

**Chapter
14****The History of Life****Chapter Assessment****Reviewing Vocabulary**

Complete the paragraph by writing the correct term on the appropriate line. Use these choices:

archaebacteria

fossils

protocells

biogenesis

plate tectonics

spontaneous generation

From ancient times until recently, it was believed that living organisms could arise from nonliving materials. This belief is referred to as **(1)** _____ . According to the three-century-old writings of Jean Van Helmont, if a dirty shirt and grains of wheat are placed in a container and left for 21 days, mice will form from the fermenting wheat. With the invention of the microscope and careful experimentation, it has been reasonably proven that life arises only from life. This idea is referred to as **(2)** _____ . The oldest organisms of which scientists have any record are approximately 3.5 billion years old. **(3)** _____ provide evidence of such organisms. The question of how the first unicellular organisms were produced from inorganic materials is a problem scientists are still studying. One possible answer is that conditions on the ancient Earth led to the formation of organized structures that carried out some life activities. These structures, called **(4)** _____ , were capable of growth and division. After much time, they evolved into heterotrophic prokaryotes. Over more time, organisms evolved that could synthesize food from inorganic raw materials. These organisms were probably similar to today's prokaryotes that survive in harsh conditions without oxygen. These organisms are known as **(5)** _____ .

The geological activity of Earth has influenced the development of organisms. For example, at the beginning of the Mesozoic era, the modern continents were merged into one large landmass. The landmass broke into individual continents that moved apart. The geological explanation of how the continents moved is called **(6)** _____ . As the continents moved apart, descendants of organisms living on the continents may have experienced different climates because of the new locations of the continents.

Understanding Main Ideas

In the space at the left, write the letter of the word or phrase that best completes the statement or answers the question.

- _____ 1. A clear fish imprint in a rock indicates that the rock is probably
a. volcanic. b. sedimentary. c. metamorphic. d. igneous.
- _____ 2. Which fact is the basis for using the fossil record as evidence for the order of evolution?
a. In undisturbed layers of rock strata, the older fossils are found in the deeper layers.
b. There are fossils of all life forms to be found in rock layers.
c. All fossils were formed at the same time.
d. Fossils have been shown to provide a complete record of human evolution.
- _____ 3. A theory concerning the origin of life states that Earth's ancient atmosphere contained
a. water vapor, methane, and ammonia.
b. water vapor, oxygen, and hydrogen.
c. methane, ammonia, and oxygen.
d. methane, carbon dioxide, and oxygen.
- _____ 4. Which group of organisms is believed to have been the earliest to evolve?
a. land plants b. cyanobacteria c. aquatic dinosaurs d. mammals
- _____ 5. According to one theory, the first prokaryotes probably obtained their food
a. through the synthesis of organic molecules from inorganic molecules.
b. through a combination of photosynthesis and aerobic respiration.
c. by eating carbohydrates formed by autotrophs.
d. by consuming organic molecules available in their environment.
- _____ 6. Entire organisms, with even their most delicate parts intact, have been found preserved in
a. igneous rock formations and ice.
b. mineral deposits and metamorphic rock.
c. amber and ice.
d. amber and mineral deposits.
- _____ 7. While looking for fossils on an eroded hillside, you discover fossil coral and fish in one layer. In a layer just above, you find the fossil imprint of a fern frond and some fossil moss. Assuming the rock has not been disturbed, which of the following is the most probable conclusion?
a. The area had been a sea until recent times.
b. A forest had once grown there but had become submerged by water.
c. A sea had been replaced by land in ancient times.
d. A saltwater sea had changed to a freshwater lake in ancient times.

**Chapter
14****The History of Life, *continued*****Chapter Assessment****Understanding Main Ideas (Part B)**

In the space at the left, write the letter of the word or phrase that best completes the statement or answers the question.

- _____ 1. Which event contributed most directly to the evolution of aerobic organisms?
- a. an increase in the concentration of methane in the ancient atmosphere
 - b. a decrease in the sun's light intensity
 - c. the presence of organisms able to carry on photosynthesis
 - d. an increase in the number of organisms carrying on fermentation
- _____ 2. Urey and Miller subjected water, ammonia, methane, and hydrogen to heating and cooling cycles and jolts of electricity in an attempt to
- a. determine how the dinosaurs became extinct.
 - b. find out whether the conditions of ancient Earth could have formed complex organic compounds.
 - c. determine the age of microfossils.
 - d. find out how ozone forms in the atmosphere.

Answer the following questions.

3. Explain the role of plate tectonics in the theory of continental drift.

4. Explain the relationship between early photosynthetic autotrophs and the eventual rise of aerobic life forms.
