

Reading Guide Packet: Chapter 17: Darwin's Theory of Evolution

Biology B

Name _____ Period _____

Chapter 17.1: A Voyage of Discovery

1. What is the scientific definition of *evolution*?
2. What was Darwin's contribution to science?
3. What were three critical observations that Darwin made during the voyage of the Beagle that led to the formulation of his theory?

Chapter 17.2: Ideas That Influenced Darwin

4. How did the work of Hutton and Lyell influence Darwin's thinking?
5. Summarize Lamarck's Evolutionary hypotheses.
6. Why didn't Lamarck's Evolutionary hypothesis become the accepted theory of evolution in Biology?

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7. How did the work of Thomas Malthus influence Darwin's thinking?
8. How did an understanding of *artificial selection* allow Darwin to make a breakthrough in building his theory?

Chapter 17.3: Darwin's Theory: Natural Selection

9. The theory of Evolution by Natural Selection begins with what observation?
10. How does natural variation affect an individual's ability to survive and reproduce in its environment?
11. What name is given to a heritable characteristic that increases an organism's ability to survive and reproduce in its environment?
12. What did Darwin mean by the phrase "survival of the fittest"?
13. Define *natural selection*.

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14. When does *natural selection* occur?

15. What is *common descent*?

Chapter 17.4: Evidence of Evolution

16. What is *biogeography*?

17. What two biogeographical patterns in the distribution of fossils and living species provide evidence for Darwin's theory?

18. What were two potential problems with Darwin's theory that have been addressed by subsequently collected data?

19. What are *homologous structures*? How are they explained by Darwin's theory?

20. Compare *analogous structures* to *homologous structures*.

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21. What is a *vestigial structure*?

22. Why are similar patterns of embryological development important to Darwin's theory?

23. Why didn't Darwin present genetic and molecular evidence for his theory?

24. What evidence does genetics and molecular biology provide to support Darwin's theory?

25. Why are Hox genes evidence of common ancestry?

26. What must be true of a hypothesis for it to be useful to science?

27. What has been the significance of the work of Peter and Rosemary Grant?

28. What does it mean to say that scientific knowledge is tentative?

29. In biology, what is the status of Darwin's theory today?