Science 9

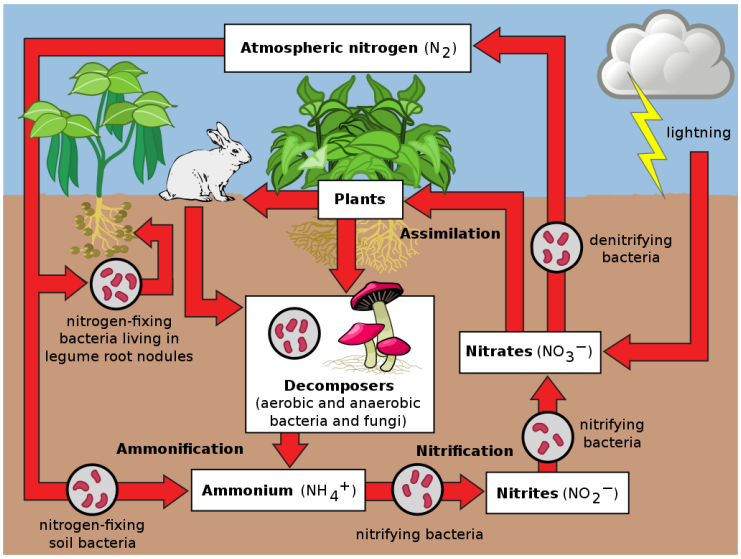
Earth Science V

Name:
Date:
Block:

1. Nitrogen Cycle
2. Phosphorus Cycle

Nitrogen Cycle

_____ is an important nutrient needed by all _____; it is a key building block for _____. Nitrogen makes up _____ of the _____, however, most living things cannot use the nitrogen found in the air. _____ _____, located in the water and soil, _____ the _____ in the _____ (N_2 gas) into a form that plants are able to use (ammonium, nitrite, and nitrate). Once nitrogen is taken up by a plant, it then can be transferred to other organisms through the _____ _____. Nitrogen will _____ back into the _____ once an organism is _____ through the help of decomposers.



_____ can also help nitrogen go into the soil for plants to take up. When lightning occurs, the _____ breaks the _____ molecules and allows its molecules to _____ with _____. This will dissolve in rain to form nitrates which will then be carried onto the Earth.

_____ can also occur where nitrate is converted back into nitrogen gas; this will return nitrogen back into the _____. This process if done by _____ _____.

Practice Questions:

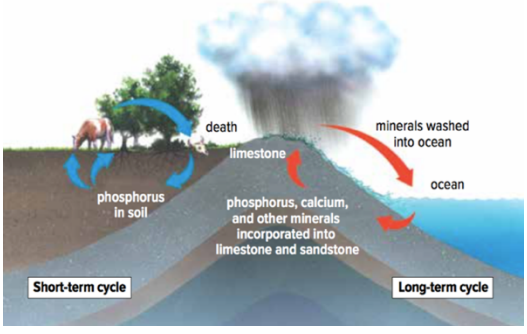
1. Give an example of how nitrogen moves from an abiotic portion of the environment to a biotic portion

2. Why are bacteria an important part of the nitrogen cycle?

Phosphorus Cycle

_____ is an essential nutrient for the _____ and _____ of organisms. Phosphorus is _____ in the _____. Rocks from underground can be brought to the surface through _____. When _____ is broken down by _____ (such as rain, wind, snow, etc.), phosphorus is released into the soil and water.

_____ and plant-like organisms can take up the phosphorus which is then transferred to other organisms through the food chain. _____ can then _____ the phosphorus into the _____ and _____ as they break down organisms. Phosphorus is the only cycle that is _____ present in the _____.



Excess Nitrogen and Phosphorus

How have humans impacted the nitrogen and phosphorus cycle?

_____ is commonly found in _____ _____ and _____. When fossil fuels are burned, excess nitrogen oxide enters into the atmosphere.

_____ is commonly found in _____ and _____ _____. It is also a common ingredient of _____.

When fertilizers are used by farmers and gardeners to help plants grow, some of the nitrates (present in fertilizers) and phosphorus is not used by the plants. When it _____ or when the plants are watered, some of the nitrogen and phosphorus can be carried into the _____ _____. This has caused a phenomenon called an _____ _____ which results when there is an excess amount of nitrogen and phosphorus that causes an _____ of _____.

An algal bloom will cause a chain reaction of events to occur in the aquatic ecosystem:

- Algae is located on the surface of the water. When an overgrowth of algae occurs on the surface of the water, it _____ _____ from reaching the deep water.
- This will result in deep-water plants getting no sunlight which will prevent them from being able to _____ and _____ _____ in the water.
- When these plants die, _____ will be able to break down these plants which will cause the decomposer population to grow quickly and use all of the oxygen present in the water.
- As oxygen is used up, _____ _____ that require oxygen to survive will not have enough and _____ off.