

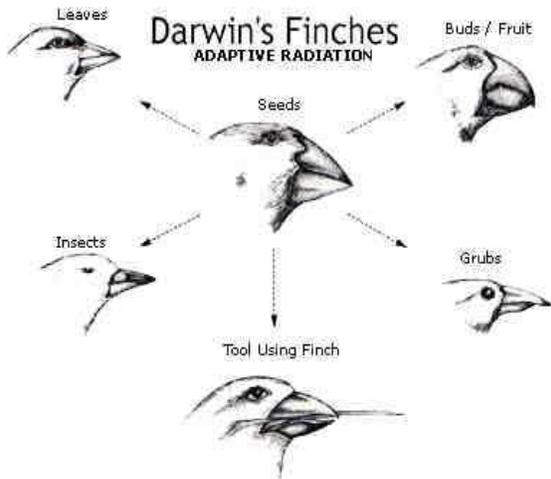
Kerri Lathrop
Science Teacher



Beak of the Finch Activity

Name _____

On the Galapagos Islands today there are 13 species of closely related finches. The birds are all about the same size (10–20 cm). The most important differences between species are in the size and shape of their beaks, and the beaks are highly adapted to different food sources. The birds are all brownish or black. Their behavior differs, and they have different song melodies. The current belief by scientists is that one species of finch arrived on the islands and evolved to fill the many niches that were not being filled by other birds. One species evolving to fill many different niches is an example of adaptive radiation.



In August 2006 in the Journal Nature, a group led by Harvard biologist Clif Tabin showed that the beak shapes of Darwin's finches are due to slightly different timing and spatial expressions of a gene called calmodulin. Calmodulin is used by the developing embryo to help lay down skeletal features (including the beak) and using microarray data and early embryo staining from each of the species, this groups could show how the different beak shapes were obtained. His article does not explain how adaptive radiation may have changed calmodulin expression, only that this was the way that the beak changes were reached.

Today you are going to participate in an activity designed to demonstrate how different adaptations help different birds in collecting different types of food.

You will be given a tool used to represent a bird beak and will be asked to collect as much "food" as you can in a 30 second period. Then you will compare what how "birds" with different "beak adaptations" are better at collecting different types of seeds.

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My tool _____

Data table 1. what I collected:

_____ large Styrofoam beads

_____ Large Seeds

_____ Small seeds

_____ Tooth picks

Class data

Average collected by each tool

Food type	Spoon	Fork	Clip	Tweezers	Chop Sticks
Styrofoam					
Large seeds					
Small seeds					
Tooth picks					

Analysis questions:

1. Which tool collected the most seeds on average?
2. What type of "seed" was it best at collecting?
3. How do these different tools represent different adaptations?
4. Which type of seed was the bird that collected the least amount of seeds best at collecting?

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5. If the environment changed such that the seed type from question #4 was more abundant, what do you think would happen to the population of that bird?

6. Does having a different shape beak or different tool help reduce competition between the birds searching for food? Explain why or why not.