

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 | Definitions |
|-----------------------------|--|
| _____ 8. fitness | a. Any inherited characteristic that increases an organism's chance of survival |
| _____ 9. adaptation | b. Survival of the fittest |
| _____ 10. natural selection | c. The ability of an individual to survive and reproduce in its specific environment |

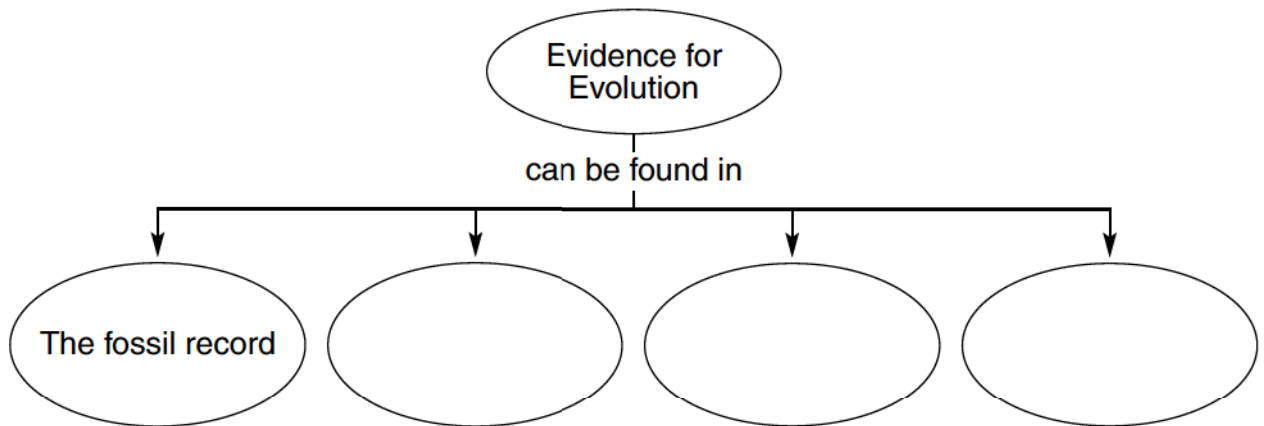
11. What does the phrase *struggle for existence* mean? _____

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? _____
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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? _____
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