Name _____ Date _____ Class _____

CHAPTER 8

VOCABULARY & NOTES WORKSHEET

The Evolution of Living Things

By studying the Vocabulary and Notes listed for each section below, you can gain a better understanding of this chapter.

SECTION 1

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. adaptation _____

2. species _____

3. evolution _____

4. fossil _____

5. fossil record _____

6. vestigial structure _____

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- Evolution is the process by which populations change over time. Those changes are inherited. Over many generations, newer species may replace older species through the process of evolution.
- Evidence of a common ancestor for all organisms can be provided by the following: the fossil record, comparisons of skeletal structures found in related species, comparisons of the embryos of distantly related vertebrates, and the presence of DNA in all living organisms.
- Species that are closely related have DNA that is more alike than DNA of distantly related species.

SECTION 2

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. trait _____

2. selective breeding _____

3. natural selection _____

4. mutation _____

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- Charles Darwin developed an explanation for evolution after years of studying the organisms he observed on the voyage of the *Beagle*.
- Darwin's study was influenced by the concepts of selective breeding, the age of the Earth, and the idea that some organisms are better equipped to survive than others.
- Darwin explained that evolution occurs through natural selection. Natural selection can be divided into four parts:
  (1) Each species produces more offspring than will survive to reproduce.
  (2) Individuals within a population are slightly different from one another.
  (3) Individuals within a population compete with one another for limited resources.
  (4) Individuals that are better equipped to live in an environment are more likely to survive and reproduce.
- Evolution is explained today by combining the principles of natural selection with the principles of genetic inheritance.

SECTION 3

Vocabulary

In your own words, write a definition for each of the following terms in the space provided.

1. generation time _____

_____

_____

_____

2. speciation _____

_____

_____

_____

Notes

Read the following section highlights. Then, in your own words, write the highlights in your ScienceLog.

- Natural selection allows a population to adapt to changes in environmental conditions.
- Evidence of natural selection can be seen by studying generations of organisms that have developed resistance to an insecticide or antibiotic.
- Natural selection also explains how one species may evolve into another through the process of speciation.

Name _____ Date _____ Class _____

CHAPTER 8

CHAPTER REVIEW WORKSHEET

The Evolution of Living Things

USING VOCABULARY

To complete the following sentences, choose the correct term from each pair of terms listed below, and write the term in the space provided.

1. One species evolves into another through the process of _____. (adaptation or speciation)
2. A group of similar organisms that can mate with one another to produce offspring is known as a _____. (fossil or species)
3. A(n) _____ helps an organism survive better in its environment. (adaptation or vestigial structure)
4. _____ is the process by which populations change over time. (Natural selection or Evolution)
5. In _____, humans select traits that will be passed from one generation to another. (selective breeding or natural selection)
6. A change in a gene at the DNA level is called a _____. (mutation or trait)

UNDERSTANDING CONCEPTS

Multiple Choice

7. Although Darwin did not realize it, the variations he observed among the individuals of a population of finches were caused by
   - **a.** genetic resistance.
   - **b.** mutations.
   - **c.** fossils.
   - **d.** selective breeding.
8. The theory of evolution combines the principles of
   - **a.** natural selection and artificial selection.
   - **b.** natural selection and genetic resistance.
   - **c.** selective breeding and genetic inheritance.
   - **d.** natural selection and genetic inheritance.
9. Fossils are commonly found in
   - **a.** sedimentary rock.
   - **b.** igneous rock.
   - **c.** granite.
   - **d.** loose sand or granite.
10. A human's arm, a cat's front leg, a dolphin's front flipper, and a bat's wing
    - **a.** have similar kinds of bones.
    - **b.** are used in similar ways.
    - **c.** share many similarities with insect wings and jellyfish tentacles.
    - **d.** have nothing in common.

11. The fact that all organisms have DNA as their genetic material is evidence that

a. natural selection occurred.
b. all organisms descended from a common ancestor.
c. selective breeding takes place every day.
d. genetic resistance rarely occurs.

12. Darwin thought the common ancestor of the Galápagos finches came from

a. Africa.
b. North America.
c. South America.
d. Australia.

13. What body part of the Galápagos finches appears to have been most modified by natural selection?

a. their webbed feet
b. their beaks
c. the bone structure of their wings
d. the color of their eyes

Short Answer

14. Describe the four parts of Darwin's theory of evolution by natural selection.

15. How do the fossils of whales provide evidence that whales have evolved over millions of years?

16. What might account for gaps in the fossil record?

_____

_____

_____

CONCEPT MAPPING

17. Use the following terms to create a concept map: *struggle to survive, genetic variation, Darwin, overproduction, natural selection, successful reproduction.*

CRITICAL THINKING AND PROBLEM SOLVING

Write one or two sentences to answer the following questions:

18. In selective breeding, humans influence the course of evolution. What determines the course of evolution in natural selection?

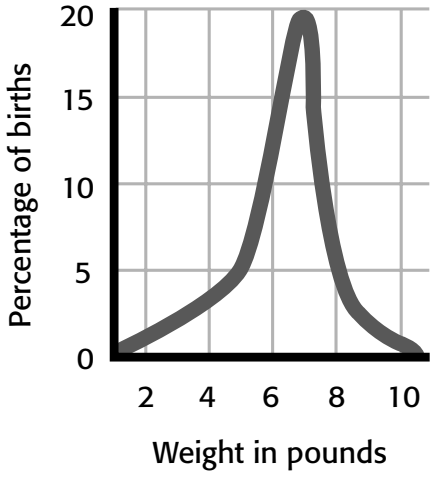
19. Many forms of bacteria evolve resistance to antibiotics, drugs that kill disease-causing bacteria. Based on what you know about how insects evolve to resist insecticides, suggest how bacteria might evolve to resist antibiotics.

20. Two species of squirrels live on opposite sides of the Grand Canyon, in Arizona. The two squirrels look very similar, but they cannot interbreed to produce offspring. Explain how a single species of squirrel might have become two species.

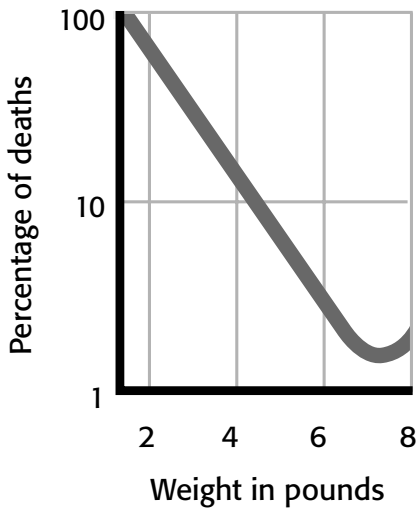
INTERPRETING GRAPHICS

Use the following graphs to answer questions 21, 22, and 23.

Infant Births by Birth Weight



Infant Deaths by Birth Weight



21. What is the most common birth weight?

22. What birth weight has the highest survival rate?

_____

_____

23. How do the principles of natural selection help explain why there are more deaths among babies with low birth weights than among babies of average birth weights?

_____

_____

_____

_____

NOW WHAT DO YOU THINK?

Take a minute to review your answers to the ScienceLog questions at the beginning of the chapter. Have your answers changed? If necessary, revise your answers based on what you have learned since you began this chapter. Record your revisions in your ScienceLog.