The Origin of Life Practice

Label each statement as True or False.

1. _____ Earth is thought to have formed about 4.6 billion years ago.

2. _____ The conditions on primitive Earth were very suitable for life.

Determine if each statement is true. If false, rewrite the statement changing the italicized word to make it true.

3. Several billion years ago the Earth had no free *methane*.

_____

4. Primitive Earth's atmosphere may have been composed of water vapor, carbon dioxide, and *nitrogen*.

_____

5. In the early 1900's, Oparin proposed a widely accepted hypothesis that life began on *land*.

_____

6. In 1953, Miller & Urey tested Oparin's hypothesis by simulating the conditions of *modern* Earth in the laboratory.

_____

7. Miller & Urey showed that organic compounds, including *nucleic acids* & sugars, could be formed in the laboratory, just as had been predicted.

_____

8. This "life-in-a-test-tube" experiment of Miller & Urey provides support for some modern hypotheses of *biogenesis*.

_____

9. Biogenesis *explains* how life began on Earth.

_____

10. Spontaneous generation is another term for *biogenesis*.

_____

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Word Bank

microorganisms	vital force	Louis Pasteur	biogenesis
nonliving matter	s-shaped	disproved	Francesco Redi
organisms	broth	microscope	spontaneous generation
spontaneously	air		

Early scientists believed that life arose from (1) _____ through a process they called (2)_____. In 1668, the Italian physician (3)_____ conducted an experiment with flies that (4)_____ this idea. At about the same time, biologists began to use an important new research tool, the (5)_____. They soon discovered the vast world of (6)_____. The number and diversity of these organisms was so great that scientists were led to believe once again that these organisms must have arisen (7)_____. By the mid-1800's, however (8)_____ was able to disprove this hypothesis once and for all. He set up an experiment, using flasks with unique (9)_____ necks. These flasks allowed (10)_____, but no organisms, to come into contact with a broth containing nutrients. If some (11)_____ existed, as had been suggested, it would be able to get into the (12)_____ through the open neck of the flask. His experiments proved that organisms arise only from other (13)_____. This idea, called (14)_____, is one of the cornerstones of biology today.

What change occurred in Earth's atmosphere after the evolution of photosynthesizing prokaryotes? Why?