

BOTANY CHAPTER NINETEEN – PAGES 469–497

The Water Cycle	Nitrogen Fixation	
<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 	<p>Atmospheric nitrogen is fixed by _____ living in root _____ of legumes and other plants. Fixed nitrogen in the form of nitrate is used to make amino acids and _____.</p> <p>Nitrogen flows from dead plant and animal bodies as well as their urine into the soil and from the soil back to the plants. Water _____ nitrogen from the soil and also carries it away when erosion occurs</p>	<p>Ecology is the branch of biology that examines the _____ of organisms to one another and to their _____. Ecologists study _____, which are groups of individuals of the same species that live in the same area. These organisms interact within a _____ and with their physical environment that forms an _____.</p> <p>Food webs typically sustain themselves entirely through _____ and interactions among producers, consumers, and _____.</p> <p>In all ecosystem, energy flows through the different levels of producers, consumers, and decomposers, but energy is not _____ in an ecosystem; rather, it flows through an ecosystem. The producer level of a food chain converts only about 1% of the available _____ energy and all of the energy gradually escapes in the form of _____ as it passes from one level to another.</p>
The Carbon Cycle		
<p>Carbon exists in Earth's atmosphere as the gas CO₂. Although it is a very small part of the atmosphere overall just under 0.04% it plays an important role in supporting life.</p> <p>Carbon is taken from the atmosphere in two ways:</p> <ol style="list-style-type: none"> 1. Plants perform photosynthesis to convert carbon dioxide into sugar, releasing oxygen in the process. 2. At the surface of the polar oceans where the water is cooler and able to dissolve more carbon dioxide (PV=nRT) <p>Carbon is released into the atmosphere</p> <ol style="list-style-type: none"> 1. Through cellular respiration performed by plants and animals. 2. Through decay of animal and plant matter. Fungi and bacteria break down dead animals and plants and convert the carbon to carbon dioxide if oxygen is present, or methane if not. 3. Burning fossil fuels such as coal, petroleum products, and natural gas releases carbon that has been stored in the Earth for millions of years. This is a major reason for rising atmospheric carbon dioxide levels. 4. Through the erosion of limestone and the production of cement. 5. As temperature of ocean water increases dissolved carbon dioxide is released back into the atmosphere <p style="text-align: center;">Volcanic eruptions.</p>		
Carbon Sinks	Biomes are	