1. Have each member of your group tally how many times they went to each reservoir during the activity. Make sure to put your totals in the right column. Bring the results to the front of the room – where we will consolidate all of the data.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Carbon** | | | **Nitrogen** | | | **Phosphorus** | | |
| **Reservoir** | **Team Tally** | **Class Tally** | **Reservoir** | **Team Tally** | **Class Tally** | **Reservoir** | **Team Tally** | **Class Tally** |
| Atmosphere |  |  | Live Animals |  |  | Live Animals |  |  |
| Soil |  |  | Ground Water |  |  | Ground Water |  |  |
| Ocean |  |  | Animal Waste |  |  | Animal Waste |  |  |
| Live Animals |  |  | Surface Water |  |  | Surface Water |  |  |
| Dead Plants/Animals |  |  | Dead Plants/Animals |  |  | Dead Plants/Animals |  |  |
| Rocks |  |  | Fertilizer |  |  | Fertilizer |  |  |
| Live Plants |  |  | Ocean |  |  | Ocean |  |  |
| Animal Waste |  |  | Rocks |  |  | Rocks |  |  |
| Surface Water |  |  | Soil |  |  | Soil |  |  |
|  |  |  | Atmosphere |  |  | Live Plants |  |  |
|  |  |  | Live Plants |  |  |  |  |  |
|  |  |  | Rainwater |  |  |  |  |  |

1. From the class data, which reservoir was most frequented for each cycle (Carbon, Nitrogen, Phosphorus). Explain why some nutrients would spend more time in some reservoirs then others.
2. Explain the term “***nutrient cycle***”.
3. Is the flow of nutrients through the biosphere an ***open*** or ***closed*** process? Explain.
4. Does the journey for a ***nutrient atom*** ever end? Explain.
5. How can human activities affect a nutrient cycle? ***Give two specific examples***.

**Carbon Cycle**:

1. What is the relationship (connection) between **cellular respiration** and **photosynthesis**?
2. Why is **phytoplankton** (*plants of the sea*) so important to marine ecosystems?
3. What is the importance of **decomposition** to the carbon cycle?

**Nitrogen Cycle**:

1. What is the definition of each of the following:
   1. Nitrogen Fixation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Nitrification: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Denitrification: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Create a mnemonic (a technique to help with memory) to help you remember the similarities and difference between ***Nitrogen Fixation***, ***Nitrification***, and ***Denitrification***.
3. How does the uptake of nitrogen by plants ultimately help animals?

**Phosphorus Cycle**:

1. Using a data booklet compare the Nitrogen, Carbon and Phosphorus cycles. Where is Nitrogen and Carbon found where Phosphorus is not?
2. How are Nitrogen and Phosphorus used in agriculture?