

Virtual Summer Camp: River Rangers Week 5—Birds, Beaks and Wings, Oh My!



This Week:

Learn how to identify local birds, play a migration game and more!

Friday-Monday: **Review & Prep!** Read through the packet and gather your materials.

Tuesday: **Tune in! Watch** our educators lead a live demonstration at 1pm.

Wednesday: **Experiment & Play!** Follow the activity instructions in your packet.

Thursday: **Share Your Results!** Submit a photo of your results to education@hrpt.ny.gov to be featured on our website. Then, download next week's packet!

VIRTUAL SUMMER CAMP: RIVER RANGERS

Week 5— Birds, Beaks and Wings, Oh My!

Materials Check List

Bird Migration Board Game:

- Bird Migration Game Board
- Habitat Change Cards
- Game Pieces
- Paper & writing utensil to record points
- Dice (use your own or use this [digital dice program!](#))

Rocking Birds:

- Scotch tape or glue
- Paper Plate
- Markers/Paint
- Construction paper
- Feathers (optional)
- Googly eyes (optional)

Bird Beak Buffet:

- Bird Beak Buffet Worksheet
- Paper (optional)
- Pencil
- 2 Small bowls
- Tweezers
- Chopsticks
- Dried beans, Cereal or Dry Pet Food
- Timer

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Bird Beak Buffet

Theme: Birds, Adaptation, Habitat

Ages: 5-8 years old

Prep Time: 5 minutes

Activity Time: 20 minutes

Activity Summary:

Hudson River Park provides important habitat to a range of local and migrating bird species including Canada geese, red tailed hawks, song sparrows and northern flicker woodpeckers, just to name a few. In fact, there are over 100 species of birds that fly through the Park every year!

This lesson teaches students how each bird species has unique adaptations to help them get the food they need to survive with an interactive game we like to call Bird Beak Buffet. Students will discover how specific beak shapes are indicators of where, how and what a bird eats. The diversity of beak shapes within the park allows for so many species to thrive right here in our backyard.

Goals:

- To understand that there are many different bird species in Hudson River Park
- To understand different bird species have different types of beaks to match their diet
- To connect different bird species' diet to their preferred environment
- To practice fine motor skills during an activity that compares tools to bird beak function

Lesson Materials:

- Bird Beak Buffet Lesson Plan
- Bird Beak Buffet Worksheet (printed or screenshot on a smartphone or tablet)
- Paper (optional)
- Pencil
- 2 Small bowls
- Tweezers
- Chopsticks
- Dried beans OR Cereal Or Dry Pet Food Pellets
- Timer

Background:

Hudson River Park is home to over 100 species of birds! Birds are complex creatures that come in all different shapes, sizes and colors. Through time, particular genetic information and **adaptations** have been passed down to offspring shaping each bird species' unique form based on its environment.

Physical traits including **beak shape**, body shape, wing shape, foot shape, and coloring can tell us about a bird's behavior and preferred **habitat** or home. Exploring these features tells scientists a great deal about where and how a bird lives. The beak shape reveals where, how and what a bird eats. The shape of a bird's body, wings, and feet points to how fast the bird flies, glides, and swims. Shape and colors also reveal where a bird predominately lives. Ultimately, this variety amongst birds highlights the great biodiversity that the Hudson River Park's numerous habitats can support.

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Photo by Hudson River Park Naturalist, Keith Michael

Hudson River Park has a vast abundance of birds in the Park during the spring, summer and fall. When the temperature begins to drop however, it is a cue for many species to travel for warmer grounds, a process called **migration**. The term migration is used to describe the movements of populations of birds. Migration patterns differ from species to species in terms of length and distances traveled. Migration can be triggered by a combination of changes in day length, lower temperatures, changes in food supply and genetic predisposition. This phenomenon is the reason why we see different bird species frequenting Hudson River Park during different times of year.

Hudson River Park serves as an especially important bird habitat in New York City with over 500 acres along the waterfront of Manhattan. The Park's Habitat Garden and 400 acres of estuarine sanctuary both contribute to valuable waterfront nesting grounds for over 100 species of birds!

Lesson Procedure:

Follow the prompts on the accompanying worksheet to gather some background knowledge, and complete the hands-on activity.

Responses to questions can be written on a separate sheet of paper, or directly on the worksheet if you are able to print the document.

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Bird Beak Buffet Worksheet

Directions:

Follow the prompts on this worksheet to reflect on what you already know about birds, learn about different bird beak adaptations, and test out how these adaptations function in the real world. Print this worksheet and write answers on the lines provided, or write your answers on a separate sheet of paper.

Part 1: Learning about Birds

1. Name one species of bird you know, that lives in New York City: _____
 - a. Where, specifically, have you seen this bird? _____
 - b. Do you know what this bird eats? If so, what is their food?

One of the most common species of bird that people think of when thinking about New York City is the Pigeon, which is also known as the **rock dove**.



Photo by Hudson River Park Naturalist, Keith Michael

Rock doves' natural diet mostly consists of seeds and small fruits.

2. Pause for a moment and write down what you notice about its beak. What shape is it? How about size? Do you think it is strong or weak?



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If you look closely, you can see that its beak is small and pointy. This makes it easy for these birds to get a hold of small food items. It is small, but it is also tough. In NYC, we often see them pecking away at bread and other food scraps fallen on the ground. Sometimes they even take leftovers out of the trash. This is one reason that rock doves are so successful in urban environments; they are able to survive by eating foods that are outside of their natural diet. If they did not develop this ability to change their food source (a survival adaptation), there might not be so many pigeons in New York City during the cold winter months, when seeds and fruits are harder to find.

Hudson River Park provides habitat to over 100 bird species. Below are some photos of birds found in the Park captured by our wonderful Park Naturalist, Keith Michael.



A- Double-crested cormorant



B- Northern cardinal



C- Red-tailed hawk



D- Common tern



E- American robin



F- Mallard ducks

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3. Describe some differences you notice about the beaks belonging to each species. Write down some observations about where each species is found. The birds' locations also inform what they might eat!



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Part 2: Bird Beak Matching Game

4. Let's try to match the beak shape to the food source! Draw lines on this worksheet, or on the screenshot on your touch screen device, connecting the following bird species, the tool that is most similar to how their beak works, and the food you think they eat based on this information. (Hint: consider their environment captured in the photos)

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Part 3: Bird Beak Buffet

In this demonstration, you will be using different tools to act like different species of birds and test how effective they are for gathering a particular kind of food.

First, gather your materials:

- 1 small bowl full of dried beads, pet food, or cereal to represent bird food
- 1 empty small bowl
- 1 pair of chopsticks to represent the common tern's beak
- 1 set of tweezers to represent the American robin's beak
- 1 timer

Then, set your timer for 20 seconds. Get ready with your chopsticks; press start on your timer and move as many items from one bowl to the other in the given time.

5. Write down how many pieces of food you were able to "eat" with your tern beak (chopsticks): _____

Next, set your timer for another 20 second. Get ready with your tweezers; press start on your timer and move as many items from one bowl to the other in the given time.

6. Write down how many pieces of food you were able to "eat" with your American robin beak (tweezers): _____



The common tern's beak is much like chopsticks, because while it is skinny and can grasp its food, it is much easier to pierce through food like small fish than to pick it up without poking through.

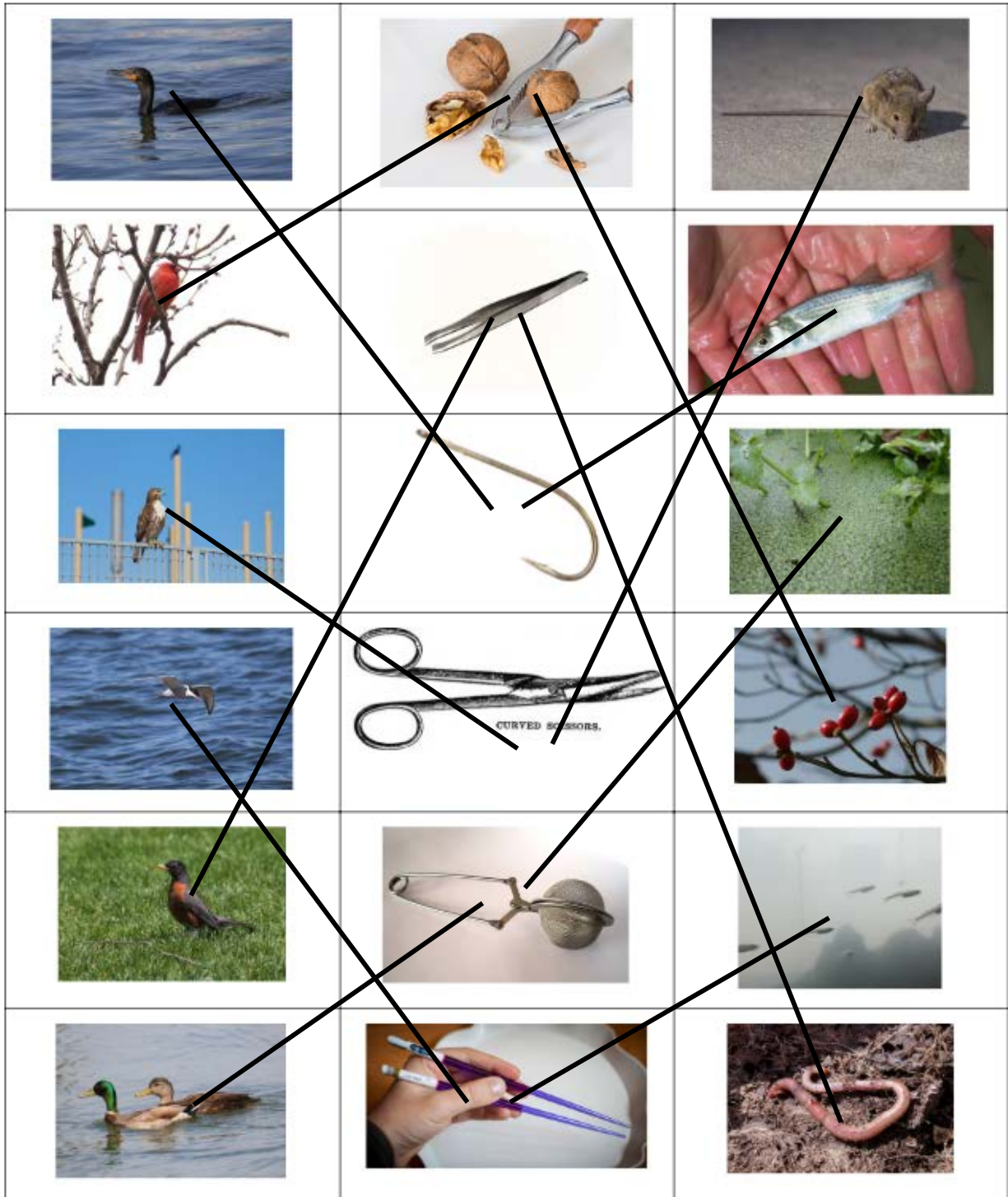


The American robin's beak is similar to tweezers, because it is pointy at the tip and good for grasping onto small food items like worms and insects.

7. Which bird do you think you were acting as in this activity? _____

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Bird Beak Buffet Matching Game Answer Key



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Bird Anatomy: Rocking Bird

Theme: Hudson River Wildlife; Form and Function

Ages: 5-8

Prep Time: 5 minutes

Activity Time: 20-30 minutes

Activity Summary:

This lesson teaches students to identify the physical features that define birds. By discussing the function of each feature, students explore the significance of each part. This lesson breaks down basic bird anatomy while also teaching how bird beak features influence feeding habits. This lesson allows students to create a craft representation of a Hudson River Park animal considering shapes and colors of the actual animals.

Objectives:

- Students will learn the basic anatomy of a bird and the function of each part through an interactive craft
- Students will learn about the behavior and habitat of Hudson River Park animals

Materials:

- Bird Anatomy Diagram
- Scotch tape or glue
- Paper Plate
- Markers/Paint
- Construction paper
- Feathers (optional)
- Googly eyes (optional)

Introduction:

Identifying different types of birds can come pretty easy when you know what to look for, and the best place to start is learning the anatomy of a bird. Birds share all the same basic body parts, but they will look different for different species. These differences will also change how a bird acts. Just take a look at the images below:



American Kestrel



Yellow-bellied sapsucker



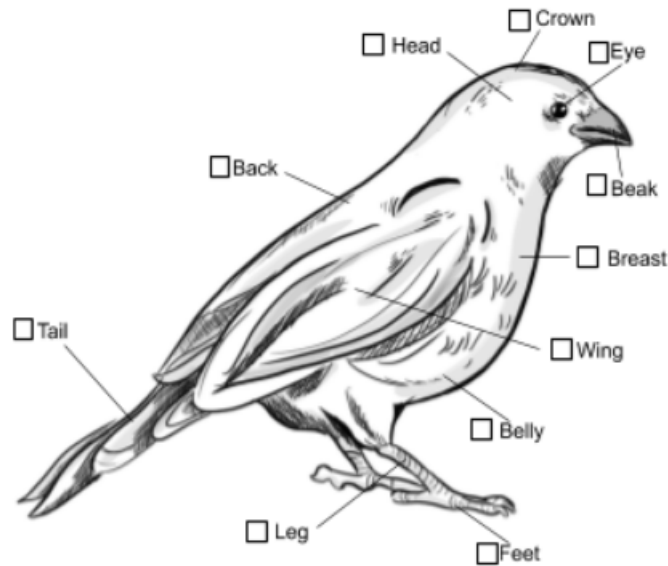
Common tern

It's clear that these photos are all of birds, but why? Can you think of three features that let you know these are birds? (Hint: Think about body parts that humans don't have.)

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Lesson Procedure:

Things like feathers, wings, and beaks make it very clear that these are birds and not, say, dogs or people! Review the diagram below that shows all the basic parts of a bird, and then follow the instructions to create a bird of your own, using a paper plate, markers, construction paper, and whatever other materials you would like to use.



Instructions

1. Fold your paper plate in half to create the body of your bird.
2. Use markers, crayons, feathers, bits of construction paper, glue, tape and whatever else you would like to add the different body parts of a bird (shown above) to your plate. You can draw legs and feet directly on your plate, or attach other materials to create them.
3. Check off the boxes next to each body part in the diagram above to make sure you haven't forgotten any important parts. Bonus: Label the different parts of your bird.
4. Let any glue or wet ink dry.
5. Slightly unfold your plate, so your bird can stand up. If you've attached legs, it may be a little tricky to balance. If you've drawn legs, you can rock your bird back and forth along the round edge to mimic pecking!
6. Name your bird. Many birds are named for the parts of their body that set them apart from other species, like the yellow-bellied sapsucker or the scarlet tanager. What parts of your bird make it unique?



Scarlet tanager, photographed by Park Naturalist, Keith Michael

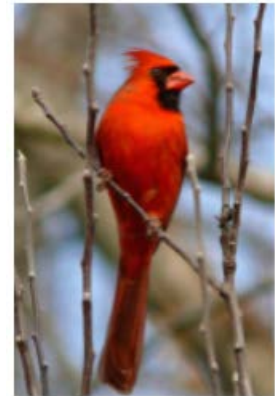
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Here's an example of what a rocking bird craft could look like.



7. **Optional:** review more information about the form and function of birds below:

- **Eyes:** Just like in humans and other animals, eyes help birds to see. They can find food, shelter, and know when to fly away from predators with use of their eyes. Birds' eyes can be large or small depending on the species. Large eyes often are found in birds that hunt at night, because they are able to absorb more light.
- **Crown:** The crown is the very top part of a bird's head. It is usually referred to when talking about notable feathers or colors in the area that can help identify the bird. Some birds, like the northern cardinal, have a crest in this area as if it is wearing a funky hat. This is an adaptation that helps certain birds seem attractive to potential mates.
- **Head:** You can often see birds moving their heads at strange angles and bobbing them around, some birds can even turn their heads almost all the way around to face backwards. This is because birds' eyes are far apart from each other. Quick and seemingly awkward head movements help birds get a better view of their surroundings.
- **Beak:** Bird beaks are strong and come in many different shapes and sizes. These differences correspond to what they eat. The northern cardinal has a short thick beak to help it eat lots of fruits and seeds. American kestrels have sharp hooked beaks to help them eat insects and small animals like mice.
- **Back:** The back of a bird is less often discussed. There are super strong muscles in the back of birds that are important to help them stay in the air and soar once they've taken flight.
- **Breast:** This area is often colorful and held proud by birds as a display when they are ready to mate. It is a very strong area because these muscles help birds flap their wings and take flight, that takes a lot of power!



Northern cardinal

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- **Wings:** Wings enable birds to fly. Birds like the albatross have extra long wings to help them soar long distances, whereas penguins have paddle-like wings that are better for swimming.
- **Belly:** Bird bellies are often covered in smaller, slightly fluffier feathers that help keep birds warm. They can be colorful to help them stand out to potential mates, or subdued to help them blend in with their surroundings.
- **Legs:** While most birds fly when traveling longer distances, birds' legs are still important for helping them walk, hop, and run toward food or away from predators. Some birds, like the great egret, have long legs that help them stand at the water's edge while they hunt for fish to eat.
- **Feet:** Birds' feet allow them to walk and run, some, like the American kestrel, have strong talons (or claws) to help them grab prey when they are hunting. Others, like mallard ducks, have webbed feet to help them paddle through water and swim.
- **Tail:** The tail is used in flight to help birds stay balanced and control the height of their soaring. This area is sometimes covered by decorative feathers attached to the birds lower back to help them attract a mate.



Northern royal albatross



Emperor penguin



Great egret



Mallard ducks, photographed by Park Naturalist, Keith Michael

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Bird Migration Board Game Rules

Theme: Birds, Migration, Habitat, Conservation

Ages: 10-14 years old

Prep Time: 10 Minutes

Activity Time: 15-20 minutes

Activity Summary: In this activity, you will play a game in which you take on the role of a bird as it migrates to its northern and southern habitats. As you may know from previous activities, **migrations** are seasonal movements of animals from one place to another. Many types of animals, including birds, fish and even butterflies complete important migrations every year in order to seek out ideal habitat conditions and take advantage of different food sources.

Objectives:

- Students will take on the role of a migratory bird species and complete a migration cycle board game
- Students will learn how changes in habitats caused by human activity can negatively impact migratory species

Lesson Materials:

- Bird Migration Game Board (in packet)
- Habitat Change Cards (in packet)
- Game Pieces (in packet)
- Paper/notebook to record points
- Dice (use your own or use this [digital dice program!](#))

Background

Successful migrations are important to the survival of many species, but they aren't easy. Birds like the American Robin travel an average of 38 miles per day when they migrate! Can you imagine how much energy it would take for you to run 38 miles in a single day? Because they use lots of energy to fly from place to place, **stopover habitats**, habitats where migratory species can rest and eat to replenish their energy, are important to the survival of migratory species. Stopover habitats can come in all shapes and sizes, from natural forests and lakes to urban parks and gardens.

Stopover habitats can be dramatically affected by human activities in positive and negative ways. For example, if a town decides to cut down an area of forest to develop into a mall, then they are removing potential stopover habitat where migratory species can rest. On the other hand, if a town decides to restore natural shorelines by replanting native vegetation, they are recreating stopover habitat that once existed there naturally.

Game Setup

- In this game, you will take on the role of a bird species as it migrates between its northern and southern habitats. The Northern and Southern habitats are marked by spaces on either end of the

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board. Print out the board and other game pieces and place them on the table. Cut out game pieces and habitat change cards. Place game pieces at the start of the board (Northern Habitat). Assemble Habitat Change Cards into a deck and shuffle them.

- **Green spaces** on the game board represent various types of stopover habitat. If you land on a green space, **add the number of points listed on the space to your score!**
- **Red spaces** represent areas without stopover habitat. If you land on a red space, **subtract the number of points on the space from your score!**
- **Habitat Change Spaces:** If you land on a Habitat Change space on the board, draw the number of cards listed on the space from the deck of Habitat Change Cards. Follow the instructions on these cards, then continue playing normally.

Rules

- At the start of your turn, roll a six sided die to see how many spaces forward your bird will move on its migration
- Depending on the type of space you land on, add/remove points from your score, or draw your habitat change cards. Once finished, pass the dice to the next player.
- Make sure to use a piece of paper to keep track of how many points you have!
- Remember, once you reach the Southern Habitat, you will need to turn around and start heading back to the Northern Habitat to complete your migration! Be careful though, some of the habitats may have changed!
- The game ends when all players have completed a full migration (North to South and back to North!). The winner is the player that has gained the most migration points along their journey!

Post-game Wrap Up

Good job completing your migration! During this game, you might have seen how hard migrations can be for bird species, especially when human activities negatively impact their **stopover habitats!** Even though migratory bird species may visit a habitat for a few days out of the year, the health of these habitats are critical to making sure that birds can get the resources and rest that they need!