

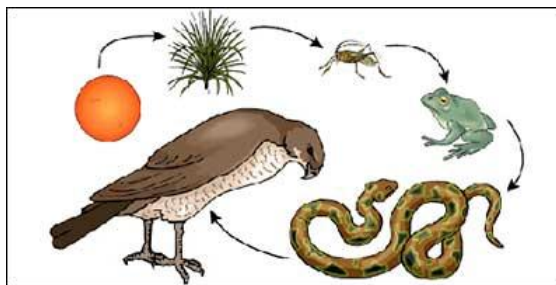
Unit 16 Review Answers (12A, 12C, 12E, 12F)

12A Interpret relationships including predation, parasitism, commensalism, mutualism, and competition among organisms.

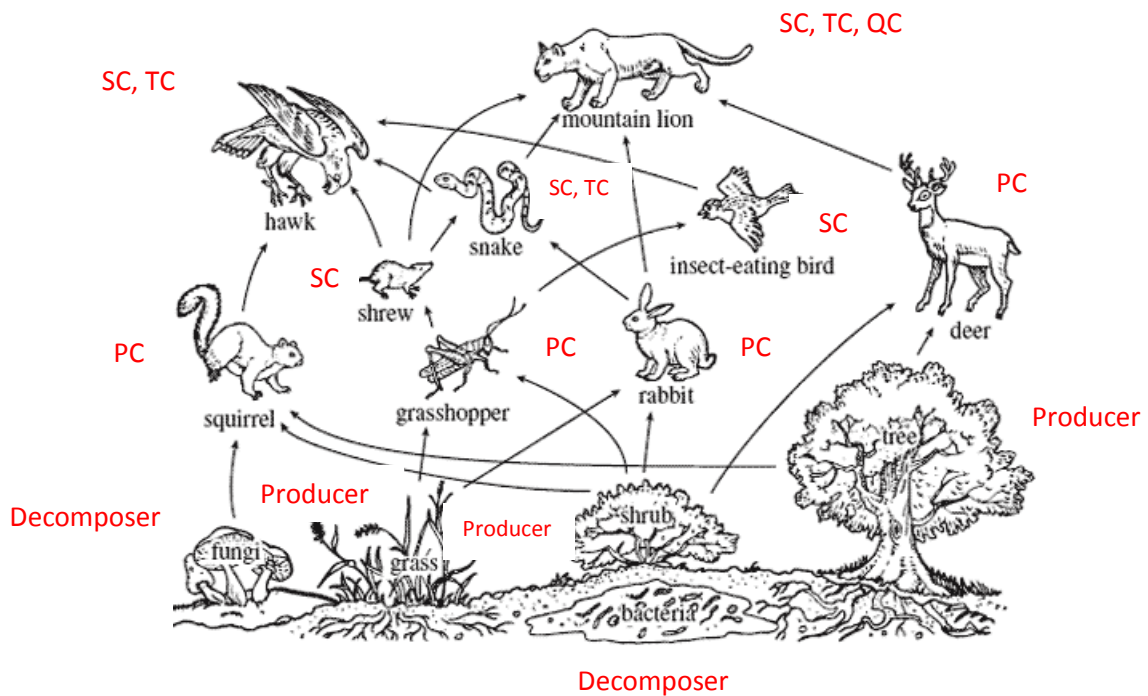
1. What is a niche? Give an example. **the status of an organism within its environment and community (affecting its survival as a species)**
2. What is a habitat? **place where an organism or a community of organisms lives, including all living and nonliving factors or conditions of the surrounding environment**
3. What is a symbiotic relationship? **A close, prolonged association between two or more different organisms of different species that may, but does not necessarily, benefit each member**
4. What is competition? Give an example. **an interaction between organisms or species, in which the fitness of one is lowered by the presence of another. Two organisms are “competing” for the same resource. Ex: lion and cheetah competing for a gazelle**
5. Describe mutualism and give an example. **the way two organisms of different species exist in a relationship in which each individual benefits Ex: clown fish & anemone**
6. Describe parasitism & give an example. **Relationship between two species of plants or animals in which one benefits at the expense of the other, sometimes without killing it Ex: flea & a dog**
7. Describe commensalism and give an example. **a relation between individuals of two species in which one species obtains food or other benefits from the other without either harming or benefiting the latter Ex: remoras & sharks**

12C Analyze the flow of matter and energy through trophic levels using various models including food chains, food webs, and ecological pyramids.

8. What is a food chain? **a series of types of living things in which each one uses the next lower member of the series as a source of food Ex: plants get energy from sun. Grasshopper eats grass. Frog eats grasshopper. snake eats frog. hawk eats snake.**



9. What is a food web? **a series of organisms related by predator-prey and consumer-resource interactions; the entirety of interrelated food chains in an ecological community**
10. What is an ecological pyramid? **a graphical representation designed to show the biomass or biomass productivity at each trophic level in a given ecosystem**
11. How much energy is lost between levels as you travel up an energy pyramid? **10 % is lost between each level**
12. List the following organisms on the food web below as a decomposer, producer, primary consumer, secondary consumer, tertiary consumer, &/or quaternary consumer.



12E Describe the flow of matter through the carbon and nitrogen cycles and explain the consequences of disrupting these cycles.

13. Explain how matter flows through the carbon cycle. **CO₂ leaves the atmosphere when it dissolves in water of is taken up by plants in photosynthesis. It is released into the atmosphere during cellular respiration, during geologic processes such as volcanic eruptions, and when fossil fuels or forests are burned.**
14. What are some consequences of disruptions to the carbon cycle? **Increased levels of CO₂ in the atmosphere causing global warming from the greenhouse effect & carbon dioxide dissolved into in the oceans causing the water to become more acidic**
15. What are fossil fuels? **fuels formed by natural processes such as anaerobic decomposition of buried dead organisms Ex: coal, oil, natural gas**
16. Explain how matter flows through the nitrogen cycle. **Nitrogen is removed from the atmosphere by nitrogen fixation. Once in the soil, nitrogen is converted to different forms including nitrates, nitrites, and ammonia. Some bacteria break down the remains of dead plants & animals providing more fixed nitrogen into the soil. Denitrifying bacteria returns nitrogen to the atmosphere.**
17. What are some consequences of disruptions to the nitrogen cycle? **Eutrophication & acid precipitation**
18. What is eutrophication? What causes eutrophication? **the ecosystem response to the addition of artificial or natural substances, such as nitrates and phosphates, through fertilizers or sewage, to an aquatic system. One example is the "bloom" or great increase of phytoplankton in a water body as a response to increased levels of nutrients. Negative environmental effects include hypoxia, the depletion of oxygen in the water, which causes a reduction in specific fish and other animals. Other species may experience an increase in population that negatively affects other species.**
19. Explain how bacteria aids in the nitrogen cycle. **Bacteria are able to "fix" or change nitrogen into a form that is usable by plants. Some of the bacteria forma mutualistic relationship with plants and live inside the roots. Bacteria convert nitrogen into different forms, including ammonia. Bacteria break down decaying plant & animals matter. And some bacteria return nitrogen back to the atmosphere.**
20. How is nitrogen "fixed" into a form that plants can use? **Bacteria & lightening**

12F Describe how environmental change can impact ecosystem stability.

21. What is biodiversity and what does it tell about an ecosystem? **the degree of variation of life. This can refer to genetic variation, species variation, or ecosystem variation within an area, biome, or planet. It tells how healthy or polluted/damaged an ecosystem might be**
22. How can environmental change impact the stability of an ecosystem? Give an example. **Severe changes will likely upset the ecosystem's stability. If individuals within the population cannot survive and reproduce, the population size will decrease. Individuals also might move out of the area if they cannot find resources. As the biodiversity of an ecosystem changes, the ability to cope with further environmental changes is also affected. Ex: Fire can be both beneficial & harmful. Some plant species depend on fire to germinate their seeds and to give them a chance to repopulate an area that may have become more competitive. Entire plant food sources may be destroyed in fires.**
23. What is habitat loss? **a term that is used to describe the process by which natural habitat is damaged or destroyed**
24. What is habitat fragmentation? **where by a habitat is divided into or broken down into smaller habitats for example when a road is constructed in a swamp and it is separated into two.**
25. How can human activities cause environmental change and impact the stability of ecosystems? **Burning of fossil fuels causes acid rain & global warming. Use of fertilizers causes runoff pollution & eutrophication in freshwaters, deforestation causes a disturbance in the carbon cycle. Eutrophication can wipe out fish and plant populations in a pond or lake completely altering the ecosystem. Acid rain causes the pH to decrease in oceans. This pH change can lead to ecosystems (like coral reefs) becoming less biodiverse. Entire populations of certain species (such as coral) can be killed.**
26. What is an invasive species? Give an example. **any nonnative species that significantly modifies or disrupts the ecosystems it colonizes. Such species may arrive in new areas through natural migration, but they are often introduced by the activities of other species Ex: kudzu, apple snails, zebra mussels**
27. Explain global climate change. **As global warming occurs due to the greenhouse effect, polar ice caps will melt, storms like flooding and hurricanes will be more intense, sea levels will rise, crops will fail, food will be in short supply, diseases will follow.**
28. What are some causes of global climate change? **(refer to #25) burning of fossil fuels & agriculture**