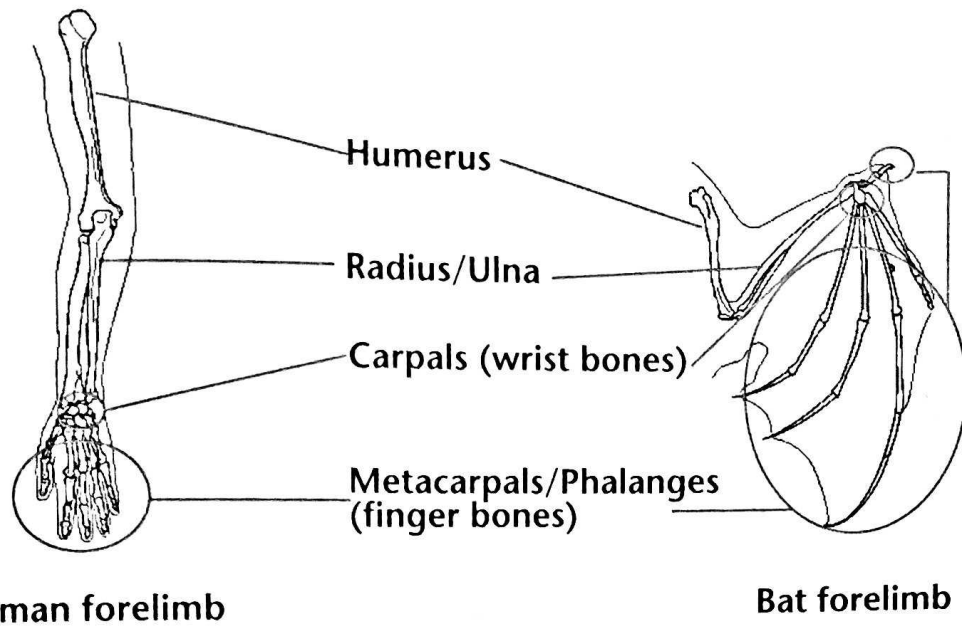


Use the illustrated homologous structures to answer Questions 15–17.



15. How are the forelimbs similar?

16. How are the forelimbs different?

17. How are homologous structures such as forelimbs evidence for common descent?

18. How does the pattern of embryological development provide further evidence that organisms have descended from a common ancestor?

Genetics and Molecular Biology

For Questions 19–25, complete each statement by writing the correct word or words.

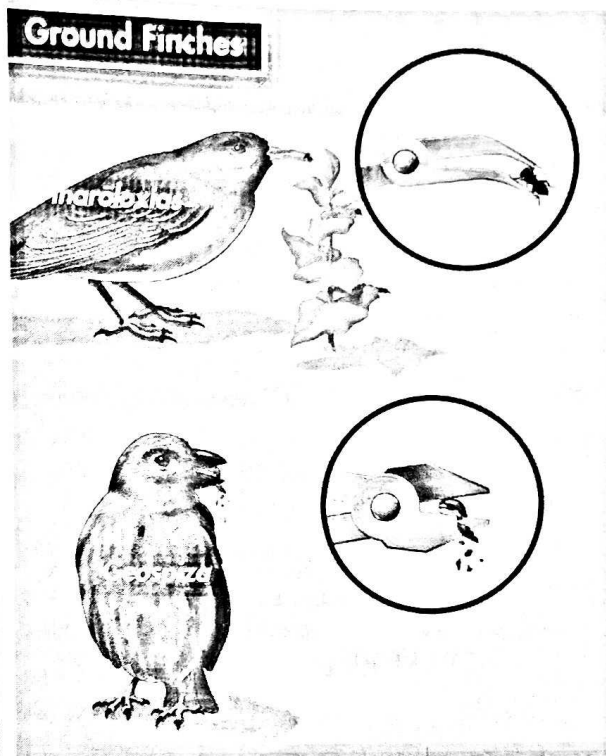
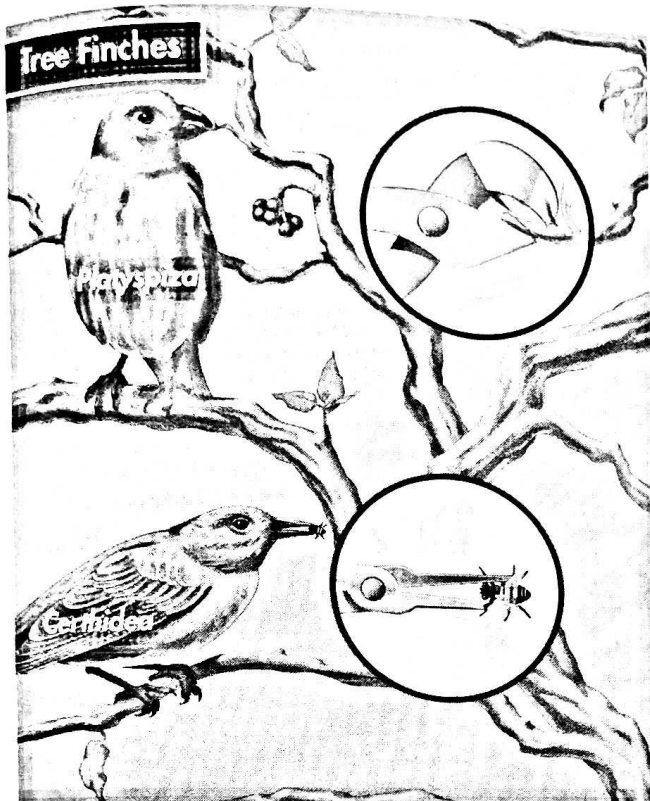
19. The science of _____ provides molecular evidence that supports evolutionary theory.
20. All living cells use _____ and _____ to code heritable information.
21. The universal genetic code is used by almost all organisms to _____.
22. Proteins that are _____ share extensive structural and chemical similarities.
23. Cytochrome c is a protein used for _____ in almost every living cell.
24. Homologous genes called Hox genes control timing and growth in _____.
25. Relatively minor changes in an organism's genome can produce major changes in an organism's _____.

Testing Natural Selection

Write the letter of the correct answer on the line at the left.

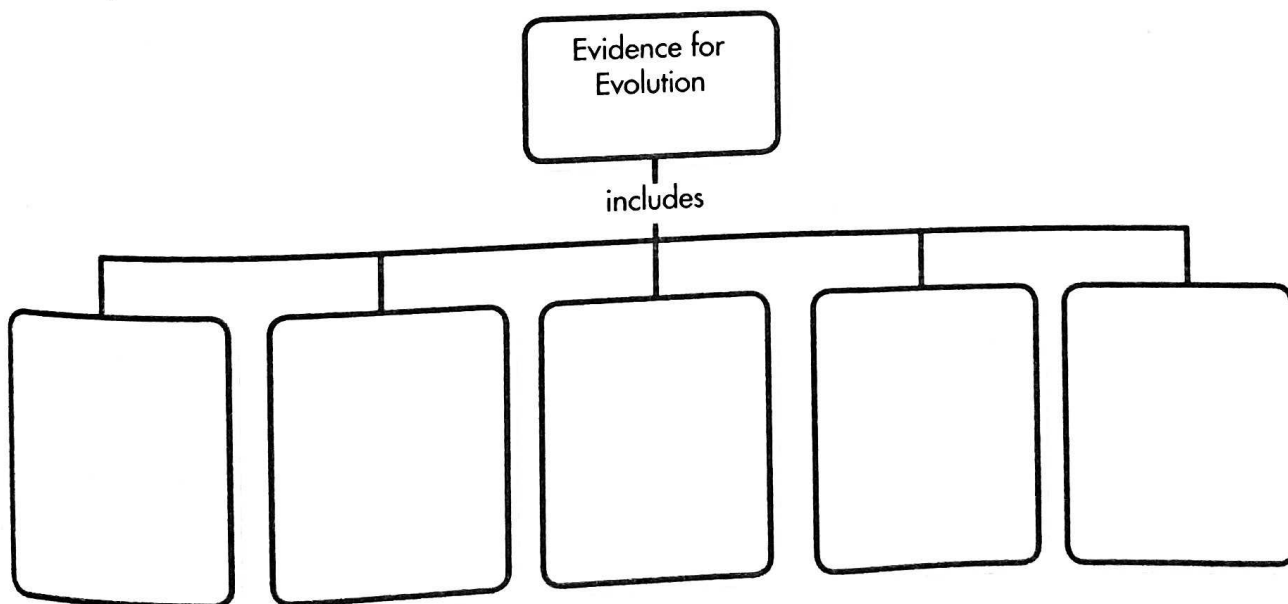
- _____ 26. Which of the following hypotheses did the Grants test?
 - A. Differences in beak size and shape produce differences in fitness.
 - B. For beak size and shape to evolve, the birds must leave the islands.
 - C. For beak size and shape to evolve, the climate must change radically.
 - D. Differences in beak size and shape are not determined by genetic mutations.
- _____ 27. The data that the Grants collected proved that there is
 - A. no link between the environment and the shape of finch feet.
 - B. no link between the environment and the shape of finch beaks.
 - C. great variation of heritable traits among Galápagos finches.
 - D. very little variation of heritable traits among Galápagos finches.
- _____ 28. The Grants conducted their experiment to test which of the following processes?
 - A. Natural selection
 - B. Genetic mutation
 - C. Artificial selection
 - D. Sexual reproduction

29. **Visual Analogy** The art shows how finch beaks are similar to certain kinds of hand tools. Suppose a finch fed on insects that burrowed into small holes on tree trunks. What type of tool do you think this finch's beak would resemble? Explain your answer.



Apply the Big Idea

30. Complete the concept map.



Chapter Vocabulary Review

Match the term with its definition.

Term

- _____ 1. evolution
- _____ 2. fossil
- _____ 3. fitness
- _____ 4. adaptation
- _____ 5. natural selection
- _____ 6. homologous structures
- _____ 7. vestigial structures

Definition

- A. Change over time
- B. Inherited characteristic that increases an organism's chance of survival
- C. Preserved remains of an ancient organism
- D. The process by which organisms with variations most suited to their environment survive and leave more offspring than others
- E. Small structures with little or no function
- F. Structures that develop from the same embryonic tissues but have different mature forms
- G. Ability of an individual to survive and reproduce in a specific environment

For Questions 8–10, write a definition for the vocabulary term.

8. biogeography

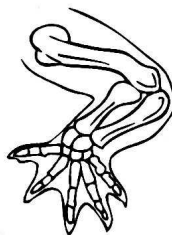
9. artificial selection

10. analogous structures

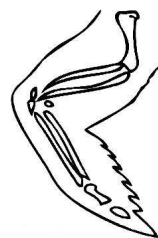
11. Does the illustration below show analogous or homologous structures? Explain.



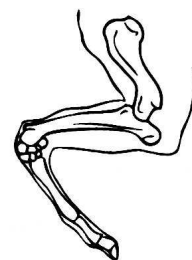
Turtle



Alligator



Bird



Mammals
