



Name \_\_\_\_\_

Period \_\_\_\_\_

Date \_\_\_\_\_

SECTION | THEORY OF NATURAL SELECTION  
**10.3 Study Guide**

**KEY CONCEPT**

**Darwin proposed natural selection as a mechanism for evolution.**

**VOCABULARY**

artificial selection	natural selection	fitness
heritability	population	

**MAIN IDEA:** Several key insights led to Darwin's idea for natural selection.

1. Why did artificial selection interest Darwin?

\_\_\_\_\_  
\_\_\_\_\_

2. Why must selected traits be heritable?

\_\_\_\_\_  
\_\_\_\_\_

3. In natural selection, what must be true of traits that are passed down through generations?

\_\_\_\_\_  
\_\_\_\_\_

4. What important idea from Thomas Malthus inspired Darwin?

\_\_\_\_\_  
\_\_\_\_\_

**MAIN IDEA:** Natural selection explains how evolution can occur.

variation	overproduction	adaptation	descent with modification
-----------	----------------	------------	---------------------------

\_\_\_\_\_ 5. producing many offspring, some of which may not survive

\_\_\_\_\_ 6. individual differences that may be heritable

\_\_\_\_\_ 7. a structure well-suited for the environment

\_\_\_\_\_ 8. a heritable trait becoming common in a population

## Section 10.3 STUDY GUIDE CONTINUED

Use an organism of your choice to sketch the four principles of natural selection.

<b>9.</b> overproduction	<b>10.</b> variation
<b>11.</b> adaptation	<b>12.</b> descent with modification

**MAIN IDEA:** Natural selection works on existing variation.

- 13.** Peter and Rosemary Grant observed natural selection acting on traits within a population of finches on the Galápagos Islands. A drought reduced the number of small soft seeds but left plenty of large, tough-shelled seeds intact. The next year there was a(n) \_\_\_\_\_ (increase, decrease) in the number of large-beaked hatchlings.
- 14.** After several years, the supply of large seeds went down after an unusually wet period. The increase in small, soft seeds brought a(n) \_\_\_\_\_ (increase, decrease) in the number of large-beaked hatchlings the following year.

**Vocabulary Check**

- 15.** *Humans* are the selective agent in which type of process, artificial selection or natural selection?  
\_\_\_\_\_
- 16.** *The environment* is the selective agent in which type of process, artificial selection or natural selection?  
\_\_\_\_\_
- 17.** What is the measure of the ability to survive and produce more offspring relative to other members of the population called?  
\_\_\_\_\_
- 18.** What is the ability of a trait to be passed down from one generation to the next called?  
\_\_\_\_\_
- 19.** What are all the individuals of a species that live in an area called?  
\_\_\_\_\_