



Adaptations and Evolution – Darwin’s Finches

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On the Galapagos Islands in the Pacific Ocean, there are a variety of different finches, which vary in the shape and size of their beaks. It is believed that a few seed-eating finches were blown from South America to the Galapagos Islands many years ago. The distance between the islands meant that the finches on different islands could not fly between them and interbreed, so the populations on the different islands reproduced between themselves and gradually evolved to suit their new habitats. The food available on the different islands varied and the finches had to evolve beaks which could take advantage of the food supplies available to them. These birds, although nearly identical in all other ways to mainland finches, evolved different beaks. Their beaks adapted to the type of food they ate. Different finch populations evolved to eat different food sources. Some finches on some islands evolved thin, sharp beaks that helped them to eat insects and the blood of larger animals; on other islands finches evolved large, sturdy beaks ideally adapted for eating seeds, berries and nuts.

A scientist called Charles Darwin collected some of these finches when he visited the Galapagos Islands, and it is often stated that the finches were key to the development of his theory of evolution.

The Galapagos finches helped Darwin solidify his idea of **natural selection**. Natural selection is the process in nature, according to Darwin's theory of evolution, by which the organisms best able to evolve and adapt to their changing environments tend to survive. Animals that fail to adapt, as food and climates change, die out and can become extinct! Species that survive, like the finches, breed and have offspring that can also take advantage of the local food supplies and their populations grow and thrive. If the finches, when entering their new Galapagos habitats, failed to evolve quickly and take advantage of their new food supplies (by adapting their beaks), then it would have been very likely that the finches would have died out.

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Questions

1. How do scientists think the original seed eating finches arrived in the Galapagos Islands?

2. Why did the finches' beaks need to evolve in order for the birds to survive?

3. Darwin used the term 'Natural Selection' to help him explain his theory of evolution. What did Darwin mean by the term Natural Selection?

4. Which is the biggest island in the Galapagos Islands and what do you know about the land on this island? Give a reason for your answer.

5. What would probably have happened to the finches if their beaks had not evolved?

6. Why does the small ground finch not eat hard nuts and seeds?

7. Why is the sharp-beaked finch also known as the vampire finch?



Reading: Adaptations and Evolution, Darwin's Finches

Questions and Answers

1. How do scientists think that the original seed-eating finches arrived in the Galapagos Islands?

Scientists believe that the original seed-eating finches were blown to the Galapagos Islands from South America.

2. Why did the finches evolve their beaks in order to survive?

The finches had to evolve their beaks so that they could eat the different food supplies available on the islands.

3. Darwin used the term 'natural selection' to explain his theory of evolution. What did Darwin mean by 'natural selection'?

Natural selection means that living things which are able to evolve and adapt to changes in their environment tend to survive.

4. Which is the biggest island in the Galapagos Islands and what do you know about the land on this island? Give a reason for your answer.

Island Isabela is the biggest island. On the map, the island is mostly coloured green and dark grey which shows that it has many hills and mountains.

5. What would probably have happened to the finches if their beaks had not evolved?

If the finches had not evolved their beaks, they would probably have died out as they would not have been able to eat the food on the islands.

6. Why does the small ground finch not eat hard nuts and seeds?

The small ground finch does not eat hard nuts and seeds because their beaks are not strong enough.

7. Why is the sharp-beaked finch also known as the vampire finch?

The sharp-beaked finch is also known as the vampire finch because it jumps on the back of other finches and sucks their blood.