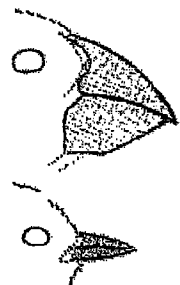


1. Explain how natural selection led to thirteen species of Galapagos finch developing from one common ancestral finch on the mainland of Ecuador. An example diagram would help!
2. What is directional selection? Explain and sketch a graph.
3. In stabilizing selection, how does the fitness of individuals at the center of the curve differ from the individuals at either end?
4. How does disruptive selection result in two distinct phenotypes (distinct looking organisms)?
5. What occurs during genetic drift?
6. Explain what happens in gene flow.
7. You examine these two beaks: One is narrow and needlelike. The other looks like a pair of pliers. What type of natural selection could have produced birds with these two extreme types of beaks? Explain your answer.



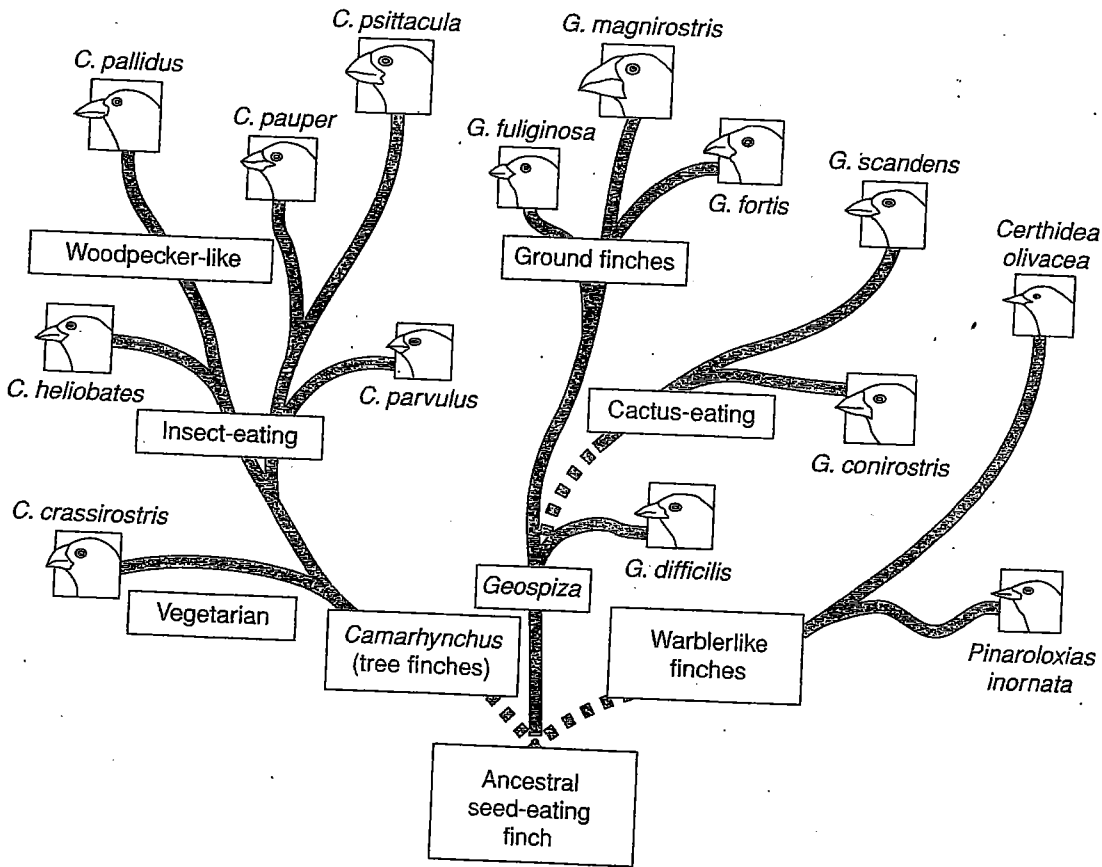
A Close Look at Darwin's Finches

When Charles Darwin traveled to the Galápagos Islands, he found a variety of species of finches. Although each species was slightly different from the others, all the species were related. None of the finch species he found were similar to finches on the mainland.

When Darwin saw such extensive diversity of species in a single group of birds, he hypothesized that they all could have descended from a common ancestor. His observations of these finches helped him formulate his concept of evolution.

The phylogenetic tree below shows the relationships Darwin proposed among the species of finches. The tree is based on a comparison of the anatomy, behavior, and location on the island of each finch species. Look carefully at each species, and notice the dramatic difference among the beaks. Each type of finch has a beak adapted to its diet.

Darwin's finches are an example of adaptive radiation. Adaptive radiation is the emergence of many species from a common ancestor that was introduced to various new environments. For adaptive radiation to occur, the new environments must offer new opportunities and pose new problems of survival for the species.



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Evaluation

1. Which of the ground finches illustrated above would be able to eat the largest, toughest nuts and seeds? Explain your answer.
2. Study the insect-eating finches shown in the diagram. What can you infer about the insects of the Galápagos Islands?