

Unit 7: Adaptation STUDY GUIDE

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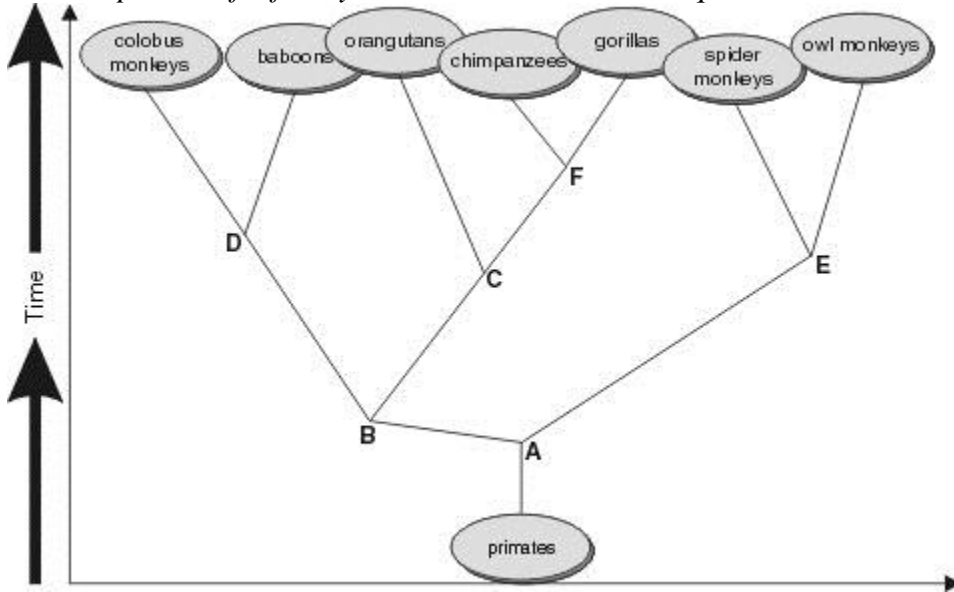
SCORE: _____

1. Which is an adaptation that makes it possible for the animal to survive in a cold climate?

- A. tail on a lizard
- B. scales on a fish
- C. stripes on a tiger
- D. fur on a bear

2.

Use the picture of a family tree below to answer this question.



This family tree shows the relationship among certain primates based on the chemical composition of a protein in their blood. According to this tree, which pair is most closely related?

- A. spider monkeys and colobus monkeys
- B. baboons and gorillas
- C. owl monkeys and spider monkeys
- D. gorillas and chimps

3. Fossils of animals the size of goats were dated at 5 million years old. Similarly, fossils of larger animals were dated at 3 million years old. Both animals were similar in body structure to today's horses. Using these data, which inference can scientists make?

- A. The animals were probably ancestors of today's horses.
- B. The animals had no relationship to one another.
- C. Today's horses and these animals probably lived together at some time in the past.
- D. Today's horses are faster than these animals were.

4. A population of mosquitoes is sprayed with a new insecticide. Most of the mosquitoes are killed but a few survive. In the next generation, the spraying continues, but still more mosquitoes hatch that are unaffected by the insecticide. Which of the following **best** explains these results?

- A. The insecticide caused a mutation in the genes of the immune mosquitoes.
 - B. The mosquitoes learned how to fight the insecticide.
 - C. A few mosquitoes in the first population were immune and passed this trait to their offspring.
 - D. The insecticide caused the mosquitoes to develop an immune response that was inherited.
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5. A species of rabbit that is found in hot desert environments has longer ears than other rabbits. How are long ears an advantage to desert rabbits?

- A. Long ears help the rabbit to hear rattlesnakes better.
 - B. Blood flowing in long, thin ears is a cooling mechanism.
 - C. The rabbit uses its long ears to signal other rabbits of danger.
 - D. Long ears help rabbits locate mates in the remote desert.
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6. A giraffe's long neck helps it to survive because giraffes can

- A. eat leaves in the high branches of trees.
 - B. eat grass in the fields.
 - C. run away from lions.
 - D. hide from tigers and other predators.
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7. Animal fossils are more plentiful than plant fossils because animals contain

- A. hard parts such as bones, teeth, and shells.
 - B. soft parts such as flesh and hair.
 - C. large amounts of water.
 - D. small amounts of chemicals.
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8. Which adaptation allows giraffes to feed on a diet of leaves from treetops?

- A. type of skin covering
 - B. body structure
 - C. body markings
 - D. visual ability
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9. The way a plant or animal species adjusts to the environment is known as

- A. variation.
 - B. behavior.
 - C. adaptation.
 - D. existence.
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10. All of the following behaviors are adaptations characteristic of desert animals EXCEPT

- A. being active only at night.
 - B. swallowing their prey whole.
 - C. getting water by eating plants.
 - D. staying buried during the day.
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11. Some fossils are shaped like the clams that are alive today. This tells us that

- A. clams turn into fossils very quickly.
 - B. other living things can look like clams.
 - C. clams became extinct, and then new ones grew.
 - D. clams have been on Earth for a very long time.
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12. Polar bears and brown bears are related. Over time, polar bears and brown bears have developed different appearances. Which of these MOST LIKELY caused the difference in fur color between the two species?

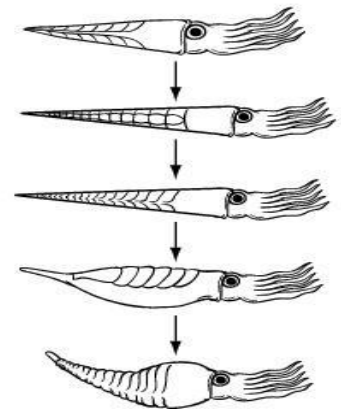
- A. Polar bears ate less and lost fur color.
 - B. Brown bears ate food that caused their fur to be brown.
 - C. Brown bears benefited by growing thicker fur to keep them warm.
 - D. Polar bears benefited from lighter colored fur and passed it on to their offspring.
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13. Two species of butterfly look almost identical, even though they are not related. One of the species is poisonous to birds, causing them to become ill, while the other species is not poisonous. What is the MOST LIKELY reason that the two species of butterfly look so similar?

- A. The two butterfly species have adapted to look like each other so that they could breed.
 - B. Over time the two butterfly species have adapted to look like each other because they eat the same food.
 - C. Over time the non-poisonous butterfly has adapted to look like the poisonous butterfly to help protect it from predators.
 - D. The poisonous butterfly has adapted to look like the non-poisonous butterfly so that it can live in the same environment.
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14. The diagram was made with information from fossils of the nautilus, a shelled sea animal.

Fossil Record of the Nautilus



Which statement does the diagram BEST support?

- A. The nautilus' shell has had many changes over time.
 - B. There have been exactly five different kinds of nautilus.
 - C. All animals with shells are closely related to the nautilus.
 - D. The nautilus has changed more times than any other animal.
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15. A scientist found a fish fossil while digging in sedimentary rock. She carefully dug deeper and found a second fish fossil that had a slightly different skeletal structure than the first. What is the MOST LIKELY explanation for these slight differences?

- A. The fish species adapted over time.
 - B. The fossils were buried at the same time.
 - C. The first fossil was more damaged over time.
 - D. One of the fossils was damaged during the dig.
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16. The peppered moth was originally light colored with some dark spots. It was well camouflaged from birds and bats on light colored trees. Over time, the light colored trees were covered in a layer of black soot due to industrial pollution. What happened to the peppered moth population?

- A. The moths were not affected by the change to the trees.
- B. The number of white spots on the moths increased.
- C. The number of black spots on the moths increased.
- D. The moths migrated to areas with less pollution.

17. Suppose that a small species of flowering plant lives in a desert area. Over many thousands of years, the area changes to a forest. The plant remains small in size, but undergoes other changes to adapt to the new environment which allows less light to the developing plant. Which of these changes is likely?

- A. development of deeper roots
- B. development of thick cuticle
- C. development of thorns
- D. development of larger and broader leaves

18. In his observations of the finches in the Galapagos Islands, Darwin stated that we could never "watch" natural selection in action. Why did Darwin believe this?

- A. Natural selection happens so quickly, it is difficult to see.
- B. Natural selection is an internal process that can not be outwardly observed.
- C. Natural selection occurs over so many generations, it is impossible to see changes occur.
- D. Natural selection is a process that occurs randomly, and it is unlikely that a human would be present when it occurs.

19. What do the appendix and wisdom teeth of adult humans have in common with the wings of an ostrich?

- A. They are adaptive structures that aid in survival.
- B. They are homologous structures that evolved from a common ancestor.
- C. They are selective structures that evolved when the environment changed.
- D. They are vestigial structures that are no longer required for survival.

20. Where might an albino animal have a selective advantage over an animal with a brown coat?

- A. taiga
 - B. tundra
 - C. ocean shoreline
 - D. temperate forest
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21. Anole lizards live throughout the Bahamas. They are small, fast running lizards with long legs. Visitors to the islands introduced a predator of the anoles. The predator is a large lizard that can also run very fast. Over the years, the anoles that survived were short-legged tree climbers. Today, throughout the Bahamas, the anoles are short-legged and live in trees.

Scientists explain this evolutionary shift in the anole lizard population as an example of

- A. genetic mutation.
- B. natural selection.
- C. selective breeding.
- D. artificial selection.

22. **Giant fossil ferns have been found in Canada. Which conclusion can be drawn from this discovery?**

- A. Canada once had a much warmer climate.
- B. Giant dragonflies once lived among the ferns.
- C. Canada was once covered by an ancient sea.
- D. Dinosaurs once lived in Canada.

23. **Geologists learn what organisms were like in the past by studying —**

- A. minerals.
- B. water.
- C. fossils.
- D. atmosphere.

If this were my test, I would have missed

I know what I need to study!

X_____

Answer Key

1. D) fur on a bear
 2. D) gorillas and chimps
 3. A) The animals were probably ancestors of today's horses.
 4. C) A few mosquitoes in the first population were immune and passed this trait to their offspring.
 5. B) Blood flowing in long, thin ears is a cooling mechanism.
 6. A) eat leaves in the high branches of trees.
 7. A) hard parts such as bones, teeth, and shells.
 8. B) body structure
 9. C) adaptation.
 10. B) swallowing their prey whole.
 11. D) clams have been on Earth for a very long time.
 12. D) Polar bears benefited from lighter colored fur and passed it on to their offspring.
 13. C) Over time the non-poisonous butterfly has adapted to look like the poisonous butterfly to help protect it from predators.
 14. A) The nautilus' shell has had many changes over time.
 15. A) The fish species adapted over time.
 16. C) The number of black spots on the moths increased.
 17. D) development of larger and broader leaves
 18. C) Natural selection occurs over so many generations, it is impossible to see changes occur.
 19. D) They are vestigial structures that are no longer required for survival.
 20. B) tundra
 21. B) natural selection.
 22. A) Canada once had a much warmer climate.
 23. C) fossils.
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