



## Lesson 2: Bird Adaptations & Niches

### Theme

Birds are very diverse and have a lot of cool adaptations! All of these adaptations help birds fill various niches in the environment. It's important to keep track of our bird diversity here in Rhode Island so we can make informed decisions to help our birds in the future.

### Learning Objectives

In this lesson, students will learn about the basic adaptations of birds and general groups of birds. Students will also learn about the Rhode Island Bird Atlas 2.0.

### Corresponding Activities for this Lesson

- Bird Beak Buffet
- Bird Beak Detectives
- Create Your Own Bird Atlas

### Materials

- Lesson 2 PowerPoint
- Bird skull models and replicas
- Feathers

### Lesson

- 1. Show students the collage slide of Rhode Island birds and ask for some ideas about what makes birds different from other animals.**
  - Write down students' answers on the board, or let students write them.
  - Ask students to look for some common themes in their answers. A KWL chart would work well at the start of this lesson.
  - Hopefully students will have touched on some of the following characteristics of birds: Birds have feathers, lay eggs, are warm-blooded, don't have teeth, have hollow bones
- 2. Pass around the loose feathers included in the kit. Ask students to be gentle with the feathers as they explore.**
  - Ask students what they think bird feathers are made of, and if all feathers are the same. How do feathers stay together?
  - Ask students why they think birds have feathers, other than to fly?
  - Show students the pictures of the blue jay, fluffed up to stay warm, and the duck, with water beads on its feathers. Explain that some feathers are designed to protect birds against the weather.
  - Show students the pictures of the wood duck and American woodcock. Explain that many birds use brightly colored feathers to attract a mate, while others use their feathers to camouflage.

3. **Show students the photo of the structure of a feather and the different types of feathers.** *Details about feather structure and function can be found in the notes section of the PowerPoint.*
  - Ask students to guess the function of each feather type based on its structure.
4. **Ask students to list some things that birds might eat. Record the list on the board.**
  - When students have finished, compare their list to the list on the slide. Were there any correct guesses? Any silly guesses?
5. **Show students the collage of photos showing different bird beak shapes. This is a great time to let students look at the bird skull replicas and models.** Explain that what a bird eats depends on its beak shape. Ask students to think about why the shape of the beaks in the photos corresponds to what that bird is eating in the photo. For example, the great blue heron is eating a fish. What about the heron's beak makes it a good tool for catching fish? For the great horned owl and the crow, ask students to make a prediction about what these birds might eat, based on their beak shape. Students should be able to guess the owl's diet easily, but may have to think a little bit more about the crow, which is a generalist that eats all sorts of things.
6. **Explain to students that each bird on this slide fills a particular niche.**
  - Ask students if they have ever heard the word niche before.
  - Ask them to take a guess about what that word means in the context of what they were just discussing regarding bird beak shapes.
7. **Explain that a niche is an animal's role, or job, in the ecosystem. All of the niches fit together like a puzzle, making up the big picture of the ecosystem.**
8. **Explain that in Rhode Island, we're very interested in learning about the diversity of birds living here, and the habitats they're using.**
  - Show students the Rhode Island Breeding Bird Atlas 2.0 slide. *Notes about the Bird Atlas can be found in the PowerPoint.*
  - After learning about the Bird Atlas, work together to create your own bird atlas for the outdoor space around the school!