Nitrogen Cycle

Part I: Notes: Use the information at <http://www.sites.ext.vt.edu/virtualfarm/flash_mov/nitrogencycleintro.swf> to put the following information in your notes

1. How much of the atmosphere is nitrogen? In what form does it take in the atmosphere?
2. Define “Fixation.” What 2 processes account for nitrogen fixation?
3. How does Nitrogen get into plants? In what form is it when it enters the plant?
4. How do animals contribute to soil nitrogen?
5. Describe the role of bacteria in the nitrogen cycle.
6. How can Nitrogen re-enter the atmosphere?
7. For what biochemicals do plants and animals use nitrogen?
8. Overuse of fertilizers can lead to eutrophication in the water. Describe what this is, what it causes, and why it’s bad.

Part II: Sketch the nitrogen cycle on the farm in your notes

Part III: Farm management and the nitrogen cycle. Answer the following questions

1. How much nitrogen do 2 steers produce? (Hint: Determine how much weight each steer must gain and divide it by 2.5)
2. How much nitrogen is lost or unavailable? (Hint: 144-total lost nitrogen)
3. How many pounds of nitrogen fertilizer is needed?
4. How much nitrogen is in the harvested corn?
5. How much nitrogen is gained by 2 steer?
6. How much feed must be purchased? (Hint: use the formula provided with the answers you previously wrote down)

Part IV: Cycle Wrap-up

1. It can be said that the water cycle is abiotically-driven, while the the carbon and nitrogen cycles are biotically-driven. Explain why this is a correct statement.
2. Compare the pumps and sinks of the carbon, nitrogen, and water cycles using the chart below

|  |  |  |  |
| --- | --- | --- | --- |
|  | Carbon Cycle | Nitrogen Cycle | Water Cycle |
| Pump (source) |  |  |  |
| Sink |  |  |  |

1. An imbalance of carbon negatively impacts the atmosphere, while an imbalance of nitrogen negatively impacts the water. Explain the negative impacts of each. Honors focus: How does carbon negatively impact the water (Hint: use the information from the honors projects to help you)?