

Section 15-3 Darwin Presents His Case (pages 378-386)



Key Concepts

- How is natural variation used in artificial selection?
- How is natural selection related to a species' fitness?
- What evidence of evolution did Darwin present?

Publication of *On the Origin of Species* (pages 378-379)

1. Is the following sentence true or false? When Darwin returned to England, he rushed to publish his thoughts about evolution. _____
2. The naturalist whose essay gave Darwin an incentive to publish his own work was _____.
3. Circle the letter of each sentence that is true about Darwin's book *On the Origin of Species*.
 - a. It was published in 1869.
 - b. It was ignored when it was first published.
 - c. It contained evidence for evolution.
 - d. It described natural selection.

Inherited Variation and Artificial Selection (page 379)

4. Differences among individuals of a species are referred to as _____.
5. Is the following sentence true or false? Genetic variation is found only in wild organisms in nature. _____
6. Circle the letter of each sentence that is true about artificial selection.
 - a. It is also called selective breeding.
 - b. It occurs when humans select natural variations they find useful.
 - c. It produces organisms that look very different from their ancestors.
 - d. It is no longer used today.

Evolution by Natural Selection (pages 380-382)

7. What was Darwin's greatest contribution? _____

Match each term with its definition.

Terms

- _____ 8. fitness
_____ 9. adaptation
_____ 10. natural selection

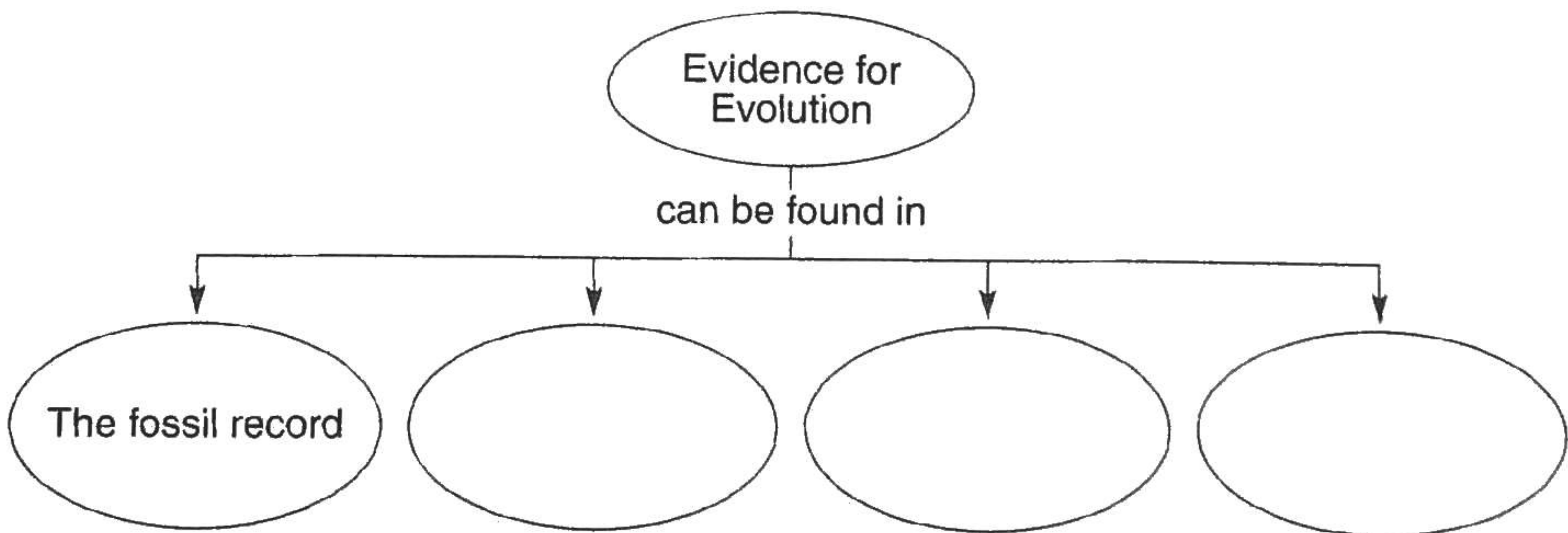
Definitions

- a. Any inherited characteristic that increases an organism's chance of survival
- b. Survival of the fittest
- c. The ability of an individual to survive and reproduce in its specific environment

11. What does the phrase *struggle for existence* mean? _____
12. Is the following sentence true or false? Adaptations can be physical characteristics but not more complex features such as behavior. _____
13. Explain what Darwin meant by the phrase *survival of the fittest*. _____
14. Circle the letter of each sentence that is true about natural selection.
- a. It selects traits that increase fitness.
 - b. It takes place without human control.
 - c. It can be observed directly in nature.
 - d. It leads to an increase in a species' fitness.
15. The principle that living species descend, with changes, from other species over time is referred to as _____.
16. The principle that all species were derived from common ancestors is known as _____.

Evidence of Evolution (pages 382–385)

17. Is the following sentence true or false? Darwin argued that living things have been evolving on Earth for thousands of years. _____
18. Complete the concept map.



19. How do fossils that formed in different rock layers provide evidence of evolution?
- _____
- _____

20. Circle the letter of the way Darwin explained the distribution of finch species on the Galápagos Islands.
- a. They had descended with modification from a common mainland ancestor.
 - b. They had descended with modification from several different mainland ancestors.
 - c. They had remained unchanged since arriving on the Galápagos from the mainland.
 - d. They had become more similar to one another after arriving on the Galápagos.
21. How did Darwin explain the existence of similar but unrelated species?
- _____
- _____
- _____
22. Structures that have different mature forms but develop from the same embryonic tissues are called _____.
23. Is the following sentence true or false? Homologous structures provide strong evidence that all four-limbed vertebrates have descended, with modifications, from common ancestors. _____
24. Organs that are so reduced in size that they are just vestiges, or traces, of homologous organs in other species are called _____.

Summary of Darwin's Theory (page 386)

25. Circle the letter of each idea that is part of Darwin's theory of evolution.
- a. There is variation in nature.
 - b. Fewer organisms are produced than can survive.
 - c. There is a struggle for existence.
 - d. Species change over time.
26. According to Darwin's theory, what happens to individuals whose characteristics are not well suited to their environment? _____
- _____
27. Darwin believed that all organisms on Earth are united into a single tree of life by _____.

Strengths and Weaknesses of Evolutionary Theory (page 386)

28. What is the status of Darwin's hypotheses today? _____
- _____
- _____