12. Answers may vary. Sample answer: Overproduction: Species produce more offspring than will survive to be adults. Inherited variation: Individuals in a population will differ in their traits. Struggle to survive: Individuals compete and many die. Successful reproduction: Individuals with the best adaptations are more likely to survive and reproduce.
13. Answers may vary. Sample answer: The fossil record is incomplete because specific conditions are required for fossils to form.
14. Answers may vary. Sample answer: By comparing the traits, skeletal structure, and DNA of modern organisms, scientists can determine which organisms have common ancestry and can obtain clues as to what those ancestors may have been like.
15. Answers may vary. Sample answer: Evidence for the evolution of whales from land-based mammals is provided by the existence of unused hip bones in modern whales, the fact that whales are mammals, and the existence of a large number of fossils.
16. Answers may vary. Sample answer: Natural selection is involved whenever species reproduce. The ability to attract a mate gives an individual a better chance to reproduce. Some species have intense competition among individuals for mates. This competition can result in instances where organisms that reproduce sexually select mates with certain adaptations.
17. Answers may vary. Sample answer: Evidence for common ancestry might be found in fossils; in similarities in the frogs' physical traits, such as skeletal structure; and the genetic information in the frogs' DNA.
18. Answers may vary. Sample answer: Whenever a population is attacked by a medication or insecticide, there are some surviving individuals. These individuals may have a gene that protects them from the drug or poison. They are likely to pass this protection on to their offspring. This will make future use of the drug or chemical less effective and possibly useless
19. **a**. fossils; **b**. ancient mammals; **c**. whales; **d**. DNA and traits; **e**. related; **f**. adaptations; **g**. separation; **h**. species

Chapter Test C

1. B
2. C
3. B
4. B
5. C
6. A
7. D
8. A
9. C
10. A
11. D
12. D
13. B
14. C
15. A
16. selective breeding
17. evolution
18. species
19. generation time
20. population
21. fossil record

Standardized Test Preparation

MULTIPLE CHOICE

1. A
2. B
3. C
4. A
5. B
6. D
7. B
8. C
9. A

OPEN RESPONSE

10. Full-credit answers should include the following points:
    - Genes determine the characteristics or traits of an organism.
    - Sometimes, an organism that has certain traits makes the organism more likely to survive.
    - The surviving organism reproduces.
    - The trait is passed on to offspring.
    - Over a very long period of time, the passing on of various successful genes may lead to evolution.

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11. Full-credit answers should include the following points:
    - A rough estimate of when an organism existed can be determined from the relative positions of fossils in rock layers.
    - The fossils can resemble each other, even if they are from different time periods.
    - Similarities are evidence of a possible evolutionary relationship between older organisms and more recent organisms.

Vocabulary Activity

1. species
2. speciation
3. trait
4. selective breeding
5. adaptation
6. natural selection
7. generation time
8. fossil
9. fossil record
10. evolution

SciLinks Activity

Answers may vary. Maps should show the major islands and should list some animals and plants found on each.

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