# Darwin's Epic Journey

- The process of change over time is called evolution.
- Charles Darwin developed a scientific theory of biological evolution that explains how modern organisms evolved over long periods of time through descent from common ancestors.

# Observations Aboard the Beagle

- Darwin was invited to sail on the HMS Beagle's five-year voyage mapping the coastline of South America.
- As he traveled, Darwin noticed three distinctive patterns of biological diversity:
  - 1. Species vary **globally**
  - 2. Species vary locally
  - 3. Species vary over time

# **Species Vary Globally**

- Darwin noticed that different, yet similar, species inhabited separate habitats around the globe.
- Darwin found flightless, ground-dwelling birds called rheas living in South America. Rheas look and act a lot like ostriches. Yet rheas live only in South America, and ostriches live only in Africa. Darwin found another large flightless bird, the emu when he visited Australia.

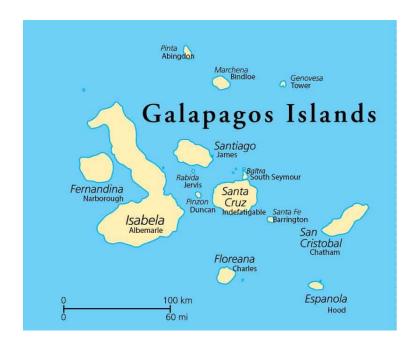






# **Species Vary Locally**

- Darwin noticed that different, yet, related species occupied different habitats within a local area.
- Darwin saw differences among the giant land tortoises that inhabit the Galapagos islands. The shape of the tortoises' shells corresponds to different habitats.



# **Species Vary Locally**

- Isabela Island has high peaks, is rainy, and has abundant vegetation that is close to the ground. A tortoise from Isabela Island has a dome-shaped shell and short neck.
- Hood Island is flat, dry, and has sparse vegetation. A tortoise from Hood Island has a long neck and curved shell.





# **Species Vary Over Time**

- Darwin also collected fossils, which are the preserved remains or traces of ancient organisms.
- Darwin noticed that some fossils of extinct animals were similar to living species.



# **Species Vary Over Time**

- One set of fossils unearthed by Darwin belonged to the long-extinct glyptodont, a giant armored animal similar to the armadillo.
- Darwin wondered if the armadillo might be related to the ancient glyptodont.

