



SECTION
10.2 | DARWIN'S OBSERVATIONS
Reinforcement

KEY CONCEPT Darwin's voyage provided insights into evolution.

Darwin traveled aboard the ship HMS *Beagle* to map the coast of South America and the Pacific Islands in 1831. He observed **variation**—the difference in the physical traits of an individual from those of other individuals in the same population—between island species on his voyage. The differences were especially noticeable on the Galápagos Islands off of South America. Some differences seemed well-suited to the animals' environments and diets. He noticed that species have **adaptations**, or features that allow them to better survive in their environments. Adaptations can lead to genetic change in a population over time.

- Saddle-backed tortoises, which have long necks and legs, lived in areas with a lot of tall plants. Domed tortoises, with their shorter necks and legs, lived in wet areas rich in mosses and short plants.
- Finches with strong, thick beaks lived in areas with a lot of large, hard-shelled nuts. Species of finch with more delicate beaks were found where insects or fruits were widely available.

On his voyage, Darwin also saw fossil evidence of species changing over time.

- He found fossils of huge animals, such as *Glyptodon*, a giant armadillo. He recognized that these fossils looked like living species, which suggested to him that modern animals might have some relationship to fossil forms.
- He observed fossil shells of marine organisms high up in the mountains. Later, Darwin experienced an earthquake and saw firsthand the result: land that had been underwater was moved above sea level.

Darwin realized that over long periods of time, gradual geologic or biological processes can add up to great change.

1. How is a variation different from an adaptation?

2. What are two examples of adaptations that Darwin observed on the Galápagos islands?

3. What did Darwin conclude from the observations he made on his voyage?
