

Chapter 13 review

Lesson 1

Know the difference between relative and absolute (radiometric) dating of rocks.

Know the difference between a cast and a mold.

The fossil record shows multiple extinction events in the history of the Earth.

Lesson 2

Charles Darwin was an English naturalist who proposed the theory of evolution by natural selection. He is especially famous for his study of birds and tortoises on the Galapagos Islands.

Biological evolution is change in a population over generations (over time).

Over many generations, natural selection causes populations to evolve adaptations.

1. First, random mutations cause variation in a population
2. Some variations will be better adapted to the environment than others
3. Organisms with better adaptations are more likely to survive long enough to reproduce
4. Consequently, the next generation is better adapted than the previous generation.

Darwin compared natural selection to artificial selection to make his argument that evolution is possible and actually happens. Artificial selection is another word for selective breeding, where humans decide which organisms should breed based on their traits.

Lesson 3

Organisms that exist today have extinct ancestors that were similar but different. For example, the modern horse has extinct ancestors that were smaller and had toes.

Organisms with similar anatomy share a common ancestor in the recent past.

Organisms with very different anatomy only have a common ancestor in the very distant past.

Know the difference between homologous, analogous, and vestigial structures, and whether or not they are evidence of recent common ancestry.

Pharyngeal pouches appear in vertebrate embryos. In fish they become gill arches. In humans they become ear bones.

Proteins are molecules that can be compared to estimate relatedness between species.

Today, in addition to comparative anatomy, scientists compare the DNA sequences and genes of organisms to estimate relatedness.