**Nitrogen Cycle Worksheet**

**Introduction:**

* Animals are able to obtain nitrogen through eating plants and animals.
* Plants have much harder time obtaining nitrogen as they can only absorb nitrogen when it is mixed with oxygen or hydrogen.
* Nitrogen is mixed with oxygen or hydrogen through a process called nitrogen fixation.
* There are two ways nitrogen can be fixated:

 1. Lightening

 2. Bacteria in the soil or bacteria found in nodules of legumes

* Nitrogen is a necessary component of life as plants need it to grow and animals need it to create DNA.
* The speed of decomposition is the key to keeping the nitrogen cycle moving as the majority of fixated nitrogen comes from bacteria breaking down dead matter and feces.
* The warmer an area is the faster decomposition will occur.

 **Processes in the Nitrogen Cycle**

* Fixation - Fixation is the first step in the process of making nitrogen usable by plants. Here bacteria change nitrogen into ammonium.
* Nitrification - this is the process by which ammonium gets changed into nitrates by bacteria. Nitrates are what the plants can then absorb.
* Assimilation - This is how plants get nitrogen. They absorb nitrates from the soil into their roots. Then the nitrogen gets used in amino acids, nucleic acids, and chlorophyll.
* Ammonification - This is part of the decaying process. When a plant or animal dies, decomposers like fungi and bacteria turn the nitrogen back in ammonium so it can reenter the nitrogen cycle.
* Denitrification - Extra nitrogen in the soil gets put back out into the air. There are special bacteria that perform this task as well.



**Questions:**

1. Explain why bacteria are the most important part of the nitrogen cycle.
2. 2. If nearly 79% of the atmosphere is made of nitrogen, how could there be a shortage of nitrogen in soil?
3. How do animals obtain usable nitrogen? Why is it important?
4. Give the two ways nitrogen can be fixated so plants can use it to grow.
5. Explain the problem if too much nitrogen enters an aquatic ecosystem.
6. Explain the statement “Nutrients do not flow in one direction in the ecosystem, they recycle through the ecosystem.”