

Advanced Ecological Concepts for Young Scientists

Ecology · Practice Test · 18 Questions

1. Which process describes how nitrogen gas from the atmosphere is converted into ammonia by soil bacteria?

- A) Nitrogen fixation
- B) Denitrification
- C) Photosynthesis
- D) Respiration

2. What is the term for the maximum population size of a species that an environment can sustain indefinitely?

- A) Biotic potential
- B) Carrying capacity
- C) Population density
- D) Ecological niche

3. Which level of an ecological pyramid contains the least amount of stored energy?

- A) Primary producers
- B) Primary consumers
- C) Secondary consumers
- D) Tertiary consumers

4. What defines a 'keystone species' within an ecosystem?

- A) The largest animal in the habitat
- B) A species that has a disproportionately large effect on its environment
- C) The most abundant plant species
- D) A predator that hunts only at night

5. In a food web, which organisms are responsible for recycling nutrients back into the soil?

- A) Herbivores
- B) Carnivores
- C) Decomposers
- D) Omnivores

6. What is the primary source of energy for almost all terrestrial ecosystems?

- A) Geothermal heat
- B) Moonlight
- C) Chemical reactions
- D) Solar radiation

7. Which type of succession occurs in an area where no soil exists, such as on a new volcanic island?

- A) Secondary succession
- B) Primary succession
- C) Climax succession
- D) Cyclical succession

8. What term describes the variety of all living things and their interactions within a specific area?

- A) Biomass
- B) Biodiversity
- C) Biosphere
- D) Biota

9. Which biome is characterized by low temperatures, low precipitation, and a layer of permafrost?

- A) Taiga
- B) Temperate forest
- C) Tundra
- D) Savanna

10. What is the specialized role or 'job' of an organism within its community called?

- A) Habitat
- B) Niche
- C) Biome
- D) Ecosystem

11. Which gas is absorbed from the atmosphere by plants during the process of photosynthesis?

- A) Oxygen
- B) Nitrogen
- C) Carbon dioxide
- D) Methane

12. What is the study of the relationships between living organisms and their physical environment?

- A) Zoology
- B) Botany
- C) Ecology
- D) Geology

13. In the water cycle, what is the process by which water vapor cools and changes into liquid water droplets?

- A) Evaporation
- B) Transpiration
- C) Condensation
- D) Precipitation

14. Which organisms are known as 'autotrophs' because they produce their own food?

- A) Fungi
- B) Animals
- C) Plants
- D) Bacteria

15. What term describes a relationship where one organism benefits and the other is neither helped nor harmed?

- A) Mutualism
- B) Commensalism
- C) Parasitism
- D) Predation

16. Which layer of the atmosphere contains the ozone layer that protects Earth from UV radiation?

- A) Troposphere
- B) Stratosphere
- C) Mesosphere
- D) Thermosphere

17. What is the total mass of living organisms in a given area or volume called?

- A) Biomass
- B) Biodiversity
- C) Population
- D) Community

18. Which nutrient is primarily cycled through the weathering of rocks?

- A) Nitrogen
- B) Carbon
- C) Phosphorus
- D) Oxygen