Name _____ Period _____ Date _____

**Topic 4.1: Species Communities and Ecosystems**

4.1.U1 Species are groups of organisms that can potentially interbreed to produce fertile offspring.

1. Define the term ecology.
2. Define the term ecological species.
3. Compare interbreeding with crossbreeding.
4. Describe a barrier that may prevent two species from forming hybrids.

4.1.U2 Members of a species may be reproductively isolated in separate populations.

5. Define the term population.
6. Explain why two populations that have been separated are not necessarily two different species.
7. Summarize the three different categories of reproductive isolation on pages 458 and 459 (No, this is not a typo).

4.1.U3 Species have either an autotrophic or heterotrophic method of nutrition (a few species have both methods).

8. Define the term autotrophic. Give a few examples of autotrophic organisms and their source of energy.
9. Define the term heterotrophic. Give a few examples of heterotrophic organisms and what they consume.
10. Define the term mixotrophic. Give an example of a mixotrophic organism how it gets its nutrition.
11. What advantage may mixotrophic organisms have over other methods of nutrition?

4.1.U4 Consumers are heterotrophs that feed on living organisms by ingestion.

4.1.U5 Detritivores are heterotrophs that obtain organic nutrients from detritus by internal digestion.

4.1.U6 Saprotrophs are heterotrophs that obtain organic nutrients from dead organisms by external digestion.

12. Define the term consumer. Outline the four types of consumers and their diets.
13. Compare the diet of a primary consumer versus a secondary consumer.
14. Define the term detritivore. Give a few examples of detritivores and what they consume.
15. Describe what would occur in an ecosystem that had all of its detritivores removed.
16. Define the term saprotroph. Give a few examples of saprotrophs and what their source of energy.
17. Compare how detritivores versus saprotrophs obtain their nutrition.
18. Complete the *DBQ: Unexpected diets* on page 204 using the *Skills Topic: Identifying modes of nutrition* on page 206 [4.1.S1].

4.1.U7 A community is formed by populations of different species living together and interacting with each other.

4.1.U8 A community forms an ecosystem by its interactions with the abiotic environment.

19. Define the term community.
20. Define the terms abiotic factor and biotic factor. Give a few examples of each factor in an ecosystem.
21. Suggest a reason why a single species cannot survive in an environment with unlimited resources.

4.1.U9 Autotrophs obtain inorganic nutrients from the abiotic environment.

22. List the elements needed by living organisms to produce macromolecules needed for life.
23. What is the ultimate source of all the elements needed by living organisms?

4.1.U10 The supply of inorganic nutrients is maintained by nutrient cycling.

4.1.U11 Ecosystems have the potential to be sustainable over long periods of time [4.1.S2].

24. Describe, in general, what is a nutrient cycle.
25. Outline the three requirements for an ecosystem to be sustainable.
26. Suggest an event that could cause a disruption in an ecosystem that could disrupt a stable system.