

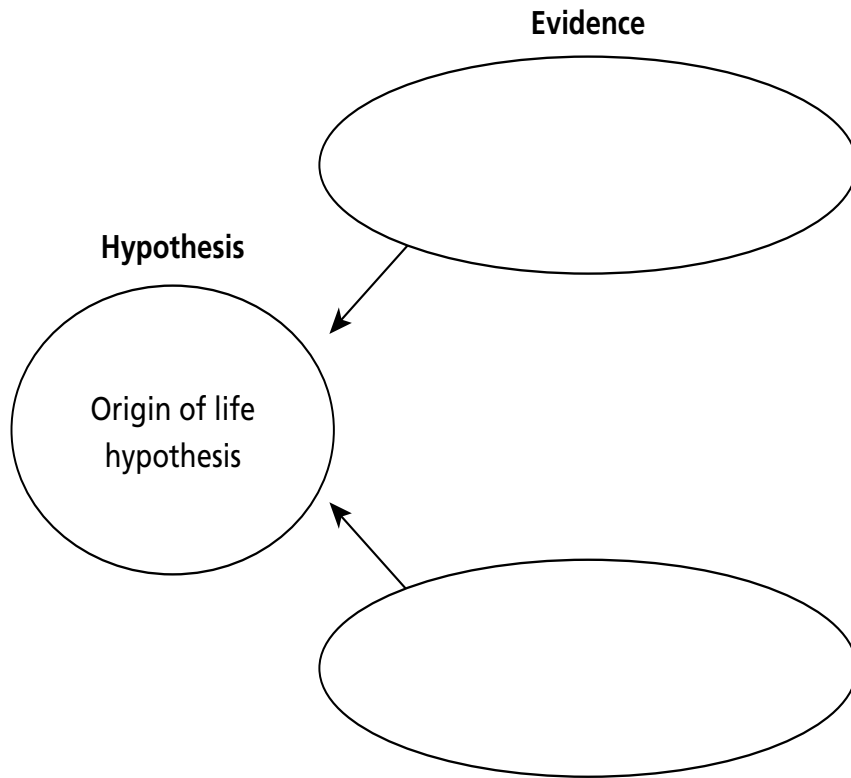
**Living Things** ▪ *Guided Reading and Study*

## The Origin of Life

*This section describes how Earth's atmosphere formed and how scientists think life first appeared on Earth.*

### Use Target Reading Skills

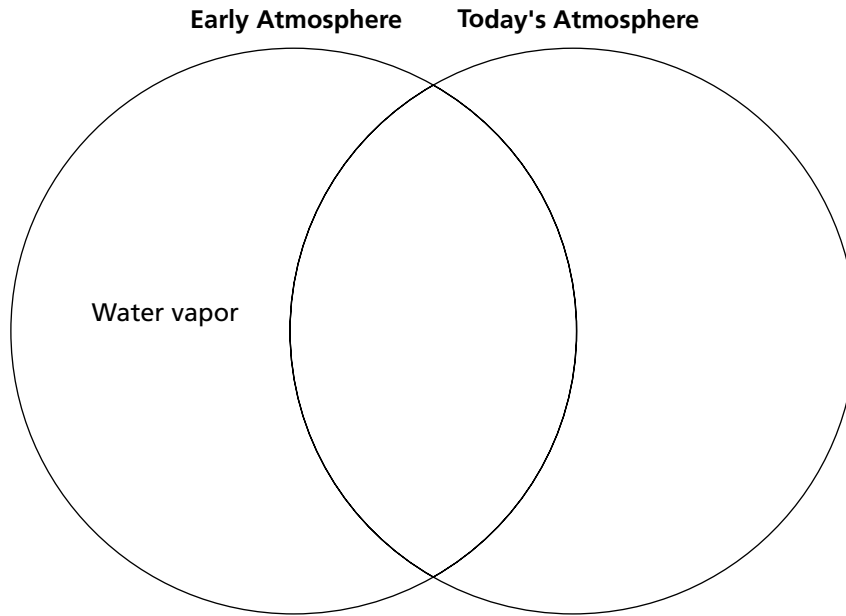
*As you read, identify the evidence that supports scientists' hypothesis of how life arose on Earth. Write the evidence in the graphic organizer below.*



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**The Atmosphere of Early Earth**

1. Complete this Venn diagram to compare the major gases that made up early Earth's atmosphere and Earth's atmosphere today.



2. Circle the letter of each sentence that is true about the characteristics of Earth's early life forms.
  - a. Early life forms needed oxygen to survive.
  - b. Early life forms were probably unicellular.
  - c. The first life forms probably lived in the oceans.
  - d. The first organisms were very different from archaea that live today in extreme conditions.
3. Is the following sentence true or false? Scientists think that the first life forms on Earth probably did arise from nonliving materials. \_\_\_\_\_
4. What materials did Stanley Miller and Harold Urey use to recreate the conditions of early Earth in their laboratory?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Miller and Urey used an electric current in their experiment to simulate \_\_\_\_\_.

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6. What were the results of Miller and Urey's experiment?

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**The First Cells**

7. Scientists think that the small chemical units of life formed gradually over millions of years in Earth's \_\_\_\_\_.
8. Traces of ancient organisms that have been preserved in rock or other substances are \_\_\_\_\_.
9. Circle the letter before each sentence that is true about how life formed on Earth.
  - a. Fossils show that archaea-like living things were on Earth between 3.4 and 3.5 billion years ago.
  - b. The first cells probably used the chemicals in their surroundings for energy.
  - c. Cells that made their own food produced oxygen as a waste product, which built up in Earth's atmosphere.
  - d. Scientists know for certain how life first appeared on Earth.