Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading

Section: Evidence of Evolution

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ **1.** One hypothesized link between modern whales and hoofed mammals are
- **a.** fish.
- **b.** mesonychids.
- **c.** penguins.
- **d.** alligators.

_____ **2.** Links between major classes of vertebrates have been established by
- **a.** radiometric dating.
- **b.** inherited traits.
- **c.** the fossil record.
- **d.** patterns of development.

_____ **3.** Most scientists agree that
- **a.** Earth is 4.5 billion years old.
- **b.** Earth has supported life for most of its history.
- **c.** Living organisms share ancestry with earlier, simpler life-forms.
- **d.** All of the above

_____ **4.** The fossil record
- **a.** proves the existence of every species that has ever lived.
- **b.** cannot show patterns of development from ancestors to descendants.
- **c.** shows strong evidence that evolution takes place.
- **d.** cannot show change over time in species.

_____ **5.** A paleontologist is a scientist who studies
- **a.** fossils.
- **b.** theories.
- **c.** anatomy and development.
- **d.** biological molecules.

_____ **6.** Fossils form when organisms are rapidly buried in
- **a.** sand.
- **b.** grass.
- **c.** leaf litter.
- **d.** fine sediment.

In the space provided, write the letter of the description that best matches the term or phrase.

_____ **7.** vestigial structures

_____ **8.** homologous structures

_____ **9.** vertebrate embryos

a. structures that have no use or little use and are evidence of an organism's evolutionary past

b. pharyngeal pouches and tails are evidence of evolution

c. structures that share a common ancestry

Complete each statement by writing the correct term or phrase in the space provided.

10. Species that diverged recently have _____ genetic differences than those species that are not closely related.

11. There is (are) _____ difference(s) between the amino acid sequences of the hemoglobin in humans and the hemoglobin in gorillas.

12. There is (are) _____ difference(s) between the amino acid sequences of the hemoglobin in humans and the hemoglobin in frogs.

13. There is (are) _____ difference(s) between the amino acid sequences of the hemoglobin in humans and the hemoglobin in rhesus monkeys.

14. Scientists are able to determine the exact amino acid sequence of a(n) _____ .

Read each question, and write your answer in the space provided.

15. How do scientists estimate the number of nucleotide changes that have taken place in a gene since two species diverged from a common ancestor?

_____

_____

16. How does comparison of amino acid differences between species provide evidence of evolution?

_____

Name _____ Class _____ Date _____

Skills Worksheet

Active Reading

Section: The Theory of Evolution by Natural Selection

Read the passage below. Then answer the questions that follow.

Darwin realized that Malthus's hypotheses about human populations apply to all species. Every organism has the potential to produce many offspring during its lifetime. In most cases, however, only a limited number of those offspring survive to reproduce. Adding Malthus's view to what he saw on his voyage and to his own experiences in breeding domestic animals, Darwin made a key association: *Individuals that have physical or behavioral traits that better suit their environment are more likely to survive and will reproduce more successfully than those that do not have such traits.* Darwin suggested that by surviving long enough to reproduce, individuals have the opportunity to pass on their favorable characteristics to offspring. In time, these favorable characteristics will increase in a population, and the nature of the population will gradually change. Darwin called this process by which populations change in response to their environment **natural selection.**

SKILL: READING EFFECTIVELY

Read each question, and write your answer in the space provided.

1. Based on the first three sentences of this passage, what can the reader infer was Malthus's idea about the human population?

_____

_____

_____

2. What real-life experiences of his own did Darwin reflect upon when considering Malthus's ideas about human populations?

_____

_____

_____

3. According to Darwin, what causes the nature of a population to change?

_____

_____

_____

Read this second passage below. Then answer the questions that follow.

Scientists now know that genes are responsible for inherited traits. Therefore, certain forms of a trait become more common in a population because more individuals in the population carry the alleles for those forms. In other words, natural selection causes the frequency of certain alleles in a population to increase or decrease over time. Mutations and the recombination of alleles that occurs during sexual reproduction provide endless sources of new variations for natural selection to act upon.

SKILL: READING EFFECTIVELY

Read each question, and write your answer in the space provided.

4. What controls inherited traits?

_____

_____

5. What causes a particular trait to become more common in a population?

_____

_____

6. What two events cause new variations of traits in a population?

_____

_____