

Name: _____

Chapter 15 Reading Guide

15-1 The Puzzle of Life's Diversity



1. The variety of living things is called _____
2. What is evolution? _____
3. A scientific theory is a well-_____ testable _____
of phenomena that have occurred in the natural world.
4. Where was Charles Darwin born? _____ What year? _____
5. During his travels, Darwin made numerous _____ and collected
_____ that led him to propose a hypothesis.
6. Look at the map in Fig 15-1, After New Zealand, Darwin stopped where?? _____
Darwin used the Cape of Good Hope to pass what continent? _____
The Galapagos Islands are located to the west of what continent? _____
7. Darwin collected plant and animal _____ at each location and added them to his collection.
8. What did Darwin collect in the Brazilian rainforest? _____
9. Darwin wondered why there were no _____ in Australia and no _____ in England.
10. The glyptodont resembles what living animal? _____ (fig 15-2)
11. Define fossil: _____
12. Which tortoise had the longest neck? (fig 15-3) _____
13. Which of the Galapagos Islands had rich vegetation? _____
14. What part of the tortoise could be used to determine what island it came from? _____
15. He noted that many of the birds on the islands had differently shaped _____
16. Darwin wondered if the animals living on the islands were once members of the same _____

15-2 Ideas That Shaped Darwin's Thinking

1. Most people in Darwin's day believed the earth was only a few _____ years old.
2. Most Europeans believed that neither the planet nor its living species had _____.
3. Fossil evidence caused some scientists to conclude that there were several periods of _____.
4. Based on Hutton and Lyell's work, the earth's age is thought to be _____ of years old.
5. Name two natural forces that can shape valleys and mountains: _____
6. Lyell stressed that scientists must explain past events in terms of processes they can _____
7. Darwin thought that if the earth could change over time, then why not _____

Biology and History --- Match the scientist with the discovery or proposal.

8. _____ Estimates Earth to be millions of years old.
9. _____ Set sail on the H.M.S. Beagle
10. _____ Proposed the idea of inheritance by acquired traits.
11. _____ Predicted that humans would outgrow their space and food.
12. Lamarck was the first to recognize what? _____
13. Describe Lamarck's hypothesis: _____

14. According to Lamarck's hypothesis, what would happen to a bird that did not use its wings?

15. Lamarck's hypothesis was proven to be [correct / incorrect].
16. What did Malthus note about babies? _____
17. What would happen if the human population continued to grow unchecked? _____
18. Why is the world not covered in maple trees and oysters? _____

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15-3 Darwin Presents His Case



1. The birds Darwin found turned out to be all _____
2. Why did Darwin not publish right away? _____
3. Who gave Darwin an incentive to publish? _____
4. What was the title of Darwin's book? _____
5. Describe a variation found among cows: _____ how about plants? _____
6. What is artificial selection? _____
7. What does the "struggle for existence" mean? _____
8. What is an adaptation? _____
9. Adaptations can be _____ or structural, or even behavioral.
10. What happens to individuals that are not well suited to their environment? _____
11. Over time, natural selection results in _____ in the inherited characteristics of a population, which increase a species' _____ in its environment.
12. Darwin proposed that over long periods, _____ produces organisms that have different _____, establish different _____, or occupy different habitats.
13. If we look far enough back in history, we could find the common ancestor of all living things. This is known as the principle of _____.
14. Darwin argued that living things have been _____ on Earth for millions of years.
15. Evidence for this process could be found in the _____ record, the _____ distribution of living species, _____ of living organisms, and similarities in early development, or _____.
16. Darwin saw _____ as a record of the history of life on Earth.
17. Researchers have discovered many hundreds of _____ that document various intermediate stages in the evolution of modern species from organisms that are now _____.
18. _____ structures are the one type of evidence for the evolution of _____ things.
19. Structures that have different mature forms but develop from the same embryonic tissue are called _____.
20. Describe vestigial organs. _____
21. Give an example of a vestigial organ: _____
22. Embryos look similar showing that the embryonic cells develop in the same _____ and in similar _____.

23. Summary of Darwin's Theory

- Individual organisms differ, some of this _____ is heritable.
- Organisms produce more offspring than can _____
- Because more organisms are produced than can survive, they _____ for limited resources
- Each unique organism has different advantages and disadvantages. Individuals best suited for their environment survive and _____. These organisms pass their heritable _____ to their offspring.
- Species alive today are _____ with modification from ancestral species.

24. Scientific advances in many fields of biology, along with geology and physics, have _____ and _____ most of Darwin's hypothesis.

25. Evolution is often called the grand _____ theory of life sciences

Interpreting Data (see fig 15-14, p 383)

26. Which animals has a larger range, the coypu or the muskrat? _____

Which one is native to North America? _____

Which animal would you find in the northern area of S. America? _____

27. He (Darwin) realized that similar animals in different locations were the product of different lines of _____ descent.

Testing Yourself

1. The ability of an organism to survive and reproduce in its natural environment is called:
a. natural selection b. evolution c. homologous d. fitness
2. Which of the following is an important concept in Darwin's theory of evolution by natural selection?
a. Struggle for Existence
b. Species change over time
c. Descent with modification
d. both a & b e. a, b, and c
3. Which of the following does NOT provide evidence that living things have been evolving for millions of years?
a. fossil record
b. natural variation within a species
c. geographic distribution of species
d. homologous structures of living organisms
e. similarities of embryological development
4. A bird's wings are homologous to a(n):
a. fish's tailfin b. alligator's claws c. dog's front legs d. mosquito's wing
5. Which would an animal breeder use to produce cows that give more milk?
a. overproduction b. genetic isolation c. acquired characteristics d. artificial selection
6. Fitness is a result of:
a. adaptations b. common descent c. homologies d. natural selection