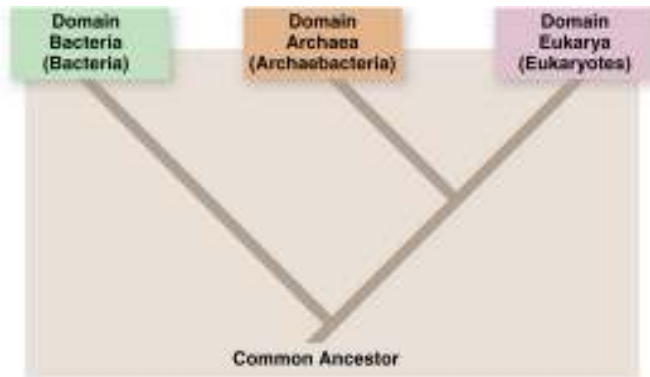


Chapter 26 -The Tree of Life



1. Why are the ideas on how life originated on Earth referred to as hypotheses and not theories?

2. List and briefly explain the fundamental characteristics that define “life”.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

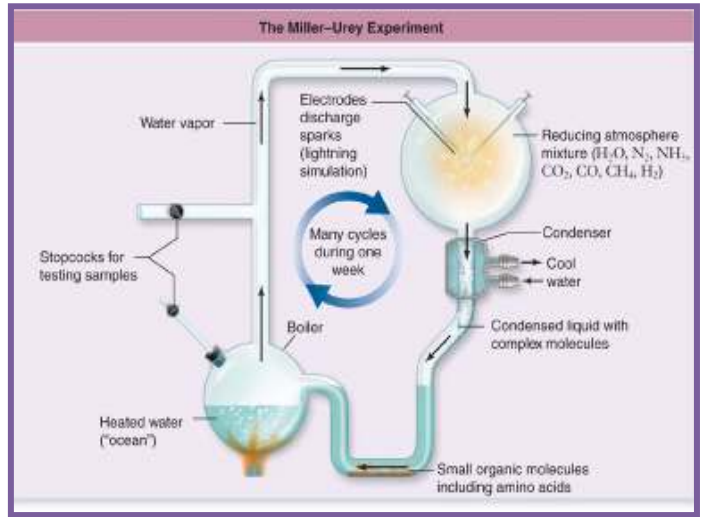
g. _____

h. _____

3. What is meant by a **reducing atmosphere**?

4. How does our present atmosphere differ? _____

5. Explain the significance of the **Miller-Urey experiment**.



6. Briefly discuss the current controversy about which complex organic molecules formed first: nucleic acids or proteins.

7. What is **taxonomy**? Who is considered the "father of modern taxonomy"?

8. Explain the "rules" of **binomial nomenclature**, using *Homo sapiens* as an example.

9. List the **taxons** from most general to specific. HINT: *King Philip came over for good spaghetti!*

10. Name the 6 **kingdoms**: _____

11. Name the 3 **domains**: _____

Which two of the 3 domains are most closely related to each other? What line of evidence do scientists point to in support of this? _____

Complete the following table:

	Characteristics of the Domains of Life		
	DOMAIN		
Characteristic:	Archaea	Bacteria	Eukarya
Amino acid that initiates protein synthesis			
Presence of introns			
Presence of membrane-bound organelles			
Peptidoglycan in cell wall			
Histone proteins associated with DNA			

12. How are Archaea classified?

13. Describe the **theory of endosymbiosis**.

14. Name the 4 kingdoms of eukaryotes: _____

What three characteristics do they share that distinguish eukaryotes from other organisms?

15. What are **viruses**? _____

16. Which kingdom represents the weakest area of the 6-kingdom system of classification? _____

17. Why is Kingdom Protista not considered monophyletic?

18. Molecular phylogenetics reveals that land plants arose from an ancestral _____.

19. What have new phylogenies based on rRNA evidence shown us about the evolution of segmentation in animals? Which family of genes is involved in regulation of segmentation during animal development?
