

Name \_\_\_\_\_ Period \_\_\_\_\_

## Chapter 13: How Populations Evolve

### *Guided Reading Activities*

#### **Chapter Content: The Diversity of Life**

Complete the following questions as you read the thirteenth chapter content—The Diversity of Life:

1. \_\_\_\_\_ is the science of classifying, identifying, and naming organisms.
2. True or false: Two organisms in the same family would definitely be in the same order. If false, please make it a correct statement.
3. \_\_\_\_\_ was the first to suggest that species evolved through interactions with their environment.
  - A) Darwin
  - B) Lamarck
  - C) Lyell
  - D) Aristotle
4. Which famous Greek philosopher held the view that species are fixed and they don't really change over time?
5. Briefly describe a fossil.

**Chapter Content:** Charles Darwin and *The Origin of Species*

Complete the following questions as you read the thirteenth chapter content—Charles Darwin and *The Origin of Species*:

1. Which scientist suggested that the Earth was, in fact, very old and gradually changing?
  - A) Lyell
  - B) Wallace
  - C) Darwin
  - D) Lamarck
  
- 2a. This figure compares two different turtle species found on the Galapagos Islands. Briefly describe the differences between these two species.



(a)



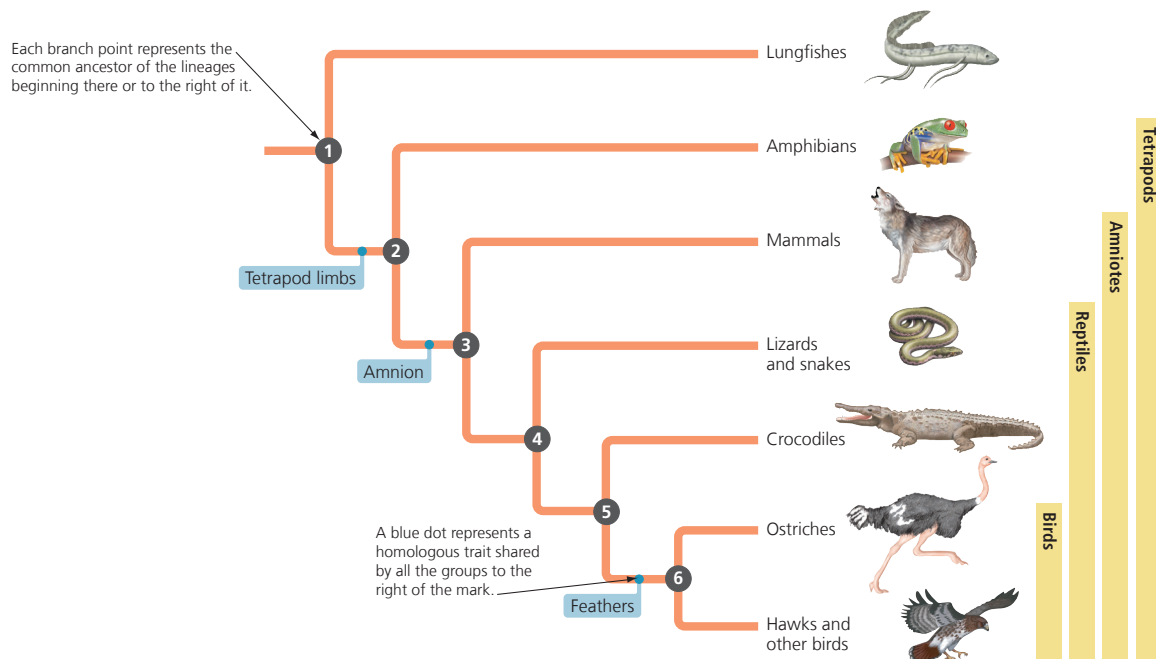
(b)

- 2b. What would Darwin have called these modifications of the turtles?
  
3. Darwin proposed a mechanism by which evolution occurred. He called his mechanism \_\_\_\_\_.

### Chapter Content: Evidence of Evolution

Complete the following questions as you read the thirteenth chapter content—Evidence of Evolution:

1. True or false: A jellyfish would likely leave behind a fossil. If false, please make it a correct statement.
2. A scientist finds a rock formation with 12 distinct layers. She finds a fossil in the 3<sup>rd</sup> and 7<sup>th</sup> layers. Briefly explain how she knows the fossil in the 3<sup>rd</sup> layer is older without even using a fossil dating method.
3. A cat's forelimb and a human's forelimb are examples of
  - A) Homologous structures
  - B) Strata
  - C) Vestigial structures
  - D) Pseudogenes
4. Which organisms share the homologous trait of an amnion? Use this figure to answer the question.



**Chapter Content: Natural Selection as the Mechanism for Evolution**

Complete the following questions as you read the thirteenth chapter content—Natural Selection as the Mechanism for Evolution:

1. Darwin used the practice of \_\_\_\_\_ to gain insight on his ideas about a mechanism for evolution.
2. Which of the following would be able to be passed on to offspring from their parents?
  - A) Muscles developed from bodybuilding
  - B) A tattoo
  - C) A deep tan from constant tanning
  - D) Blonde hair
3. Describe the primary difference between artificial selection versus natural selection.
4. Briefly explain why the application of pesticides to kill cockroaches is not artificial selection.

**Chapter Content: The Evolution of Populations**

Complete the following questions as you read the thirteenth chapter content—The Evolution of Populations:

1. The source of all genetic diversity is \_\_\_\_\_.
2. True or false: A very common misconception about evolution is that individuals evolve. If false, make it a correct statement.



3. Would the snails in this photo be considered members of the same population? Briefly explain your answer either way.



4. What is meant by the following statement? A population has a “shallow” gene pool.
5. All the variations of all the genes in a population are known as its \_\_\_\_\_.  
A) Microevolution  
B) Gene pool  
C) Mutation  
D) Population
6. The frequency of alleles in a population should remain constant unless there are other factors at work. This principle of a nonevolving population is known as the \_\_\_\_\_.  
\_\_\_\_\_.
7. A population of bacteria sees an increase in the number of bacteria resistant to a certain antibiotic over a number of generations. This is known as \_\_\_\_\_.

Chapter Content: Mechanisms of Evolution

Complete the following questions as you read the thirteenth chapter content—Mechanisms of Evolution:

- 1. It is possible for mutation, genetic drift, and gene flow to cause microevolution. However, only by a \_\_\_\_\_ event could they lead to that population of organisms becoming better adapted to their environment.
- 2. Which of the following best describes relative fitness?
  - A) The creation of new gene combinations
  - B) Individuals migrating into and out of an area
  - C) The ability to produce healthy offspring
  - D) The change in a population’s gene pool over generations
- 3. Complete the table that illustrates the different mechanisms of evolution.

	Genetic drift	Gene flow	Bottleneck effect	Founder effect	Sexual selection
Description					

- 4. Isle Royale National Park consists of a series of islands located in Lake Superior. Initially, there were no wolves on any of the islands since they were in the middle of Lake Superior. However, in 1949 an unusually long and cold winter produced an ice bridge between Canada and the islands of the National Park. During this winter, a pair of wolves used the ice bridge to inadvertently travel to Isle Royale. What mechanism of evolution is this?
- 5. A classic example of microevolution is the shift in a population of moths from light colored to dark colored during the Industrial Revolution in England. This shift in moth color was brought about by an accumulation of soot on the trees and other vegetation around the factories of the cities. What type of selection was this an example of?

**Major Theme Connection:**

1. A population of bacteria contains no members with resistance to penicillin. Several generations pass with the bacteria reproducing. A researcher adds penicillin to the population of bacteria and discovers a few bacteria remain after the application of the antibiotic. Assume no new bacteria were introduced to the population. What can explain this?

**Common Thread Connection:**

1. A man wins the National Bodybuilding Association's Man of the Year award. However, he never has any children due to a personal choice. What is his relative fitness within the population? Briefly explain your answer.