

Subject: Science

Grade: Second

Standard: #4 The Living Environment

Key Concept: Plants and animals have different features that help them live in different environments.

Generalization: The type of beak a bird has determines the type of food it can eat.

Background: Students have been studying about the interactions of living things. They can differ between living and non-living things, identify the needs of living things, understand that different animals live in different habitats.

The students have been reading about how adaptations help living things survive in their environment. They have observed fins, wings, paws, and other hand/foot adaptations. This lesson is an extension that shows the different ways birds' beaks are adapted to their environment and how competition for food sources affect the population.

This lesson is tiered in *content* according to *interest*.

Tiers are formed based on interest in using a particular type of “beak.”

For each group member you will need 1 “beak,” 1 plastic sandwich bag (evidence), and 1 small paper cup (stomach). For each group you will need 1 plastic container such as a 2-lb margarine tub, 2/3 full of water; 20 small marbles (snails); 20 raisins (grubs); 20 pieces of uncooked macaroni (worms); 20 Styrofoam packing material pieces (water bugs); and a timer.

Use 30 seconds as the time limit for each session. Students should scatter one food source in the center of their table. Set the timer, and using their beaks, students capture their food and place it in their stomach cup until the time is up or the food source is exhausted.

Students need to make or the teacher may pre-make a graph, with the numbers 0-20 on the y-axis (vertical) and the four types of food on the x-axis (horizontal). They should use their beak type as the title. Students count how many pieces of each type of food they have captured and record it on their graph. Students should do an individual graph and the table should pool their data for a group graph.

After all groups have finished, the students should discuss the activity as a whole group and graph the class' pooled data.

Now, new groups should form so that all beak types are represented in each group. The activity should be repeated, as well as the individual, group and whole class graphs.

Tier I: *Spoon*

Hold the end of the spoon and scoop the food. Use only one hand.

Tier II: *Clothespin*

Hold the clothespin at the very end so it opens as wide as possible. Pinch and release with one hand.

Tier III: *Scissors*

Insert the thumb and finger in the holes and hold the scissors downward. Use the scissors like tweezers. **DO NOT** use the scissors as a spear!

Tier IV: *Toothpicks*

Hold the toothpick in one hand and carefully spear the food with it. Use one finger of the opposite hand to push the food off the toothpick into the cup.

Assessment:

Teacher observation, accurately completed graphs, and appropriate use of the “beak” are all forms of assessment in this lesson.

During the whole class discussion, students should be able to identify differences that occurred when alike-beak groups competed for food and when unlike-beak groups competed for food. Help students relate this idea of competition for resources to what they have learned in this unit of study and what they know from their own experience.

Have students research to find a bird that would use its beak in a way similar to their simulated beak and share their findings with the class.