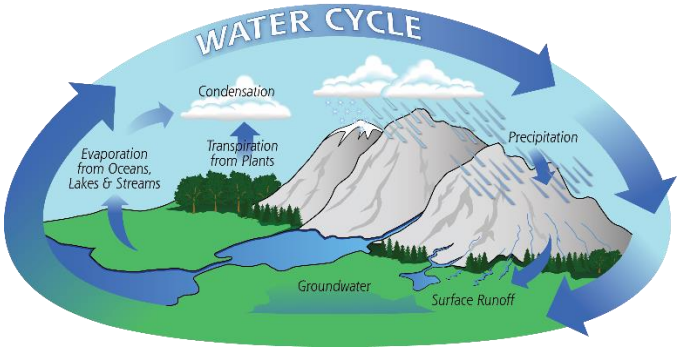
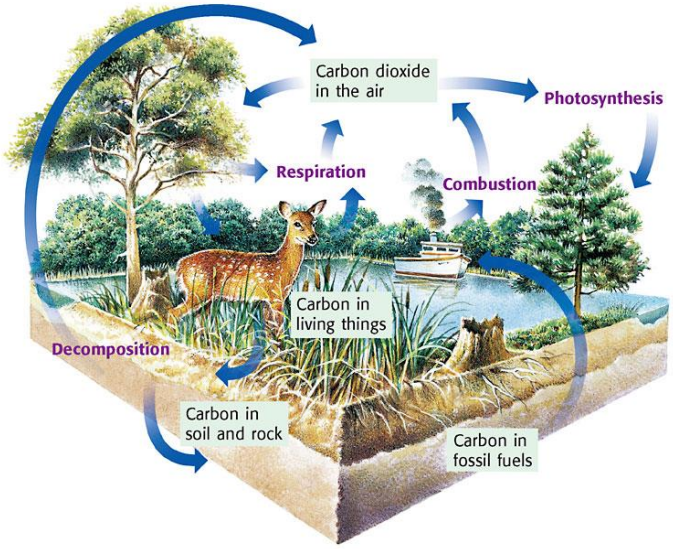
Answer Key: Study guide Ecology 2

1. Explain the water cycle using a picture and/or words



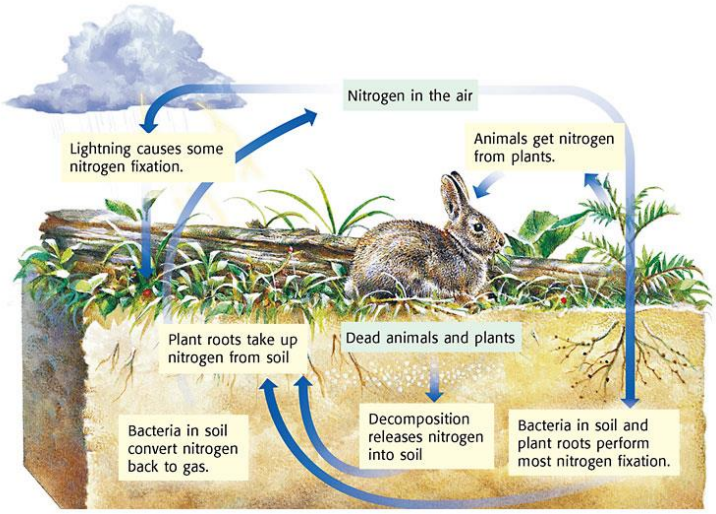
The water cycle describes how water evaporates from the surface of the earth, rises into the atmosphere, cools and condenses into rain or snow in clouds, and falls again to the surface as precipitation. The water falling on land collects in rivers and lakes, soil, and porous layers of rock, and much of it flows back into the oceans, where it will once more evaporate.

2. Explain the carbon cycle using a picture and/or words



Like water, carbon is recycled in the natural world. The respiration of living things releases carbon dioxide, which is taken up by plants and converted to sugars. The carbon that accumulates in plants as carbohydrates circulates in nature in a number of ways. When animals eat plants, the carbon from the plants is transferred to animals. The waste products of the animals' metabolism—including carbon dioxide—are returned to nature. Finally, when living things die, their decomposition releases carbon.

3. Explain the nitrogen cycle using a picture and/or words



Nitrogen is also important to living things. Organisms need nitrogen to build proteins and DNA for new cells. The movement of nitrogen between the environment and living things is called the nitrogen cycle.

4. What does the law of conservation of matter state?
   Matter cannot be created or destroyed, it simply changes forms.

5. Explain the differences between primary and secondary succession.
   Primary succession: *(Longer time period than secondary) Starts with bare rock where nothing lives. Most primary succession begins with lichens. Acids from the lichens breaks down the rocks, which mixes with organic matter to form soil. After many years, there is enough soil for mosses, ferns, grasses, wildflowers, shrubs, and then eventually trees after hundreds or thousands of years.*
   Seocndary Succession: *(Shorter time period than primary.)When an existing community is destroyed by a natural disaster, or any disturbance, and if the soil is left intact, regrowth will occur through a series of stages called secondary succession. Smaller plants will grow first (grass) then progressively get larger to flowers, shrubs, small trees, then eventually large trees after many, many years.*
   Pioneer Species: *a species that colonizes an uninhabited area and that starts a process of succession. The pioneer species for primary & secondary are different. Primary succession: lichen and moss Secondary succession: weeds, grasses.*

6. Explain Limiting factors, carrying capacity, and competition.

   Limiting factor *– when a resource is so scarce it limits the size of a population in a particular environment.*
   carrying capacity *– the largest population that an environment can support at any given time*
   competition *– when two or more individuals or population try to use the same resource, such as food, water, shelter, space or sunlight.*

7. What is the difference between a renewable resource and nonrenewable? Give examples

   A renewable resource can be used over and over or has an unlimited supply. Examples: wind, solar, tidal, hydroelectric

   A nonrenewable resource cannot be replaced or can only be replaced over thousands or millions of years. Examples: fossil fuels such as oil, coal, natural gas

8. What is the difference between point source pollution and nonpoint source pollution? Give examples.

   point-source pollution *– pollution that comes from one source.*

   nonpoint-source pollution *- pollution that comes from many different sources. Nonpoint-source pollution often happens when chemicals on land are washed into rivers, lakes and oceans.*

9. How are resources and overpopulation related?

   Overpopulation is the presence of too many individuals in an area for the available resources. As population grows, the consumption of finite natural resources increases. These resources include: fresh water, arable land and fossil fuels, at speeds faster than their rate of regeneration.

10. Explain biodiversity

    Biodiversity – the number and variety of organisms in a given area during a specific period of time. Biodiversity is extremely important to people and the health of ecosystems. Every organism in a specific area has a specific job and specific reason for being in the area.

11. Explain problems that can happen with habitat destructions.

    Habitat destruction can lead to soil erosion, water pollution, and decreased biodiversity.

12. Name and explain some environmental solutions people can use to help the environment.

    Reduce pollution, reduce pesticide use, protect habitats, learn about local issues, develop alternative energy sources.

13. Explain Conservation (pg. 560)

    Conservation –a way to care for the Earth through the preservation and wise use of natural resources. Practicing conservation means using fewer natural resources. Conservation helps reduce waste and pollution. Also, conservation can help prevent habitat destruction.

14. Explain some strategies that can be used to help protect the environment (pg. 560-563)
    3 R's = Reduce, Reuse, Recycle
    Reduce – use less of Earth's natural resources
    Reuse – hand-me-down clothes, fix things that are broken instead of throwing them away.
    Recycling – the process of recovering valuable or useful materials from waste or scrap

15. What does the law of conservation of energy state?

    In a closed system, like Earth, energy can neither be created nor destroyed; rather, it transforms from one form to another.