



Broward County Public Schools Videoconference

Reading Rascals

Lesson: Adaptations

Instructor: Dr. Evelyn Nelson-Weaver
BECON Distance Learning Teacher

Grade Level: First Grade

Sunshine State Standard: SC.F.1.1 and SC.G.1.1

Benchmark: SC.F.1.1.4, SC.F.1.1.5, SC.G.1.1.4

Objective(s):

1. Students will be able to describe how at least two of the birds studied in this lesson have beaks adapted to get their food.
2. Students will use models to infer the general size and type of food that birds eat.
3. Students will describe the kind of environment each bird needs to survive.

SCIENCE SKILL: Making Models.

VOCABULARY:

HABITAT – The natural place where animals live.

ADAPTATION - A body part or behavior that helps an animal meet its needs in its habitat.

ACTIVITY:

- Videoconference Instructor will present information about birds:
 - **Darwin's Finch** - Their beaks have evolved over time to be best suited to their function. For example, the finches that eat grubs have a thin extended beak to poke into holes in the ground and extract the grubs. While the finches we will represent today have **heavy, thick beaks** used to crush the hard outer covering of a seed or nut.
 - **Great Blue Heron** - The largest and most widespread heron in North America, the Great Blue Heron can be found along the ocean shore or the edge of a small inland pond. This bird has a **long, slender beak**. An all white form is found from southern Florida into the Caribbean, and used to be considered a separate species, the "Great White Heron."
 - Florida's **Scrub Jay** - A bold and curious bird, the Florida Scrub-Jay can become hand-tame in areas where it comes in contact with people. Unfortunately, it is restricted to the rare oak scrub community of Florida, a habitat under constant threat of development, and is classified as Threatened under the Endangered Species Act. It has a **short, pointed beak**
 - **Roseate Spoonbill** - Roseate spoonbills live mostly in wetlands and anywhere where water plants may exist. These birds are often seen in small groups in areas where there are very shallow waters. Roseate Spoonbills are colony nesters and are often found with other heron species. They breed in trees and lay three to five eggs. The nest of these birds is made of sticks and twigs. These nests are usually found in trees, bushes and sometimes on the ground. The Roseate Spoonbills have **spoon-shaped beaks**.

- The students will be guided through an investigation using different tools (clothespin, tweezers, spoon, and chopsticks) as models for bird beaks. Students will watch as the teacher picks up a variety of different human food (raisins, spaghetti, sunflower seeds, peanuts, and parsley in water) that approximated bird food.
- Students will discuss their hypothesis as to which food will be the easiest for each tool to pick up before the demonstration.
- Feeding frenzy: Each tool (bird) will have one minute to pick up (eat) as much food as possible. The teacher will use only one hand to hold the tool and the other hand to steady the bowl. All the food that the tool (bird) picked up will be left on the plate, so students can see what the bird's diet might look like. These results will be listed on a line plot on a recording sheet.

ACTIVITY: Questions for students:

- What is ADAPTATION?
 - An adaptation is a body part or behavior that helps an animal meet its needs in its habitat.
- How does having a **thick, heavy beak** help a bird eat seeds? (Clothespin=Darwin's Finch)
 - *Can easily crush the hard outer covering of a seed or nut to get to the food inside*
- What other kind of endangered bird has a sharp, strong beak?
 - *Eagle (Kills victims and tears them apart to eat)*
- The **short, pointed beak** is best suited to pick up what kind of food? (Tweezers=Scrub Jay)
 - *Seeds, Insects*
- The **long, slender beak** is best suited to pick up what kind of food? (Chopsticks=Great Blue Heron)
 - *Worms, fish*
- What kind of food would the **spoon-shaped beak** easily scoop up? (Spoon=Roseate Spoonbill)
 - *Small minnows, Shrimp, Aquatic insects*
- Which kind of bird do you think has the best chance of survival ...
 - ...in a **wet, marshy area**? *Roseate Spoonbill & Great Blue Heron* WHY?
 - ...in a **dry land area**? *Scrub Jay & Darwin's Finch* WHY?
- How would strong claws help a bird with a thick, heavy beak eat its food? *Hold or capture food*
- If the Roseate Spoonbill was forced to live in a dry area what do you think might happen to the bird?
 - *Adaptation* (Reinforce that this would be a **gradual process over many generations** and before it could occur the species might become **extinct**.)

LITERATURE CONNECTION:

Book Title: The Bird Alphabet Book

Author: Jerry Pallotta **Illustrator:** Edgar Stewart

Publisher: Quinlan Press, Boston, MA (1986)

Summary: This book describes birds using simple language and colorful pictures.

MATERIALS NEEDED: (*Optional: Needed for Demonstration*) Recording sheet (Bar Graphs – Included at the end of this lesson plan), a pencil, a plate, clothespin, tweezers, spoon, chopsticks, and five small bowls of food (raisins, unshelled sunflower seeds, cooked spaghetti, unshelled peanuts, and parsley floating in water)

EXTENSION:

Option 1: Complete the experiment using tools to represent bird beaks.

Option 2: Students will work with their teacher to develop a list of other animals that have special adaptations for their habitats.

VIDEO EXAMPLE: *This video gives information about adaptation and conducts a similar experiment using tools to represent bird beaks.*

TEAMS: Ecosystems: Adaptations. Los Angeles County Office of Education (2001). Retrieved January 31, 2008, from unitedstreaming: <http://streaming.discoveryeducation.com/>

Related Websites:

Darwin's Finches (Pictures)

http://web.visionlearning.com/custom/biology/animations/darwin_finches_working.shtml

Adaptive Explanation

http://www.biology-online.org/2/11_natural_selection.htm

Great Blue Heron

http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Great_Blue_Heron.html#description

Florida Scrub Jay

http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Florida_Scrub-Jay.html

Roseate Spoonbill

http://www.birds.cornell.edu/AllAboutBirds/BirdGuide/Roseate_Spoonbill.html

http://whozoo.org/Intro2001/verogarc/VG_RoseatteSpoonbill.html (pictures)

Roseate
Spoonbill



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14+

BAR GRAPH

FOOD: Spaghetti (Worms)

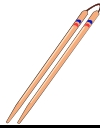
Darwin's Finch



Scrub Jay



Great
Blue
Heron



Roseate
Spoonbill



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14+

BAR GRAPH

FOOD: Peanuts in Shell (Snails)

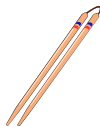
Darwin's Finch



Scrub Jay



Great



**Blue
Heron**

**Roseate
Spoonbill**



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14+

BAR GRAPH

FOOD: Parsley (Algae)

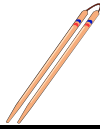
Darwin's Finch



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0 1 2 3 4 5 6 7 8 9 10 11 12 13 14+

