

Chapter Outline

The Process of Evolution

CHAPTER 5

Lesson 1: Natural Selection

A. Charles _____ was the first to compile persuasive evidence supporting evolution.

1. _____ is genetic change in a population over time.
2. Darwin's _____ transformed the natural sciences and serves as the basis of all biological research today.
3. Darwin served as a _____ on the British naval ship the *H.M.S. Beagle*.
 - a. The _____ sailed for five years from England to South America to make naval maps.
 - b. Darwin observed _____, collected samples of new plants and animals, and wrote about places and organisms few people had seen.
4. Darwin's most unique findings were the diversity and uniqueness of organisms on the _____ Islands, 1,000 km off the coast of South America.
 - a. After comparing animals and animal fossils from different _____, he observed that they were different from organisms on the _____ mainland.
 - b. Darwin reasoned that some species might have originated in South America but had _____ to be different.
 - c. Darwin found enormous _____ on all of the Galápagos Islands.
 - d. Tortoises had _____ shells and short necks where they ate low-growing plants.
 - e. They had saddle-shaped shells and _____ necks where they ate high-growing cactus.
 - f. Darwin concluded that the different tortoises descended from a common ancestral _____ in South America, but each evolved to fit its unique environment.
 - g. Darwin observed that finches on different islands had distinct _____ sizes and shapes.

h. He concluded that the _____, like the tortoises, had a common South American ancestor, but that they became different to suit the different island _____.

i. _____ occurs when people breed plants and animals, such as vegetables or cows, to produce desired traits.

j. Selective breeding does not produce new _____; all dogs can still have offspring with their common ancestor, the wolf.

B. Darwin's theory of _____ states that organisms with traits that allow them to survive in particular environments pass traits on that could lead to new species.

1. _____ is the creation of a diversity of traits through gamete formation.

a. A harmful _____ may cause an organism to die; a beneficial trait will be passed on to the next _____.

b. Genetic variation is necessary for _____ by natural selection to occur.

2. Animals often produce _____ offspring than available resources can support.

a. Thomas Malthus described this "struggle to survive" among the human _____.

b. Darwin applied Malthus' ideas to the _____ for survival among individuals in a species.

c. Organisms best prepared for living in specific habitats will survive and _____, and their _____ will be best able to survive and reproduce as well.

3. New _____ can develop if organisms with common ancestors become _____ and natural selection causes them to differentiate in response to different environments.

a. Inherited traits that increase an organism's chance of surviving and reproducing in a particular environment are called _____.

b. Darwin's theory of evolution by natural selection includes four steps: _____, variation, inherited variation, and natural selection.

c. Populations evolve as favorable _____ in particular environments spread through generations.

4. After 20 years, Darwin published *The _____ of Species by Natural Selection*.

a. Darwin developed the idea that all organisms have “descended with _____” from common ancestors.

b. Darwin believed that evolution by natural selection explains the _____ of modern organisms.