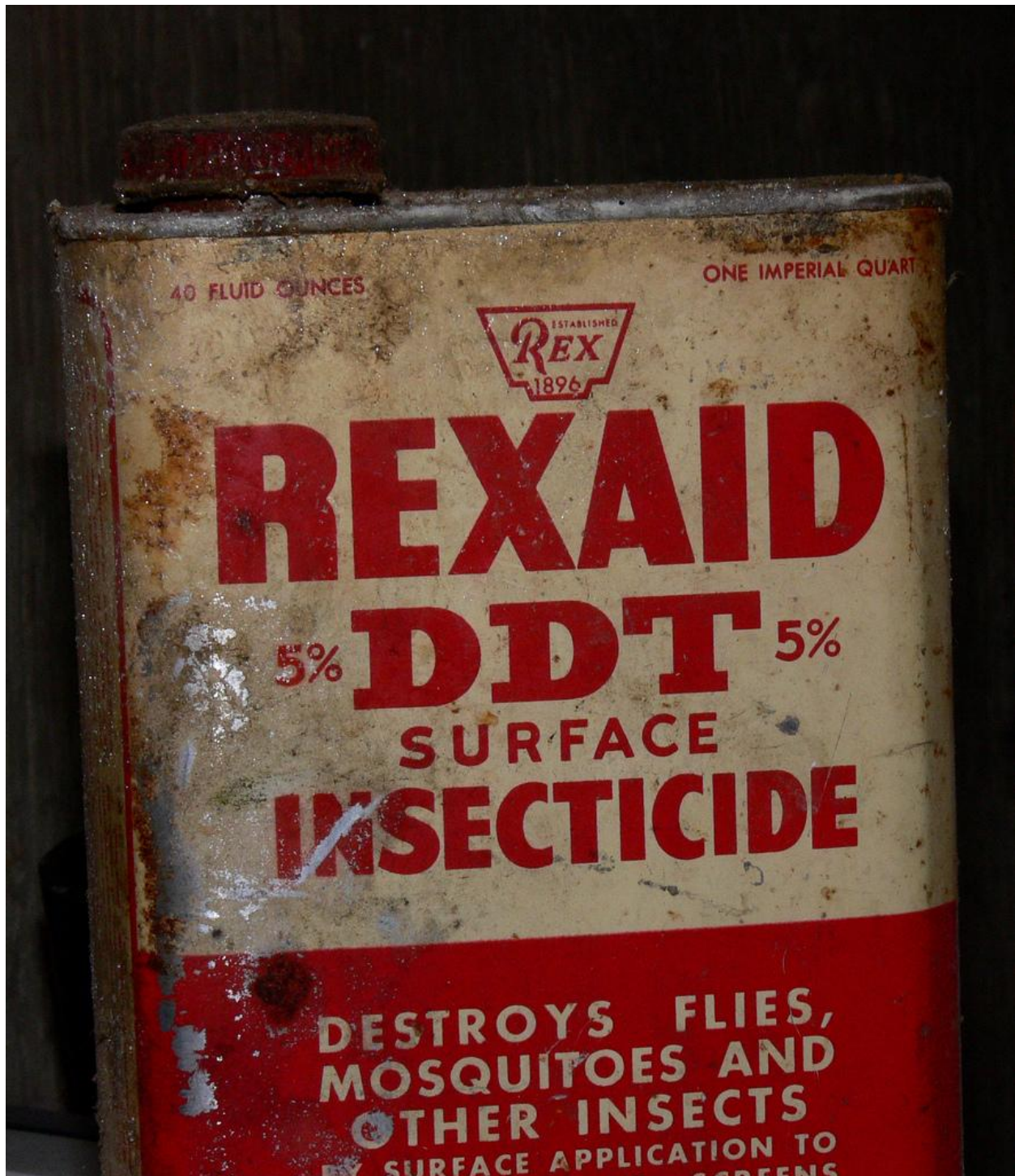
Use this guide to know which statements are fact and which are fiction.

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Air Pollution. Photo Courtesy of Mark H. Anbinder.



DDT, an insecticide that causes eggshell thinning in some birds and is responsible for the decline of some bird populations. Photo courtesy of Brad Smith.



Water polluted with waste. Photo courtesy of David A. Villa.



Sleuth

Should I Stay Or Should I Go?

<p>As you migrate to the breeding grounds, a storm rolls in and pushes you off course.</p> <p>Pay 1 Token</p>	<p>You're a resident, so you don't have to deal with the hazards of migration.</p> <p>Receive 2 Tokens</p>
<p>Many predators in the tropics might prey on your eggs or your young.</p> <p>Pay 2 Tokens</p>	<p>Food is scarce during the long, cold winter.</p> <p>Pay 3 Tokens</p>
<p>During your long migration flight, you've lost half your body weight and arrive on the breeding grounds in poor condition.</p> <p>Pay 2 Tokens</p>	<p>You are a temperate resident and have first choice of territories on the breeding grounds.</p> <p>Receive 2 Tokens</p>



Should I Stay Or Should I Go?

<p>Thanks to strong tail winds, you've migrated to your breeding grounds in time to secure a good territory.</p> <p>Receive 1 Token</p>	<p>During the cold winter, you spend lots of energy to keep warm.</p> <p>Pay 2 Tokens</p>
<p>There is a lot of competition for food in the tropics. You are limited in the number of nestlings you can raise.</p> <p>Pay 1 Token</p>	<p>You have an adequate food supply year-round because you don't spend winter in the temperate zone.</p> <p>Receive 2 Tokens</p>
<p>While migrating south to your wintering grounds, you hit a cell tower and are badly injured.</p> <p>Pay 2 Tokens</p>	<p>You have plenty of food to eat while you are nesting in the temperate area. You can lay many eggs and raise lots of young.</p> <p>Receive 2 Tokens</p>



Meet The Scientists

Scientist: Nate Senner

Nate Senner has been around birds his entire life, but he became excited about studying them when he was in school. Growing up in Alaska, Nate learned about different species and their natural habitats by volunteering with biologists, or scientists who study living organisms.

Now, Nate studies the Hudsonian Godwit, a type of migratory bird. Right now, scientists don't know a lot about godwits. Nate wants to know when and where they travel and stop, which habitats they live in, and how many godwit adults and chicks survive each year. These birds live in habitats that are being damaged by humans and climate change. Nate works to learn about godwits and their habitat needs to help with conservation efforts to protect birds.

Nate spends a lot of time observing godwits in their different habitats. This means spending the summer months at Hudsonian Godwit breeding grounds in the Arctic, where chicks are born and raised. Nate watches the birds' behaviors and counts the adults and chicks that survive after the summer. By counting every year, Nate can see if the population of Hudsonian Godwits is increasing, decreasing, or staying the same over the years.

The Godwits spend the fall and winter months on the other end of the world, at the southern tip of South America. Because Nate cannot follow them there and back, he and his team use special tools to track the birds and learn about their migration patterns. During the summer, Nate and his team attach tiny machines to the godwits' feet. As the tagged godwits travel, the machines log data about their location twice each day.

When Nate returns to the Arctic the next summer, he recaptures the godwits and analyzes the data logged on the machines. A computer creates a map of where each godwit has been, showing that godwits spend most of their time in northern Canada in the summer and in South America in the winter. On the way back from South America, they stop in Northern Mexico, Texas, Kansas, and Southern Canada. One bird can travel 6,1000 miles in a day, and from the Hudson Bay to the Amazon in 5 days!

Nate shares his information with other scientists and local communities by writing articles and talking about his work. He thinks that one difficult part of being a scientist is not being able to know everything about the godwits, because so much information still needs to be collected. However, this is exciting because it means that there is still a lot left to learn about birds and science!



Nate Senner

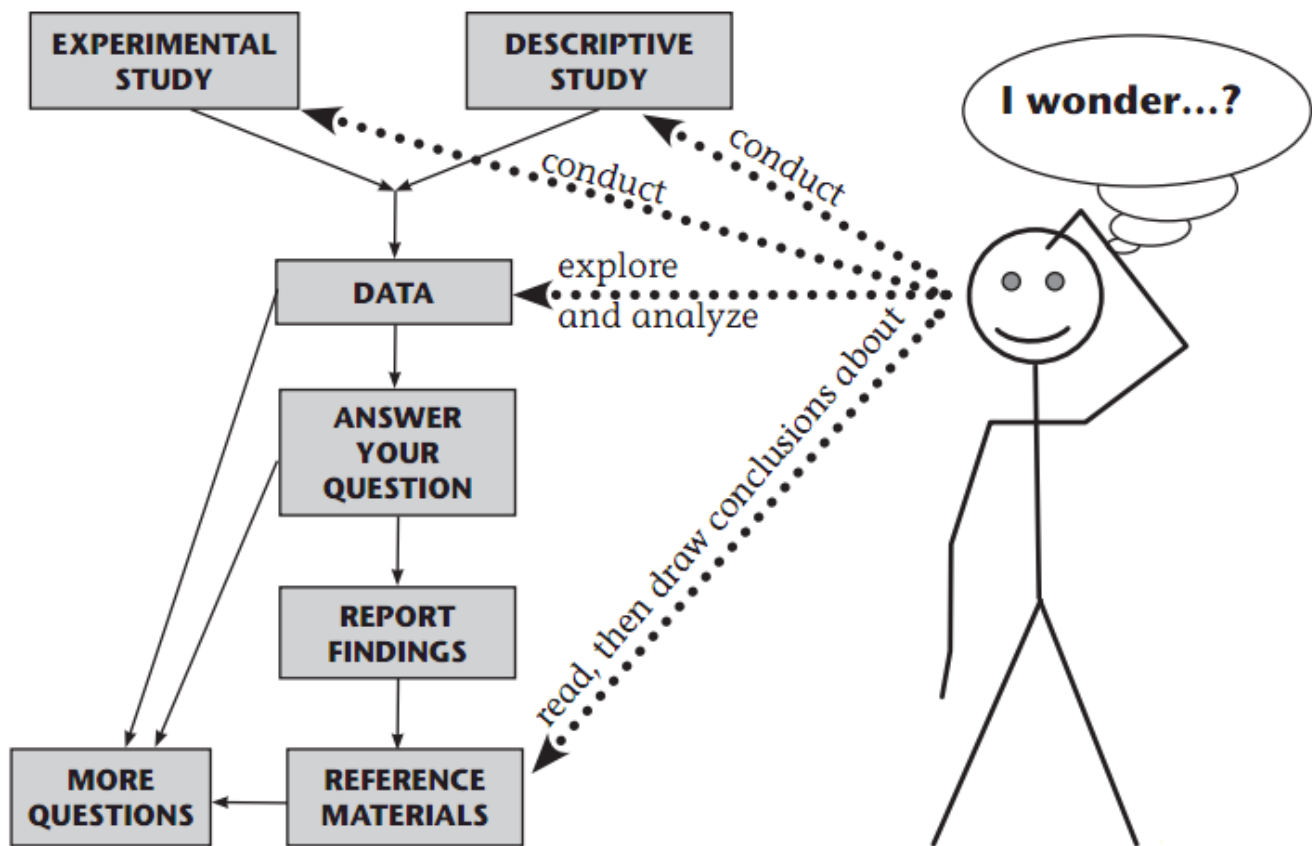
Nate and a member of his team putting a band on a Hudsonian Godwit in the Arctic.



Kinds Of Questions

What do you wonder?

You may have already come up with some questions you have about birds. For example: What would happen if we set up a birdbath? How do birds behave when a hawk flies over? Does weather affect the number of birds in our schoolyard? How does a bird find its way when it migrates? What places have the most different species of birds and why? Check the “I Wonder” board for the questions you and your peers have been wondering about. You can find the answers to a lot of your questions by acting like scientists! Different types of questions lead to different types of investigations. You can classify questions by the way you look for the answer. The diagram below illustrates different ways to answer questions.



Where will you jump into the process?

Depending on your question, you can enter the process of science at different stages. Look at the dotted arrows to see where this student scientist could jump into the scientific process. Some conduct their investigations through experimental or descriptive studies that involve observing scientific phenomena like birds, some start by exploring data that other scientists have collected in a database like eBird, and still others find answers by looking at information already published in reference materials and pulling it all together.