

Biology Chapter 2 Test: Principles of Ecology**True/False**

Indicate whether the statement is true or false.

- ___ 1. Living things are formed from carbon-containing molecules, so the carbon cycle is the only biogeochemical cycle that really affects humans.
- ___ 2. Some plants have bacteria living in nodules on their roots that “fix” atmospheric nitrogen, converting it to a form of nitrogen the plant can use. Because living organisms (bacteria) are involved in the process, nitrogen availability is a biotic factor for the plant.
- ___ 3. The biotic factors that affect an organism include other species in that organism’s community.
- ___ 4. The biogeochemical cycles and the flow of energy through an ecosystem are two ways to describe the same phenomenon.
- ___ 5. Large volumes of atmospheric dust, such as those from massive volcanic eruptions, do not affect food webs because they do not affect the energy output of the Sun, the ultimate source of energy for food webs.
- ___ 6. Even though you need sunlight for some body processes, such as synthesizing vitamin D, you have to eat a producer to use solar energy for respiration and movement.
- ___ 7. All the biogeochemical cycles involve both biotic and abiotic reservoirs.
- ___ 8. Adding nitrogen or phosphorus to an ecosystem would probably not affect organisms at high trophic levels because those nutrients are limiting factors to producers.

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- ___ 9. Some birds are known as honey guides because they may be followed by humans to wild beehives. When the humans take honey from the hives, the birds are able to feast on the honey and bees, too. This type of relationship can *best* be described as ____.
- | | |
|-----------------|--------------|
| a. parasitism | c. mutualism |
| b. commensalism | d. symbiosis |
- ___ 10. Cougars are predators that often eat weakened or diseased animals. This is a description of the ____ of cougars.
- | | |
|--------------|------------------|
| a. habitat | c. niche |
| b. community | d. none of these |

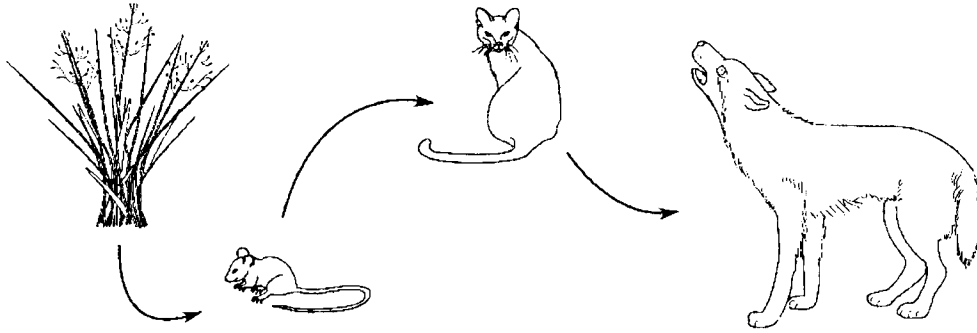


Figure 2-1

- ____ 11. Referring to Figure 2-1, the coyotes would be considered ____.
- a. herbivores
 - b. third-level consumers
 - c. second-level consumers
 - d. decomposers

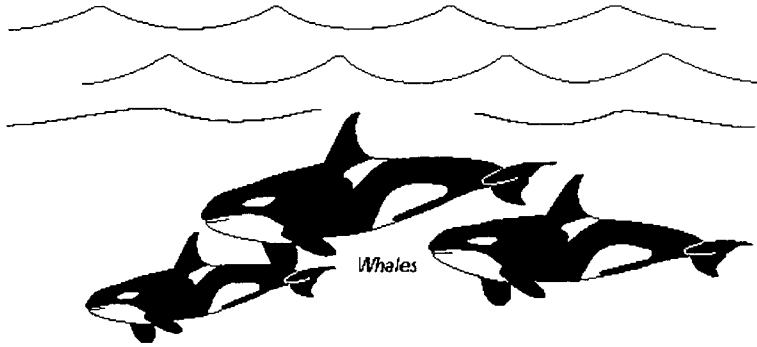


Figure 2-2

- ____ 12. The group of animals in Figure 2-2 is an example of what?
- a. community
 - b. ecosystem
 - c. population
 - d. biosphere

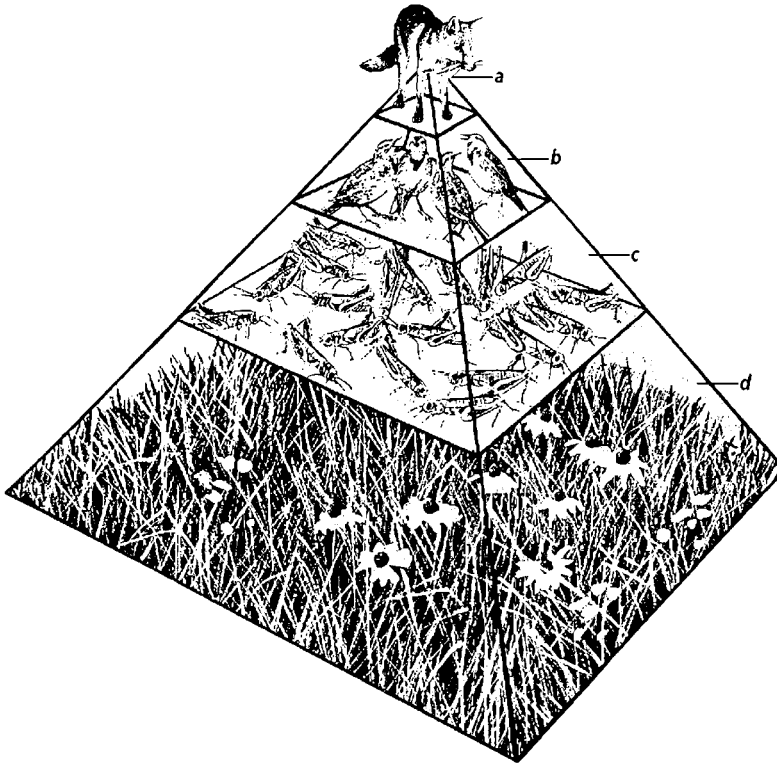
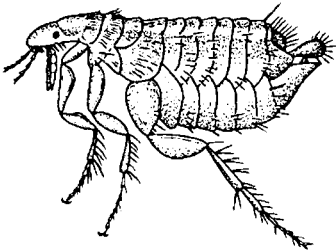


Figure 2-3

- _____ 13. In the energy pyramid shown in Figure 2-3, which level has the smallest number of organisms?
- a. fox
 - b. birds
 - c. grasshoppers
 - d. grass
- _____ 14. Which of the following is the ultimate source of energy for the pyramid in Figure 2-3?
- a. grass
 - b. heat
 - c. sunlight
 - d. water



flea

Figure 2-4

- _____ 15. The organism shown in Figure 2-4 is involved in which type of symbiosis?
- a. mutualism
 - b. commensalism
 - c. parasitism
 - d. predation

- _____ 16. Which of the following information could be included in the description of a grasshopper's niche, but *not* in a description of its habitat?
- a. continent where it lives
 - b. locations where it shelters
 - c. plant species it eats
 - d. temperatures it experiences
- _____ 17. Organisms with overlapping niches probably have which type of relationship?
- a. commensal
 - b. competitive
 - c. mutualistic
 - d. parasitic
- _____ 18. What is "soil type" to an earthworm?
- a. abiotic factor
 - b. biome
 - c. biotic factor
 - d. carbon source
- _____ 19. Which of the following nutrients has *only* a short-term biogeochemical cycle?
- a. carbon
 - b. nitrogen
 - c. oxygen
 - d. phosphorus
- _____ 20. Which process describes nitrogen fixation?
- a. animals eat plants containing nitrogen and return it to the soil through urination
 - b. bacteria take nitrogen from the air and convert it to a form usable by plants
 - c. organisms die and are decomposed into ammonia in the soil
 - d. plants take nitrogen from the air and store it in their roots
- _____ 21. Your favorite plant is growing very slowly, and you would like to find some way to increase its growth rate. Which of the following should you try increasing first?
- a. nitrogen
 - b. oxygen
 - c. sodium
 - d. calcium
- _____ 22. Which biogeochemical cycle is *least* dependent on biotic processes?
- a. carbon
 - b. nitrogen
 - c. phosphorus
 - d. water
- _____ 23. Some farmers use manure on their crop fields. How does this help the plants?
- a. protects them from intense sunlight
 - b. keeps insects from eating the crops
 - c. increases soil nitrogen and phosphorus levels
 - d. increases soil oxygen and carbon dioxide levels
- _____ 24. Which of the following allows the flow of energy through an ecosystem to happen?
- a. abiotic factors
 - b. cycling of nutrients
 - c. evaporation
 - d. predation
- _____ 25. One of the nutrient cycles moves from an atmospheric gaseous form to the soil through both abiotic and biotic processes, moves through the food web, then is returned to the soil or to the atmosphere. Which cycle fits this description?
- a. carbon
 - b. nitrogen
 - c. phosphorus
 - d. water