

Name _____

Period _____

Ms. Foglia

Date _____

AP: CHAPTER 26: ORIGIN OF LIFE

1. Start with the origin of the earth and identify the **time frame, conditions, and evidence** for each of the following steps leading to current life forms on earth.

a. Origin of the earth _____

b. Prokaryotes _____

c. Oxidizing atmosphere _____

d. Eukaryotic cells _____

e. Multicellular life _____

2. What was significant about the discovery of the iron oxide bands in the sedimentary layers.

3. Describe the theory of endosymbiosis. _____

4. Why did evolution seem to slow 750 to 570 million years ago?

5. What was special about the Cambrium Explosion?

6. Describe a few adaptations essential for the invasion of plants onto land.

7. Scientific Hypothesis for the origin of life

- a. The first cells may have originated by chemical evolution on a young Earth
- b. Abiotic synthesis of organic monomers is a testable hypothesis
- c. Laboratory simulations of early-Earth conditions have produced organic polymers
- d. RNA may have been the first genetic material
- e. Protobionts can form by self-assembly
- f. Natural selection could refine protobionts containing hereditary information
- g. Debate about the origin of life abounds

8. Describe the hypothesized conditions on earth when life arose. _____

9. What did Louis Pasteur demonstrate with his experiment? _____

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10. List the four stages for the formation of life.

- a. _____
- b. _____
- c. _____
- d. _____

11. What metabolic processes would you expect to see in protobionts?

12. Why is RNA now thought to be the first genetic code?

13. What did Oparin, Haldane, Miller and Urey accomplish?

14. What are some of the possible locations for the first life forms?

15. What is the basis of the classification system developed by Linneaus?

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16. Why is taxonomy considered a work in progress?

17. What are two problems with the five kingdom system of classification?

a. _____

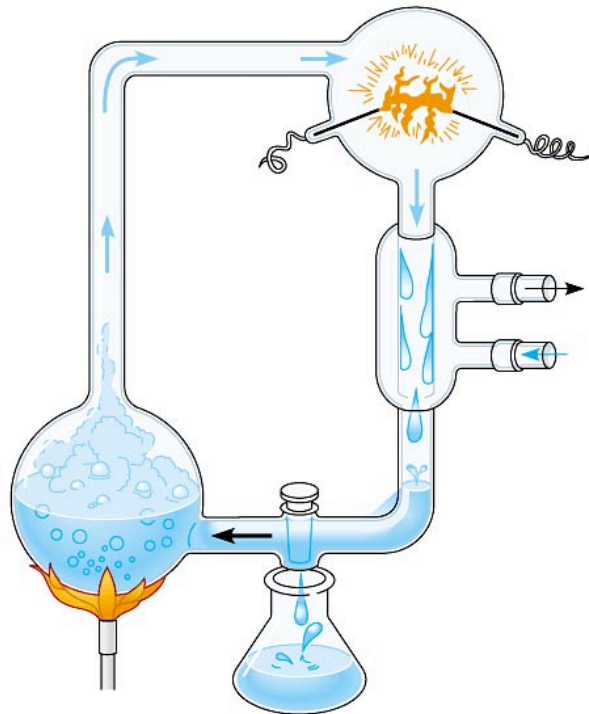
b. _____

18. How has the Domain System altered our view of taxonomy?

19. Which prokaryote is closer to the eukaryotes? List several reasons for your answer.

20. Place the following metabolic processes in an order that fits this hypothesis for the origin of life: Photosynthesis, Aerobic Respiration, Fermentation, Nucleic Acid replication (RNA or DNA), Membrane transport

21. Label the diagram to explain the Miller and Urey experiment to test the Abiotic Synthesis hypothesis.



22. Label the diagram to indicate the major events, the time frame, and the geologic eras the origin of life on Earth.

