SECTION: NATURAL SELECTION IN ACTION

1. Sample answer: Speciation is one species evolving into two.
2. C
3. Sample answer: The number of tuskless elephants is increasing because hunters are killing off the elephants with tusks before they can breed.
4. 128 cockroaches Calculations:
   First generation:
   80 cockroaches
   Second generation:
   (80 ÷ 2) x 80 = 3,200 cockroaches
   Third generation:
   (3,200 ÷ 2) x 80 = 128,000 cockroaches
5. Sample answer: Cactuses evolved from plants that had adaptations to dry conditions, such as spiny leaves or thick stems.
6. Sample answer: Rodents might adapt to eating our garbage.

Chapter Review

1. speciation
2. natural selection
3. species
4. fossil record
5. selective breeding
6. adaptation
7. generation time
8. A
9. B
10. B
11. C
12. Sample answer: Living organisms can be compared in terms of body structures with other living organisms and with organisms from the fossil record. Also, the DNA of living organisms can be compared.
13. Sample answer: Whales share many internal similarities with hoofed land mammals. Ancient fossils of four-legged land mammals exist from times when whales did not exist, but some of these fossils shared characteristics with modern whales and other hoofed mammals. A sequence of fossil organisms show how the characteristics of modern whales could have evolved from those of ancient mammals.
14. Sample answer: Those animals that are better adapted to the conditions of their environment, including the condition competition with other organisms, are more likely to survive to adulthood.
15. Sample answer: Genetics provides a tool with which to analyze and explain what happens inside of cells as organisms evolve.
16. Answers may vary. Student answers may resemble the description of the speciation of the GalE1pagos finches given in the student text.
17. An answer to this exercise can be found at the end of the Teacher Edition.
18. Sample answer: A bird's song could be an advantage if the song helps the bird find mates or food, but the song could be a disadvantage if it attracts predators. So, natural selection would mean that birds whose songs were not an advantage might not survive, and songs would evolve that gave birds some kind of advantage.
19. Sample answer: Australia is an island, so the marsupials there could have evolved separately from other mammals around the world.
20. Sample answer: As the continents drifted apart, populations of species would have been separated and may have had to adapt to new environmental conditions. The separated populations would likely have evolved into separate species over time.
21. about 7 lb
22. about 7 lb
23. Sample answer: The infants who are best adapted to survive birth are those that weigh about 7 lb at birth.

Reinforcement

BICENTENNIAL CELEBRATION

Answers may vary. Sample answer:
The Secret of the GalE1pagos Finches—In 1831, Charles Darwin, a natural scientist, traveled around the world on the H.M.S. *Beagle.* On the GalE1pagos Islands, 965 km off the coast of Ecuador, Darwin discovered his finches. The GalE1pagos finches are similar to those found in South

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