Name:_Answer Key__

Cycles of Nature Study Guide:

Understand the following vocabulary/terms:

Water Cycle:	**Carbon Cycle:**	**Nitrogen Cycle:**
Evaporation	Photosynthesis	Nitrogen Fixation
Transpiration	Respiration	Decomposition
Respiration	Decomposition	Nitrogen-fixing bacteria
Condensation	Combustion	
Precipitation		
Infiltration		
Ground Water		
Run-off		

These terms and their definitions are found in the diagrams below of the water, carbon, and nitrogen cycles. To learn these well, import blank diagrams from the class site (under the cycles of nature page) and practice filling them in from memory.

Create and label diagrams to help you explain the cycles. Include the terms above in each diagram. Once you do this, in order to know them best you should try to draw all three cycles from memory. You must be able to follow molecule through the all three cycles (water, carbon, nitrogen).

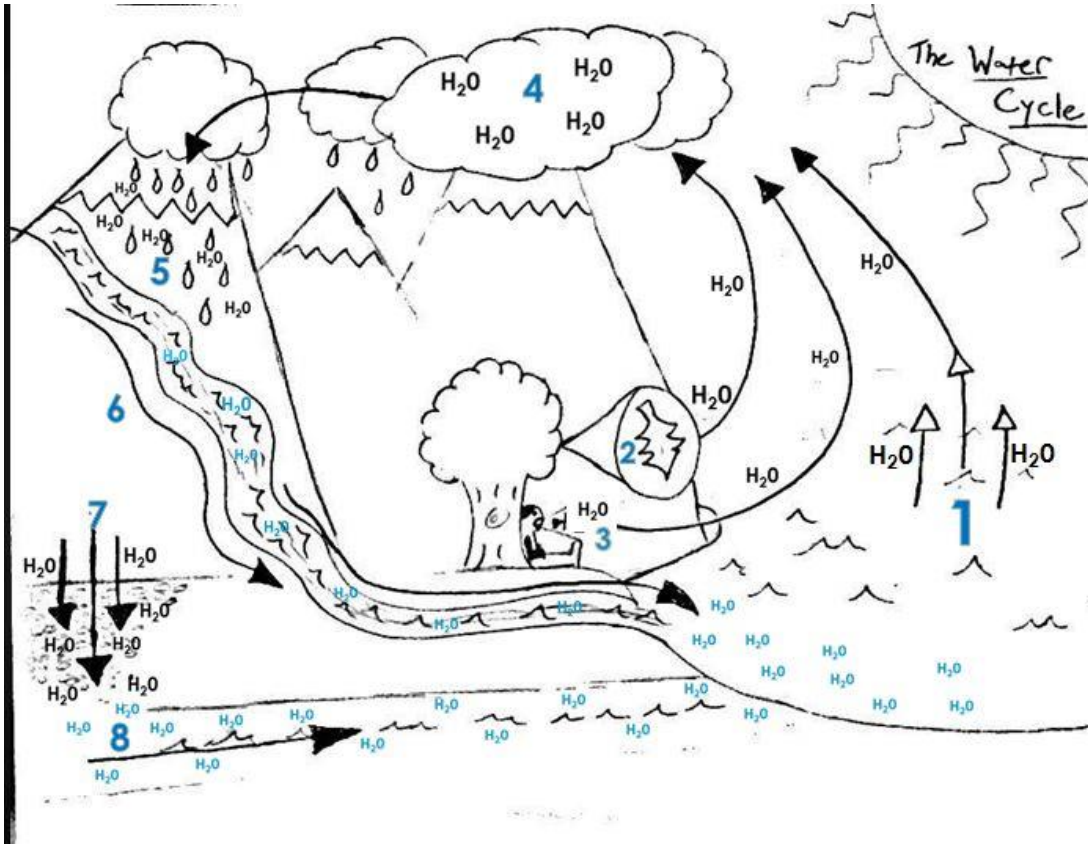
Ecological Succession

1. What is the difference between primary and secondary succession?

<u>Primary</u> succession makes new soil using lichen (a pioneer species). The lichen and erosion helps breakdown rock. After the lichens die, they decompose to help form soil. Then other smaller plants can grow on this soil. Within 800 years trees will be able to start growing. <u>Secondary</u> succession already has soil available, but all plants were killed due to natural disaster – e.g. forest fires. Since soil is already established, small plants will grow quickly. Within 100 years trees will be able to start growing.

2. Name a pioneer species and explain their importance.

An example of a pioneer species is <u>lichen</u>. It has the ability to grow where there is no soil. After lichen dies and decomposes, it will create soil and help other plants grow.



1. Evaporation – The sun's heat causes water to change from liquid to vapor

2. Transpiration – The loss of water from plant leaves through small openings called stomata

3. Respiration – Exchanges water with the environment – includes breathing and cellular respiration

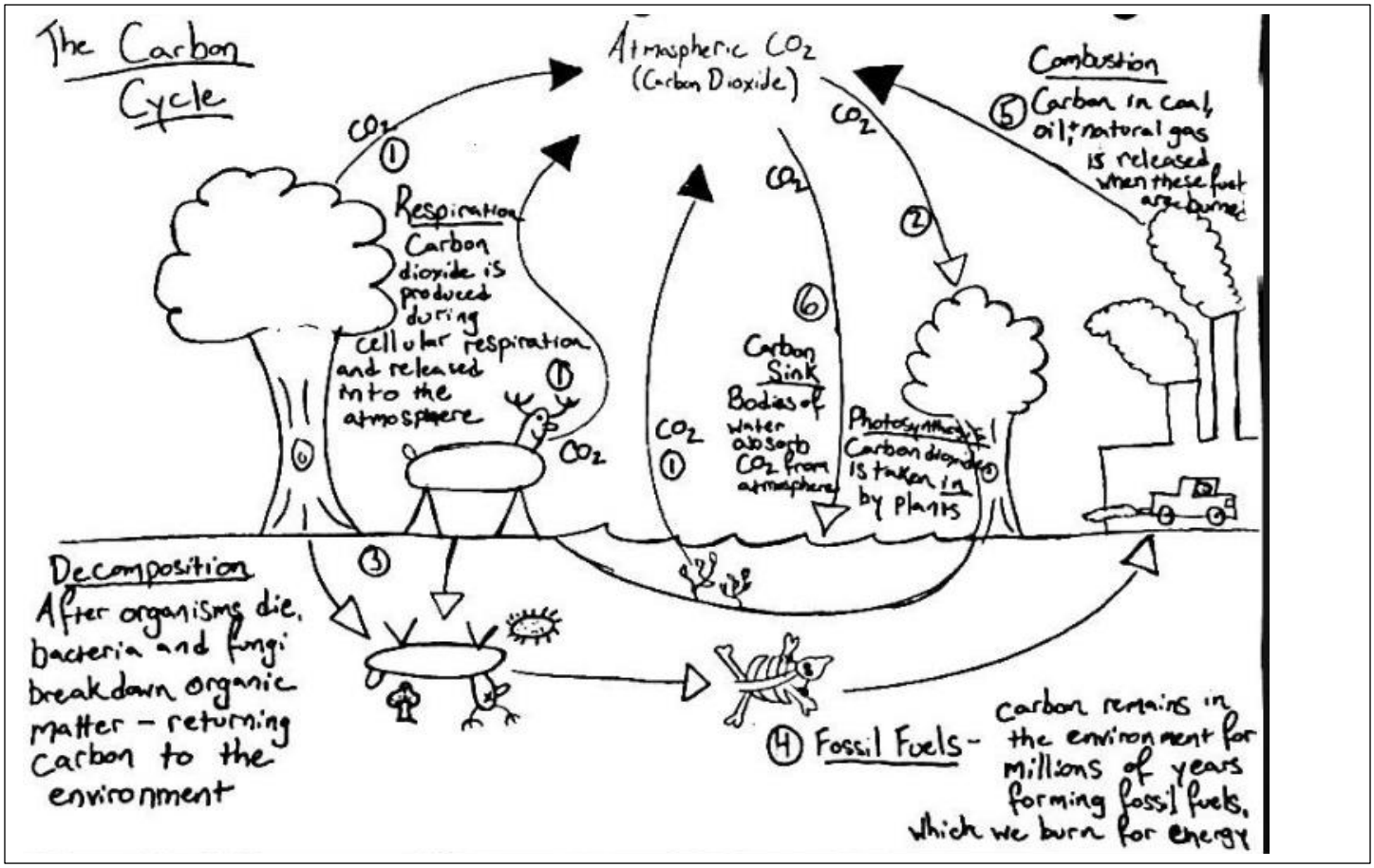
4. Condensation– When water vapor cools to form a liquid

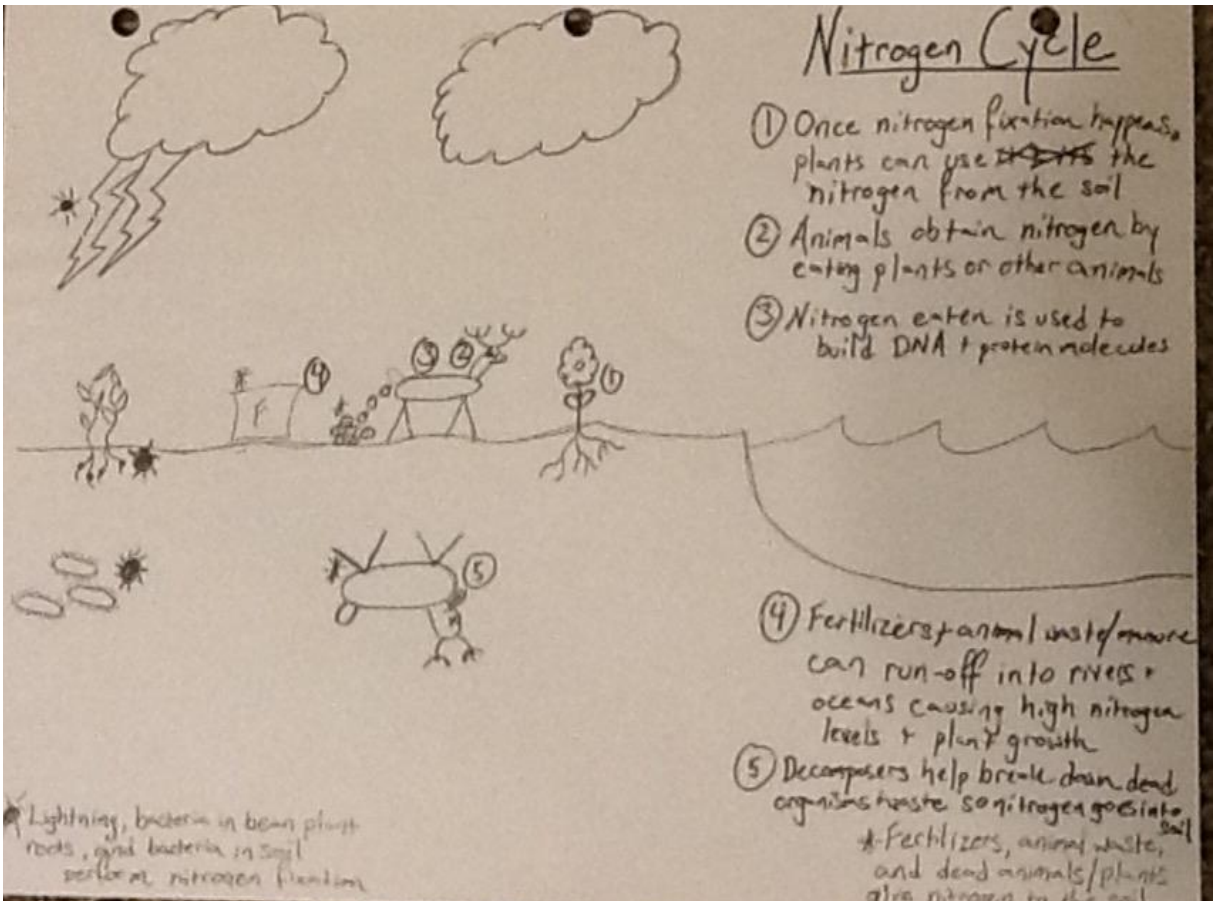
5. Precipitation – When water falls in the form of rain, sleet, hail or snow

6. Run-off – When water that's fallen, runs down along hillsides, streams, and rivers.

7. Infiltration– When water penetrates (goes into) the ground

8. Ground Water – Water, from infiltration, will travel through the ground to larger bodies of water




Nitrogen Cycle
① Once nitrogen fixation happens, plants can use the nitrogen from the soil
② Animals obtain nitrogen by eating plants or other animals
③ Nitrogen eaten is used to build DNA + protein molecules
④ Fertilizers + animal waste/manure can run-off into rivers + oceans causing high nitrogen levels + plant growth
⑤ Decomposers help break down dead organisms + waste so nitrogen goes into soil
* Lightning, bacteria in bean plant roots, and bacteria in soil perform nitrogen fixation
* Fertilizers, animal waste, and dead animals/plants