High School Science Virtual Learning

College Biology
Chapter 14 Recap Part 2

May 11, 2020

High School College Biology
Lesson: May 11, 2020

Objective/Learning Target:
Students will be able to speciation, plate tectonics, and macroevolution.

Let’s Get Started:

1. According to the biological species concept, what defines a species.

2. Why is behavioral isolation considered a prezygotic barrier.

Answers:

1. The ability of its members to interbreed with one another and produce fertile offspring in a natural setting.

2. Because it prevents mating and therefore the formation of a zygote.

Lesson Activity:

1. Read over pages 13-28 of the Chapter 14 Notes. (Linked Here)- Start at History of Earth and Macroevolution.

2. Watch this PBS Eon video on Geologic Time.
   Watch this Crash Course video on Taxonomy.

Practice:

1. What is the most common method used by geologists to date rocks and fossils?

2. How many mass extinctions have there been in the last 540 millions years and what benefit do they provide?

3. What are exaptations?

Practice Answers:

1. Radiometric dating which is based on the decay of radioactive isotopes.

2. There have been 5 mass extinctions in the last 540 million years. The extinctions provide the surviving species with new environmental opportunities.

3. Structures, such as feathers, that evolve in one context, but become co-opted for another function.

More Practice:

1. Distinguish between microevolution, speciation, and macroevolution.

2. Many species of plants and animals adapted to desert conditions probably did not arise there. Their success in living in deserts could be due to _____, structures that originally had one use but became adapted for different functions.

More Practice:

3. Mass extinctions
   a. cut the number of species to the few survivors left today.
   b. resulted mainly from the separation of the continents.
   c. occurred regularly, about every million years.
   d. were followed by diversification of the survivors.

4. Why are biologist careful to distinguish similarities due to homology from similarities due to analogy when constructing phylogenetic trees?

More Practice:

5. A paleontologist estimates that when a particular rock formed, it contained 12 mg of the radioactive isotope potassium-40. The rock now contains 3 mg of potassium-40. The half-life of potassium-40 is 1.3 billion years. From this information, you can conclude that the rock is approximately ____ billion years old.

6. In the three-domain system, which two domains contain prokaryotic organisms?

More Practice Answers:

1. Microevolution is a change in the gene pool of a population, often associated with adaptations. Speciation is an evolutionary process in which one species splits into two or more species. Macroevolution is change above the species level, for example, the origin of evolutionary novelty and new taxonomic groups and the impact of mass extinctions on the diversity of life and its subsequent recovery. Macroevolution is marked by major changes in the history of life, and these changes are often noticeable enough to be evident in the fossil record.

More Practice Answers:

2. Exaptations

3. D

4. Homologies reflected a shared evolutionary history, whereas analogies do not. Analogies result from convergent evolution

5. 2.6

6. Archaea and Bacteria

Review Tools:

-Kahoot 2
-Bozeman Science Video Speciation and Extinction
-Bozeman Science Video Classification
-Bozeman Science Video Three Domains of Life