

Name: _____ Period: _____ Date: _____

Biosphere Unit Study Guide

Test Date: _____

Use this worksheet as a guideline to help you study for the upcoming biosphere unit test. Some answers can be found in the online textbook, science journal entries, worksheets, and labs we have done during this unit.

*Some of these questions have been journal entries. Be sure to review these questions especially, and feel free to discuss your answers with others. **You will probably need to answer these questions on a separate sheet of paper.***

A. Evolution by Natural Selection

1. What is an adaptation? List some examples of animals and the adaptations that help them survive.
2. Define evolution
3. How can one population branch off into two different species over time? What different ways can groups of a single species become isolated from each other? (temporal vs. geographic isolation)
4. What is a fossil? How do fossils form? Why is the fossil record so incomplete?
5. What is a homology? Give some examples.
6. What is an analogy? Give some examples.
7. What is a vestigial structure? Give some examples.
8. How does the fossil record provide evidence for evolution?
9. Who is Charles Darwin? What did he do?
10. What is natural selection?
 - a. What is VISTA?
 - b. What is meant by overproduction of offspring?
 - c. What does fitness mean?
 - d. What did you learn in the pom-pom lab?
 - e. How did the peppered moth display natural selection?
11. What is selective breeding (or artificial selection)? Give some examples.
12. What type of evidence (that is available today) did Darwin **lack** that now help support his theory?

B. DNA and Genetics

13. Describe how DNA replicates each time a cell divides.
14. What are mutations?
15. Two alternate versions of the same gene are called _____.
16. What happens if you have one blue-eyed allele and one brown-eyed allele? Why?

17. Describe what happened to the peppered moth in terms of changing allele frequencies.
18. If blue eyes resulted from a single genetic mutation, how did so many people end up with blue eyes? Describe in terms of "genetic drift". (Hint → Blue eyes are not beneficial for survival or reproduction.)
19. What is the basic idea of the Hardy-Weinberg principle (genetic equilibrium)? *HONORS ONLY*
20. What are some reasons that certain harmful alleles are still around and haven't been "weeded out" of the human gene pool? *HONORS ONLY*

C. Early Life on Earth

21. What is the difference between prokaryotes and eukaryotes?
22. What would the earliest life on Earth have looked like?
23. What was the early atmosphere like?
24. What is the endosymbiotic theory?

D. Paleoanthropology

25. What is a hominid? How are hominids different from other primates?
26. What are the differences between the following genera: *Australopithecus* and *Homo*?
27. Define the following terms:
 - prognathism
 - sagittal crest
 - supra-orbital ridge
 - binocular vision
 - bipedalism
28. Which traits do humans have in common with apes? What traits make them different?
29. Explain why bipedalism is such an important adaptation.
30. What features are necessary for bipedalism? What environmental changes might have led to some of these adaptations among hominids? (What was happening in Africa at this time?)
31. Why are ancient hominid fossils only found in Africa, while more recent fossils can be found in Asia and Europe as well?
32. What species is "Lucy", and what is the significance of "her" discovery?
33. Describe the Laetoli footprints and how they were formed. What is their significance?
34. How is it possible that hominid species like *Homo erectus* and *Homo neanderthalensis* can be relatives, but not direct ancestors?
35. Where is the Great Rift Valley? Why is this a good place to find hominid fossils?