

## Traveling Nitrogen Lab: The Nitrogen Cycle; SB4 b,d



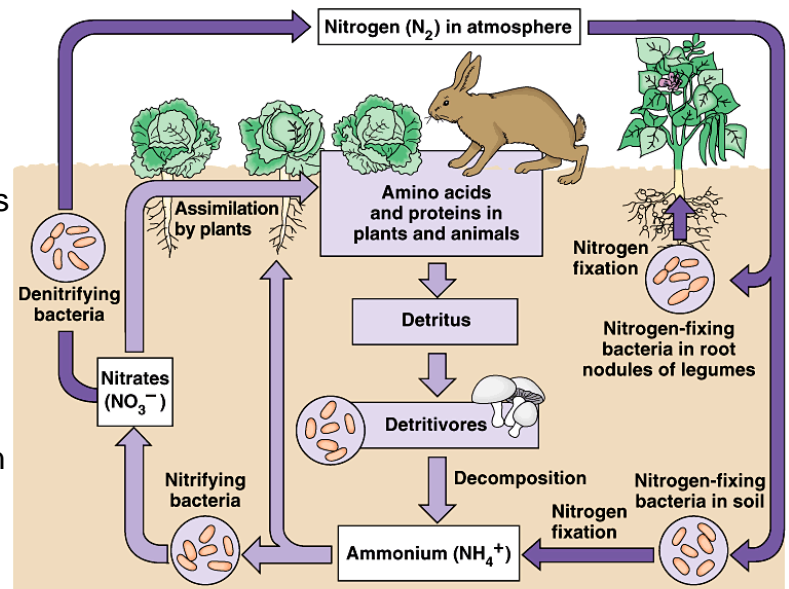
Nitrogen is an element that is found in both the living portion of our planet and the inorganic parts of the Earth system. The nitrogen cycle is one of the biogeochemical cycles and is very important for ecosystems. Nitrogen moves slowly through the cycle and is stored in reservoirs such as the atmosphere, living organisms, soils, and oceans along its way. The purpose of this lab is to play the role of nitrogen atoms traveling through the nitrogen cycle and to understand the importance of nitrogen to living things.

### Instructions:

1. Obtain a passport and go to your assigned reservoir.
2. Read the directions at the station and roll the die.
3. Stamp your passport and fill out the “where I’m going” and “how am I getting there”
4. Continue around the room following the directions for your roll of the die.

### Questions:

- 1) What are nitrogen fixing bacteria? Where are these bacteria located?
- 2) What is denitrification and how is this process important in ecosystems?
- 3) What would happen if a farmer used too much fertilizer on crops? Explain your answer in terms of runoff and eutrophication.
- 4) Read the case study on Hubbard Brook on page 801. Explain how deforestation altered the concentration of nitrates in runoff.
- 5) Describe the role of decomposers in the nitrogen cycle.
- 6) Livestock farming creates a large amount of animal waste. How would this affect the nitrogen cycle?
- 7) *SB1c Connection:* Explain how nitrogen is used to build proteins (recall the four macromolecules).
- 8) Examine the diagram to the right. Write a paragraph that thoroughly describes each step. Since there is no “starting” point to these cycles, you can begin your description anywhere!



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**DO NOT WRITE ON**