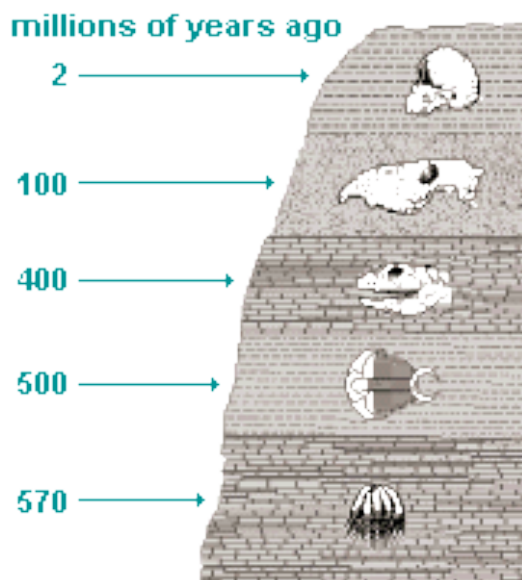


Answers-Study Guide for Fossils and Evolution

1. What does a Paleontologist do? A **paleontologist** is a scientist who studies fossils
2. What is natural selection? the process whereby organisms better adapted to their environment tend to survive and produce more offspring. Tell how it works by using the peppered moth simulation as a guide. Use the following link to review <http://peppermoths.weebly.com/>
3. How do fossils show us changes in environment? Fossilized species found in older rocks are different from those found in newer rocks
4. Explain relative dating. Draw an example using 3 layers. Fossils on the bottom are the oldest, and the ones on the top are the youngest. It only tells if one fossil is older than another.



5. What is the difference between artificial selection (selective breeding) and natural selection? **Natural selection** and **selective breeding** can both cause changes in animals and plants. The difference between the two is that **natural selection** happens naturally, but **selective breeding** only occurs when humans intervene. For this reason **selective breeding** is sometimes called **artificial selection**.
6. What is the difference between analogous and homologous structures? **Homologous Structures** have similar morphology, embryology and anatomy etc. but are dissimilar in their functions. **Analogous structures** are those **structures** in different species which perform the same function, have similar appearance and **structure** but are not evolved together; therefore do not share a common ancestor.
7. How does natural selection drive evolution? **Natural selection** is a mechanism by which populations adapt and evolve. The organisms best suited to survive in their particular circumstances have a greater chance of passing their traits on to the next generation.
8. What is a population? **A group of organisms of one species that interbreed and live in the same place at the same time**

9. Answer question 8 on page 151 and question 8 on page 123.

Fossil A was found in the largest rock layer, which is the top rock layer. Fossil B was found in the smallest rock layer, which was below the layer where Fossil A was found. Fossil B is older than Fossil A. The third layer is below both of the other layers. Therefore, Fossil C is older than Fossil A and Fossil B are.

A. layer 1

10. Do questions 1-19 on page 120-121 from textbook.

1. speciation
2. species
3. selective breeding
4. adaptation
5. c
6. b
7. c
8. a
9. Organisms can be compared to each other in terms of body structures, DNA, and to organisms from the fossil record.
10. Whales share many internal similarities with hoofed land mammals. Ancient fossils of four-legged land mammals exist from times when whales did not exist, but some of the fossils shared characteristics with modern whales and hoofed mammals. A sequence of fossil organisms shows how the characteristics of modern whales could have developed from those of ancient land mammals.

11. The animals that are better adapted to the conditions of their environment, including competition with other organisms, are more likely to survive to adulthood.
12. A population of birds might have adapted to a specific main food source. There may be some individuals in the population that were not as well-adapted to the food source but survived by eating other foods as well as the main food. If the main food source disappeared, the birds that ate the wider variety of foods would be better adapted and more likely to survive under the new conditions. Natural selection helps to ensure that at least some individuals will survive a change in environment.
13. Intended benefits of a new pesticide would include reduced numbers of pests and increased crop yields. One possible unintended consequence might be the development of insect resistance, insects and reduced profits. Another possible unintended consequence might be spread of the resistance to non-crop plants.
14. Create your own
15. Australia is an island, so the marsupials there have developed separately from other mammals from around the world. Some marsupials from Australia may look similar to some mammals from other parts of the world because they may both share certain adaptations. Similar adaptations can arise independently in separate populations if the adaptations help individuals in those populations survive and reproduce.
16. As the continents drifted apart. Populations of species would have been separated and may have had to adapt to new environmental conditions. The separated populations would likely have developed into separate species over time.
17. About 7 lbs
18. About 7lbs
19. The infants best adapted to survive birth are those who weigh about 7 lb at birth.

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