

CHAPTER 16: DARWIN'S THEORY OF EVOLUTION STUDY GUIDE

16.1 Darwin's Voyage of Discovery

- Change over time is called _____.
- Darwin set sail on the HMS _____ for a 5-year voyage around the world.
- Darwin was amazed with the biological _____ that he encountered on this voyage.
- Different, yet similar animals inhabited separated, yet similar habitats around the _____.
- Different, yet related species often occupied different habitats within a _____ area.
- An example is the _____, off the Pacific coast of South America.
- Some fossils of extinct animals were similar to _____ species.
- The supposed "different" birds of the Galapagos were actually all species of _____ found nowhere else but resembled those of mainland _____.
- The evidence from his voyage suggested that species are not fixed and that they could _____ by some natural process.

16.2 Ideas That Shaped Darwin's Thinking

- Many Europeans believed Earth was only a few _____ years old and hadn't changed much.
- The study of _____ was providing evidence to support different ideas.
- _____ concluded that the Earth is extremely old.
- _____ suggested processes that change Earth in the present must be the same ones that changed it in the past.
- Darwin posed the question, "If Earth can change over time, could _____ change too?"
- Before Darwin, _____ suggested that organisms could change during their lifetimes by selectively using or not using parts of the body.
- Lamarck also proposed that these _____ traits could be passed on to offspring.
- Although Lamarck was _____ on both accounts, he was one of the first to suggest that species change as a result of natural processes and thus paved the way for Darwin.
- _____ was an English economist who noticed that more people were being born than were dying causing overcrowding.
- Malthus reasoned that if the human population grew unchecked, there would not be enough _____ and _____.
- Darwin realized that Malthus' reasoning applied even more to other organisms since only a few _____ to reproduce.
- In artificial selection, nature provides the _____ and humans select those they find useful.
- Natural variation provided the raw material for _____.

16.3 Darwin Presents His Case

- Darwin published his book _____ in 1859, nearly 25 years after his voyage.
- Natural selection is the process in nature – the scientific mechanism – for _____ because it operates like artificial selection.
- In the "struggle for existence," members of a population must _____ to obtain food.
- Some _____ make an organism better suited to life in certain environments.
- Any inheritable characteristic that increases an organism's ability to survive and reproduce in its environment is an _____.
- _____ describes how well an organism can survive and reproduce in its environment.
- Differences in rates of survival and reproduction are called "_____."
- _____ is the process by which organisms with variations most suited to the local environment survive and reproduce.
- If environmental conditions change faster than an organism can adapt, the species may become _____.
- Every organism alive today is _____ from parents that survived and reproduced.
- According to the principle of common descent, all species – living and extinct – are descended from ancient _____.

14.4 Evidence of Evolution

- Two patterns are critical to Darwin's theory: 1) how closely related species differentiate in slightly different _____; and 2) how very _____ related species develop similarities in similar environments.
- _____ of the Earth and _____ in the fossil record were potential difficulties for Darwin's Theory.
- Data collected since Darwin's time has provided dramatic _____ for evolution.
- Structures shared by related species inherited from a common ancestor are _____ structures.

- e. _____ structures have lost most or all of their original function.
- f. Similar _____ development provides further evidence that organisms have descended from a common ancestor.
- g. The universal genetic _____ and homologous molecules provide evidence of common descent.
- h. Peter and Rosemary Grant have tested natural selection for 35 years studying the Galapagos _____.
- i. The Grants have documented that when food becomes scarce during dry periods, birds with the largest _____ are most likely to survive.
- j. Not only have the Grants documented _____, they confirmed that competition and environmental change drives natural selection.

ECA Practice...Free Response

Summarize Jean-Baptiste Lamarck's ideas about how organisms changed over time.

How does artificial selection differ from natural selection?
