

**SECTION 14-2 REVIEW**

# EARTH'S HISTORY

**VOCABULARY REVIEW** Explain the relationship between the terms in each of the following pairs of terms.

1. radioactive isotope, radioactive dating \_\_\_\_\_  
\_\_\_\_\_
2. radioactive decay, half-life \_\_\_\_\_  
\_\_\_\_\_
3. microsphere, coacervate \_\_\_\_\_  
\_\_\_\_\_

**MULTIPLE CHOICE** Write the correct letter in the blank.

- \_\_\_\_\_ 1. The age of Earth is estimated to be
 

a. about 700,000 years.	c. about 400 million years.
b. about 50 million years.	d. more than 4 billion years.
  
- \_\_\_\_\_ 2. Sulfur has an atomic number of 16. Therefore, the isotope sulfur-35 has
 

a. 19 protons and 16 neutrons.	c. 16 protons and 19 neutrons.
b. 35 protons and 16 neutrons.	d. 16 protons and 35 neutrons.
  
- \_\_\_\_\_ 3. When performing radioactive dating, scientists measure the
 

a. number of protons and neutrons in the nucleus of a radioactive isotope.	c. age of a living organism that is exposed to radioactive isotopes.
b. amount of a particular radioactive isotope contained in a material.	d. rate at which the mass of an object decreases over time.
  
- \_\_\_\_\_ 4. Carbon-14 dating is useful for estimating the age of
 

a. relatively young fossils.	c. Earth.
b. old rocks.	d. the solar system.
  
- \_\_\_\_\_ 5. Researchers using the technique of Miller and Urey have been able to produce
 

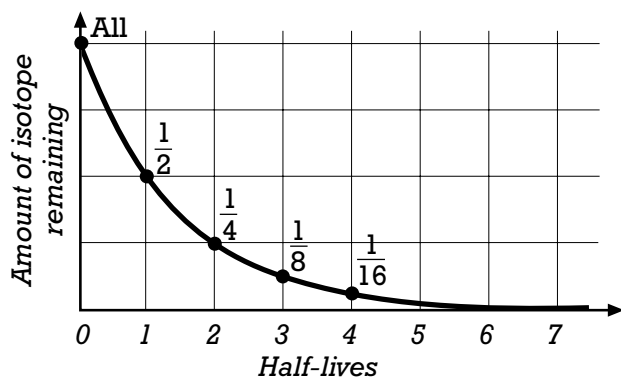
a. amino acids and nucleotides.	c. ATP and mitochondria.
b. proteins and DNA.	d. cell membranes and simple cells.

**SHORT ANSWER** Answer the questions in the space provided.

1. Explain how the half-life of a radioactive isotope affects the usefulness of that isotope in dating specific types of fossils. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
2. Why do some scientists think that areas protected from the atmosphere might have favored the production of organic compounds on early Earth? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
3. Why was the discovery of microspheres and coacervates an important contribution to the understanding of how life might have originated on Earth? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
4. **Critical Thinking** Does radioactive dating with isotopes of uranium and thorium provide an estimate of the beginning, middle, or end of the periods of Earth's formation? Explain your answer.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**STRUCTURES AND FUNCTIONS** Use the figure to answer the following question.

1. The graph below represents the radioactive decay of an isotope. If the half-life of thorium-230 is 75,000 years, how old is a fossil that contains only 1/16th of its original thorium-230? Show your calculations in the space below.



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