**Changes Through Time Unit Review** Name: _____

***Work should be completed on another sheet of paper.***

1. What are homologous structures?

2. What can you infer about species that differ significantly in their DNA sequences?

3. What is the goal of artificial selection?

4. Why does a specific pesticide become less effective over time?

5. What are the two main forces of evolutionary change in gene pools?

6. A population containing striped and unstriped snails has recently moved into a new region. Birds break the snails open by dropping them onto rocks. The birds eat the bodies of the snails and leave the shells. In one area, researcher counted both live snails and broken shells. The data are summarized below.

| | Striped Shells | Unstriped Shells |
|---|---|---|
| Living snails | 264 | 296 |
| Broken shells | 486 | 377 |

   a. Based on the data, tell which form of snail (striped or unstriped) is more likely to be caught by the birds for food. Explain.
   b. Suggest a hypothesis to explain what is happening to the snails.
   c. Predict how the frequencies of striped and unstriped individuals in the population might change over the generations.

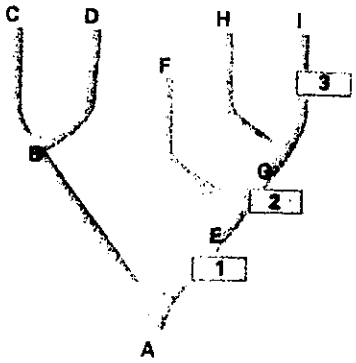
7. Describe how the ideas of Lamarck and Darwin are similar and how they differ.

8. Briefly explain why each statement is inaccurate or misleading.
   a. Individuals adapt to their environment and pass the adaptations on to their offspring.
   b. Homologous structures have the same function in unrelated species.
   c. Pesticides have created pesticide-resistant insects.
   d. Two populations of mice living on opposite sides of a river are separate species
   e. Lightweight bones evolved in birds to the birds could fly

9. What does a branch point in a cladogram represent?

10. How does the three-domain model of classification differ from the five-kingdom model?

11. Use the cladogram below to answer the questions that follow.




   a. Which species is the common ancestor of all those shown?

   b. What do 1, 2, and 3 represent?

   c. To which living species is species H most closely related?

   d. How many clades are contained in the diagram? List the species in each clade.

12. Explain the difference between homologous structures and vestigial structures.

13. Identify the five main pieces of evidence for evolution. Give a brief explanation of each.

14. What is the theory of Natural Selection?

15. Explain the statement: "Natural selection favors traits that benefit the organisms in a particular environment"

16. Identify the three modes of natural selection. Give an example of each and sketch a graph representing the frequency of alleles.

17. Compare and contrast microevolution and macroevolution.

18. Define: gene pool, variation, speciation, gene flow

19. Explain the purpose of the Hardy-Weinberg Equilibrium.

20. What is meant by gene shuffling?

21. List the five key items that contribute to evolution.

22. Give an example of the name of two organisms using binomial nomenclature. Identify the following groups: genus and species.

23. In order from most broad to most specific, list the order for classification of organisms.

24. Identify the 6 kingdoms used in classification now.

25. Living organisms are identified by what major characteristics for classification?

26. Study labs, worksheets, and notes.