Name _____ Date _____ Class _____

CHAPTER 15

Study Guide

Section 1: Darwin's Theory of Evolution by Natural Selection

In your textbook, read about developing the theory of natural selection.

For each statement below, write true *or* false.

_____ **1.** Charles Darwin served as naturalist on the HMS *Beagle*.

_____ **2.** The environments that Darwin studied exhibited little biological diversity.

_____ **3.** While in the Galápagos Islands, Darwin noticed slight differences in the animals from one island to the next.

_____ **4.** Darwin discovered that the Galápagos mockingbirds were different species.

_____ **5.** Darwin named the process by which evolution proceeds *artificial selection*.

Match the point from Darwin's theory of evolution to the appropriate diagram.

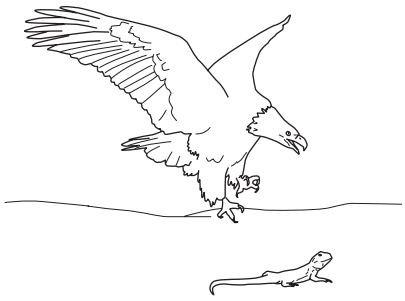
A. There is a struggle to survive.

B. Living things overproduce.

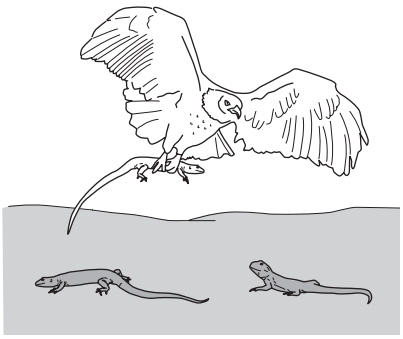
C. There is variation among offspring.

D. Natural selection is always taking place.

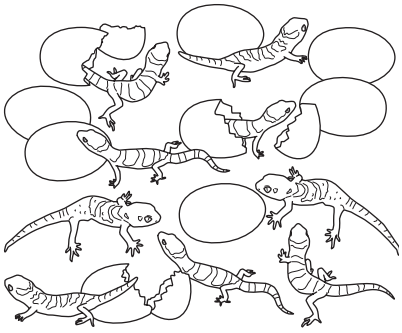
_____ **6.**



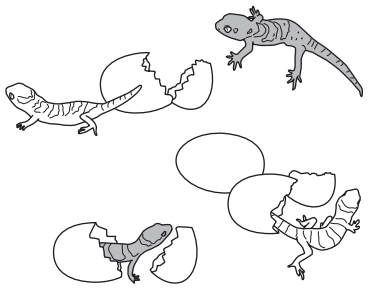
_____ **8.**



_____ **7.**



_____ **9.**



Name _____ Date _____ Class _____

Study Guide

CHAPTER 15

Section 2: Evidence of Evolution

In your textbook, read about the fossil record.

Match the description in Column A with the term in Column B.

	Column A	Column B
_____	**1.** show that the species present on Earth have changed over time	**A.** glyptodont
_____	**2.** thought to be the ancestor of birds	**B.** ancestral traits
_____	**3.** are newly evolved features such as feathers	**C.** fossils
_____	**4.** are traits shared by species with a common ancestor	**D.** derived traits
_____	**5.** thought to be the ancestor of armadillos	**E.** dinosaur

In your textbook, read about comparative anatomy and comparative biochemistry.

Complete the table by checking the correct column(s) for each description.

Description	Homologous Structure	Analogous Structure	Vestigial Structure	Comparative Biochemistry
6. Modified structure seen among different groups of descendants				
7. Eyes in a species of blind fish				
8. DNA and RNA comparisons that might indicate evolutionary relationships				
9. Bird wings and butterfly wings that have the same function but different structures				
10. A body structure that is no longer used for its original function but that might have been used in an ancestor				

In your textbook, read about geographic distribution and types of adaptation.

If the statement is true, write true. *If the statement is false, replace the italicized term or phrase to make it true.*

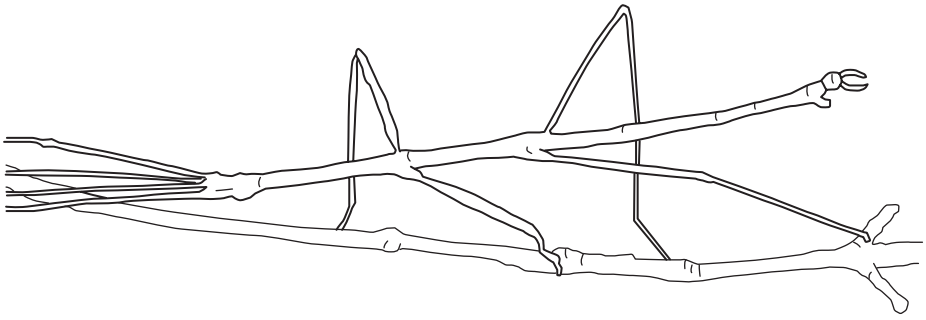
11. Evolutionary theory predicts that species respond to similar *environments* in similar ways.

12. *Geographic distribution* is the study of the distribution of plants and animals on Earth.

13. Similar environments can lead to the *evolution* of similar animals, even if they are not close relatives.

14. Traits that enable individuals to survive or reproduce better than individuals without those traits are called *reproduction.*

15. Mimicry involves a harmless species that has evolved to closely resemble a *beneficial* one.



16. The type of morphological adaptation shown in the picture above is *camouflage.*

17. Mimicry and camouflage are morphological adaptations that increase a species' *fitness.*

18. *Antibiotic resistance* is a form of adaptation that causes some diseases to come back in more harmful forms.

Name _____ Date _____ Class _____

Study Guide

CHAPTER 15

Section 3: Shaping Evolutionary Theory

In your textbook, read about the mechanisms of evolution, speciation, and patterns of evolution.

Write the term or phrase that best completes each statement. Use these choices:

adaptive radiation	**allopatric speciation**	**directional selection**	**disruptive selection**
founder effect	**genetic drift**	**gradualism**	**sexual selection**
stabilizing selection	**sympatric speciation**		

1. _____ is a change in allelic frequencies in a population that is due to chance.
2. _____ removes individuals with average trait values, creating two populations with extreme traits.
3. The most common form of selection, _____ , removes organisms with extreme expressions of a trait.
4. When a small sample of the main population settles in a location separated from the main population, the _____ can occur.
5. In _____ , a species evolves into a new species without any barriers that separate the populations.
6. _____ will shift populations toward a beneficial but extreme trait value.
7. In _____ , a population is divided by a barrier, each population evolves separately, and eventually the two populations cannot successfully interbreed.
8. _____ is a change in the size or frequency of a trait based on competition for mates.
9. One species will sometimes diversify in a relatively short time into a number of different species in a pattern called _____ .
10. The idea that evolution occurred in small steps over millions of years in a speciation model is currently known as _____ .

Refer to the figure. Respond to each statement.

11. **Specify** which moth would survive if pollution increases.

_____

12. **State** the name of the phenomenon illustrated.

_____