Evolution Study Guide

Understand applications of DNA technology
Define:
Restriction enzymes –
Gel electrophoresis –
PCR –
Gene Sequencing –
Plasmid –
Trangenic organism –
Recombinant DNA –
Gene Therapy –
Human Genome Project –
Genetic Engineering -

Explain how recombinant bacteria make multiple copies of genes

Examine the development of the theory of evolution by natural selection including:

1. What can we infer from the fossil record? Where do you find the oldest/youngest fossils?

2. What was Earth's early atmosphere made up of?

3. What were the first living organisms to appear on Earth? **How did it obtain energy?**

4. How did the organisms listed in question 3 evolve?

5. What is the endosymbiotic theory and why is it important?

6. Explain how biochemical similarities supports the theory of evolution

7. Explain how anatomical similarities supports the theory of evolution

8. Define natural selection.

9. How are variation and natural selection related?

10. Describe homologous structures and give some examples.

11. What is geographic isolation?

12. What is reproductive isolation?

13. Describe how the processes of gene flow, genetic drift, the bottleneck effect, and the founder effect can alter the genetic makeup of a population.

14. Describe Charles Darwin's theory of natural selection:

15. Define convergent evolution, divergent evolution, and coevolution

16. Define the following and explain how they are related to natural selection:
    a. pesticide resistance –

b. antibiotic resistance –

☐ **Analyze the classification of organisms according to their evolutionary relationships.**

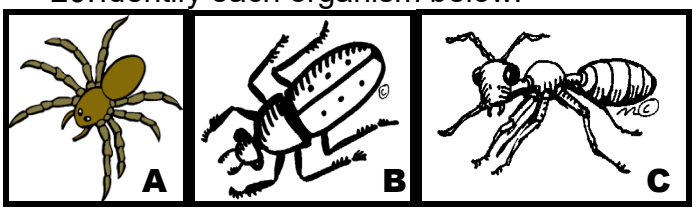
17. How does our modern classification system show the evolutionary relationship among organisms?

18. List the 7 levels of classification from largest to smallest.

19. Circle each of the following as prokaryotic or eukaryotic AND as autotrophic or heterotrophic AND as unicellular or multicellular.

Bacteria – pro / eu	auto / hetero	uni / multi
Protists – pro / eu	auto / hetero	uni / multi
Plants – pro / eu	auto / hetero	uni / multi
Animals – pro / eu	auto / hetero	uni / multi

20. Identify each organism below:



Organism A:

Organism B:

Organism C:

Dichotomous Key:
1. a. The animal has eight legs …Arachnida
   b. The animal has six legs … go to 2
2. a. The animal has spots … Coleoptera
   b. The animal has stripes … Lepisiota

21. Which would be the most primitive organism?

22. Circle 2 organisms that would have the most similar DNA.

23. Why did you choose those 2 organisms (question 19)?