Name _____ Class _____ Date _____

Section 2: Darwin's Observations

Study Guide A

KEY CONCEPT

Darwin's voyage provided insights into evolution.

VOCABULARY

variation
adaptation

MAIN IDEA: Darwin observed differences among island species.

Choose the best answer for the question.

1. What is variation among members of *different* species called?
   a. adaptation
   b. geologic change
   c. interspecific variation
   d. intraspecific variation

2. What is variation among members of *the same* species called?
   a. adaptation
   b. geologic change
   c. interspecific variation
   d. intraspecific variation

3. What island chain in South America was the source of many of Darwin's insights?
   a. The Antipodes Islands
   b. The Galápagos Islands
   c. The Falkland Islands
   d. The Canary Islands

4. Darwin saw populations of various species that seemed well-suited to their environment. What did this suggest?
   a. The species Darwin saw were all related to each other.
   b. Species had been introduced to particular areas by humans on purpose.
   c. Species might be able to adapt to their surroundings over time.
   d. Some environments rarely ever change.

MAIN IDEA: Darwin observed fossil and geologic evidence supporting an ancient Earth.

Choose whether the statement is true or false.

5. *true / false* Darwin theorized that the fossils of huge animals such as *Glyptodon,* a giant armadillo, which looked similar to armadillos in Darwin's time, showed that living species were related to older ones.

6. *true / false* Darwin's discovery of marine organisms high in the mountains led him to think that ancient peoples had carried sea animals from the seaside up into the mountains.

7. *true / false* Darwin thought that Earth must be much older than scientists previously thought.

8. *true / false* If Earth was much older than previously thought, Darwin knew there had been time for species to evolve gradually.

Vocabulary Check

Fill in the blank with the correct term from the box.

variation	adaptation

_____ 9. the difference in the physical traits of an individual from those of other individuals in the group to which it belongs

_____ 10. a feature that allows an organism to better survive in its environment

_____ 11. A tortoise population lives in an area with high grass. These tortoises have longer necks than tortoises that live in other areas. The long necks of the tortoises are an example of _____.

_____ 12. One bird in a population has a slightly thicker beak than its relatives. The bird's thicker beak is an example of _____ in the population.

Name _____ Class _____ Date _____

Section 3: Theory of Natural Selection

Study Guide A

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.

Choose the best answer to the question.

1. Why did artificial selection interest Darwin?
   a. He hoped that humans might be able to breed for certain characteristics in animals.
   b. He wondered whether artificial selection could explain differences in species in nature.
   c. He theorized that animal and plant breeders had once visited the Galápagos Islands.
   d. He had noticed that humans could breed for certain characteristics in animals.

2. Why must selected traits be heritable?
   a. If a selected trait is not heritable, it cannot be passed down to the next generation.
   b. Heritable traits are those traits that farmers and breeders consider worth passing on.
   c. Heritable traits are common in domesticated animals that are used in breeding.
   d. A selected trait that is heritable is likely to make an animal easier to domesticate.

3. In natural selection, what must be true of traits that are passed down through generations?
   a. The trait must be one that members of the species like and enjoy.
   b. The trait must be one that members of the species have chosen to reproduce.
   c. The trait must be one that gives an advantage to certain individuals.
   d. The trait must be one that does not give an advantage to any particular individuals.

4. What important idea from Thomas Malthus inspired Darwin?
   a. Disease and a limited food supply keep the population smaller.
   b. The plants and animals that are strongest are the ones that will survive adverse conditions.
   c. Plants and animals are capable of inheriting characteristics from their parents.
   d. Species are more likely to adapt if they are subjected to varying environments.

MAIN IDEA: Natural selection explains how evolution can occur.

Fill in the blank with the correct word or phrase from the box.

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 certain variation well-suited for the environment

_____ 8. a heritable trait becoming common in a population

Match the four principles of natural selection with the statements that illustrate each.

9. overproduction	a. Large teeth and jaws become more common in jaguars because they are heritable characteristics.
10. variation	b. Jaguars with large teeth and jaws survive longer because they can eat shelled reptiles.
11. adaptation	c. By chance, some jaguars are born with slightly larger teeth and jaws.
12. descent with modification	d. A jaguar may produce many offspring, but because of competition, not all of them will survive long enough to reproduce.

MAIN IDEA: Natural selection works on existing variation.

Circle the word or phrase that best completes the sentence.

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

Circle the word or phrase that best completes the sentence.

15. Humans are the selective agent in *artificial selection / natural selection.*

16. The environment is the selective agent in *artificial selection / natural selection.*

17. The measure of the ability to survive and produce more offspring relative to other members of the population is called *fitness / overproduction.*

18. The ability of a trait to be passed down from one generation to the next is called *adaptation / heritability.*

19. All the individuals of a species that live in an area are called the *population / variation.*

20. *Artificial / Natural* selection occurs when humans deliberately breed for certain characteristics.

21. *Artificial / Natural* selection occurs when individuals with beneficial adaptations produce more surviving offspring than other individuals of the same species.