

**CHAPTER 15 ACTIVE READING WORKSHEETS**

# THEORY OF EVOLUTION

## Section 15-3: Evolution in Action

Read the passage below, which covers topics from your textbook. Answer the questions that follow.

The change of two or more species in close association with each other is called **coevolution**. Predators and their prey sometimes coevolve, parasites and their hosts often coevolve, and plant-eating animals and the plants they feed on also coevolve. One example of coevolution is plants and the animals that pollinate them.

Sometimes, organisms that appear to be very similar, such as a shark and a porpoise, are not closely related at all. This kind of similarity is the result of **convergent evolution**. Convergent evolution occurs when the environment selects similar phenotypes, even though the ancestral types were quite different from each other. Analogous structures, such as similar fins in very different animals, are associated with convergent evolution.

In **divergent evolution**, two or more closely related populations or species become more and more dissimilar. Divergence is nearly always a response to differing environments, and it can ultimately result in new species. Sometimes, the process of divergence can be sped up artificially through **artificial selection**. All domestic dogs are the same species, *Canis familiaris*. Dogs have been bred by humans for certain phenotypic characteristics, resulting in different breeds with different traits.

Refer to the passage to complete the graphic organizer below.

**SKILL:** Organizing Information

<i>Patterns of Evolution</i>		
Evolution	Pattern definition	Example
1.	3.	parasites and their hosts
Convergent evolution	4.	5.
2.	two or more related species or populations become more and more dissimilar, often due to differing habitats	6.

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**SECTION 15-3 REVIEW**

**EVOLUTION IN ACTION**

**VOCABULARY REVIEW** Provide one example for each of the following terms.

1. adaptive radiation \_\_\_\_\_
2. artificial selection \_\_\_\_\_
3. coevolution \_\_\_\_\_
4. convergent evolution \_\_\_\_\_
5. divergent evolution \_\_\_\_\_
6. resistance \_\_\_\_\_

**MULTIPLE CHOICE** Write the correct letter in the blank.

1. What is the process called by which different species evolve similar traits?
  - a. coevolution.
  - b. convergent evolution.
  - c. divergent evolution.
  - d. adaptive radiation.
2. The evolutionary pattern illustrated by the finch species on the Galápagos Islands is an example of
  - a. coevolution.
  - b. convergent evolution.
  - c. divergent evolution.
  - d. artificial selection.
3. Divergent evolution would be most likely in which of the following situations?
  - a. A group of organisms is isolated from the main population on three isolated islands with different environmental conditions.
  - b. Individuals in a large population experience the same environmental conditions.
  - c. Individuals in a small population experience the same environmental conditions.
  - d. A group of organisms which are well adapted to the environment live on a remote island.
4. The corresponding changes of two or more species that are closely associated with each other, such as a plant and an animal that pollinates it, are called
  - a. adaptive radiation.
  - b. divergent evolution.
  - c. convergent evolution.
  - d. coevolution.
5. In artificial selection, humans select for
  - a. a desirable trait.
  - b. an undesirable trait.
  - c. a vestigial trait.
  - d. a trait that makes the organisms less fit.

**SHORT ANSWER** Answer the questions in the space provided.

1. What is adaptive radiation?  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
2. What could happen to a tree-dwelling species of lizard if all the trees in an area died?  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
3. Give three examples of artificial selection. Include examples of both animals and plants.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
4. **Critical Thinking** Would a species that lives a long time, but has few offspring, be more or less likely to become extinct after a sudden change in its environment than a species that has a short life, but produces large numbers of offspring? Explain.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**STRUCTURES AND FUNCTIONS**

The diagram shows several groups of primates and a hypothesis of how they are related based on differences in DNA. What pattern of evolution does the diagram represent? According to this hypothesis, when did the rhesus monkey and the green monkey diverge? Which group of primates existed before the others?

