

Darwin's Finches

In 1835, Charles Darwin visited the Galapagos Islands, in the Pacific Ocean. While there, he noticed several different types of finches.

These birds were very different from the finches Darwin had seen in England. The finches on the different islands had beaks of various sizes and shapes. A finch's beak structure determines what it can eat most efficiently. A finch with a tiny beak cannot easily crack large seeds. Finches with large beaks have trouble picking up tiny seeds. Darwin suspected the different beaks he observed were related to the finches' feeding. He hypothesized that the different environmental conditions on each island had caused the finch populations to evolve by natural selection.

Today, there are 13 species of finches on the Galapagos Islands. Like Darwin hypothesized more than a century ago, many modern scientists believe that one species of finch arrived on the islands and evolved by natural selection to adapt to different food sources. In this activity, you are going to demonstrate how different adaptations can help different birds collect food.

DID YOU KNOW?

Every living thing is descended from the same common ancestor.

Gather several objects that represent different types of seeds a bird might encounter, including large seeds, small seeds, dried beans, rice, candies, etc.

Find or design several "tools" that you can use to pick up the seeds. You can use traditional tools, such as forks, spoons, knives, chopsticks, tweezers, and straws. You can also build your own tool.

ACTIVITY!

Using each tool, attempt to pick up each type of seed. Which tool works the best? What type of seed is the easiest to collect? Which tool is the least effective? Which seed is the hardest to collect? Do some tools work better with certain seeds and not others?



Now consider how changes in the environment might affect the different beak adaptations.

- ✦ What would happen if one seed type became more common than the others? How would this affect the population of birds?
- ✦ What would happen if the plant that was the source of one type of seed died out? How would this affect the population of birds?
- ✦ Does having a different beak shape increase or decrease competition among the birds for food? Explain.

TRY THIS: Demonstrate the process of evolution by natural selection using the seeds and your tools. Using only one type of food, assign each of the tools to a friend or classmate. Set a time limit and see how many seeds they can collect with their assigned tool. After the time has expired, see which tools have collected the most food. Those that did not collect enough food will die out and be replaced by the top performing tools. Repeat this process several times. What happens to the tools in the populations? What was the role of natural selection in the outcome?