

Practice

1. How is solar energy used on Earth?
 - I. Air circulation is partly a result of the heating of the Earth by solar energy.
 - II. Solar energy is absorbed by chloroplast and used to convert carbon dioxide and water into glucose and oxygen.
 - III. The water cycle is powered by solar energy.
 - A. I only
 - B. II only
 - C. III only
 - D. I and II
 - E. I, II, and III

2. Which of the following is NOT true of food webs?
 - A. Food webs are composed of multiple food chains.
 - B. A food web shows the flow of energy from producers to consumers and, finally, to decomposers.
 - C. In food webs, decomposers break down organic waste to return nutrients to the ecosystem.
 - D. When diagramming food chains and food webs, the arrows should be drawn from the lower trophic levels to the higher levels to show the flow of energy.
 - E. As energy is moved up the food web, most of it is conserved by the species in the next trophic levels.

3. Secondary succession is the regrowth of a disturbed area, and primary succession is the development from the beginning. Which of the following is primary succession?
 - A. Changing soil to rock
 - B. Changing ice to water
 - C. Changing rock to soil
 - D. Growth after a forest fire
 - E. Formation of an island by volcanic action

4. The cycle most responsible for linking biogeochemical cycles is the:
 - A. Carbon cycle
 - B. Hydrologic cycle
 - C. Nitrogen cycle
 - D. Phosphorus cycle
 - E. Sulfur cycle

5. Humans are disrupting the carbon cycle in ways that have resulted in increased levels of carbon dioxide in our atmosphere. Which of the following human activities are most directly responsible for this increase?
 - A. Deforestation and the clearing of plants that absorb CO₂ through photosynthesis
 - B. The addition of large amounts of CO₂ to the atmosphere by burning fossil fuels and wood
 - C. The use of fertilizers and pesticides for agriculture
 - D. A and B only
 - E. All of the above

6. Which of the following is NOT true regarding oxygen?
 - A. O₂ is a natural occurring gas in the atmosphere.
 - B. O₂ is a byproduct of photosynthesis.
 - C. O₂ is a reactant in cellular respiration.
 - D. O₂ is the largest component of the atmosphere.
 - E. O₂ is a very reactive molecule.

7. Which of the following is NOT true of phosphorus and the phosphorus cycle?
 - A. Living organisms do not need phosphorus.
 - B. Phosphorus tends to be more localized compared with other biogeochemical cycles that can move more freely in the global system.
 - C. Phosphorus is generally found in rocks, sediments, and soil.
 - D. Phosphorus does not exist in the atmosphere as a gas.
 - E. Phosphorus is mined from phosphorus-rich rock, which is processed and then added to commercial inorganic fertilizers.

8. Which of the following examples would NOT be considered an adaptive trait?
- A. Thicker fur coats on wolves in northern Canada
 - B. Echolocation in bats
 - C. Longer claws on rodents that dig in the soil for food
 - D. The ability for hummingbirds to maneuver in the air quickly
 - E. High water requirements of plants in the desert
9. Due to a major flood, a dam broke, altering the course of a river. A population of ground squirrels became separated due to the river's change of course. Over time, the divided population developed new adaptations and eventually created separate species. This is an example of
- A. Sympatric speciation
 - B. Stabilizing selection
 - C. Allopatric speciation
 - D. Directional selection
 - E. Disruptive selection
10. All of the following are ways in which humans are contributing to extirpation and extinction of organisms EXCEPT through:
- A. Introducing invasive species
 - B. Polluting land, water, and soil
 - C. Creating wildlife refuges
 - D. Altering the climate
 - E. Overharvesting resources
11. If a species is endemic to an area, it is:
- A. Only found in one location on the planet
 - B. A generalist species
 - C. Less prone to extinction
 - D. Considered an invasive species
 - E. Almost always protected under the Endangered Species Act

Questions 12–14 refer to the following answer choices.

- A. Predation
 - B. Mutualism
 - C. Competition
 - D. Herbivory
 - E. Parasitism
12. Organisms feed on another organism for nutrients, which also harms the organism being fed upon.
13. The algae and fungi working together in lichen, where neither organism is harmed and both benefit.
14. During a period of drought, various species are competing for the same water source.
15. The nitrogen cycle is unique in that atmospheric nitrogen cannot be converted directly by organisms into usable nitrogen. What is necessary in order for atmospheric nitrogen to be converted to usable nitrogen by organisms?
- A. Ammonification
 - B. Denitrifying bacteria
 - C. Nitrifying bacteria
 - D. Decomposition
 - E. Nitrogen fixation