

Instructions:

Watch the video "The Nitrogen Cycle!" and answer the following questions.

<https://www.youtube.com/watch?v=uip4Q6t7yfQ>

1. Match each term to its correct definition:

Term	Definition
a. Nitrogen Fixation	i. The process by which nitrogen gas from the atmosphere is converted into ammonia by bacteria.
b. Nitrification	ii. The conversion of ammonia into nitrites and then nitrates by bacteria.
c. Assimilation	iii. The uptake of nitrates or ammonium by plants to form plant proteins and nucleic acids.
d. Ammonification	iv. The decomposition of organic nitrogen from dead organisms back into ammonium.
e. Denitrification	v. The reduction of nitrates back into nitrogen gas, returning it to the atmosphere.

2. a. **Nitrogen Fixation:**

- What organisms are primarily responsible for nitrogen fixation in the soil?
- Why is nitrogen fixation essential for plant life?

b. **Nitrification:**

- Outline the two-step process of nitrification, including the types of bacteria involved.
- How do nitrites differ from nitrates in terms of plant utilization?

c. **Assimilation:**

- How do plants assimilate nitrogen, and why is this process crucial for the food chain?

d. **Ammonification:**

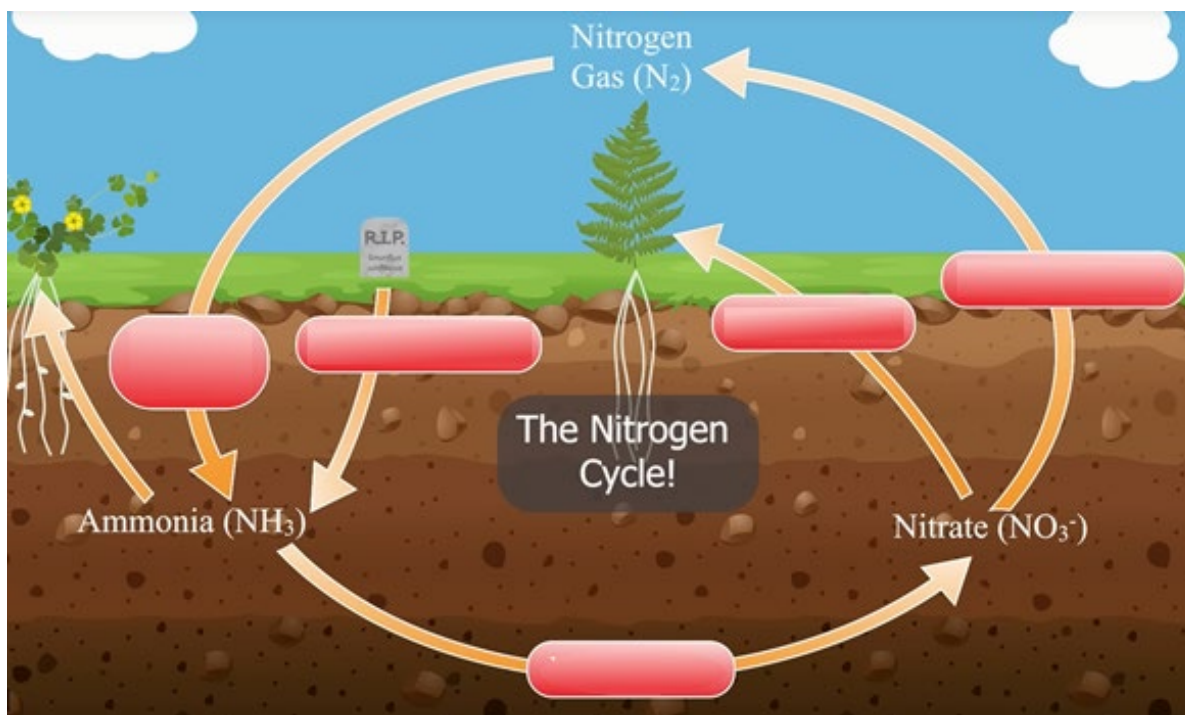
- What role do decomposers play in the nitrogen cycle through ammonification?

e. **Denitrification:**

- Under what environmental conditions does denitrification typically occur?
- How does denitrification impact the availability of nitrogen in the soil?

3. Below is a simplified diagram of the nitrogen cycle. Label the following processes in the appropriate boxes:

- Nitrogen Fixation
- Nitrification
- Assimilation
- Ammonification
- Denitrification



4. a. **Human Impact:**

- How do human activities, such as the use of fertilizers and fossil fuels, affect the nitrogen cycle?
- Discuss the potential environmental consequences of disrupting the nitrogen balance.

b. **Ecosystem Interactions:**

- Explain how the nitrogen cycle demonstrates the interconnectedness of organisms within an ecosystem.

5. Extension Activity

Which other elements may be involved in essential exchange between inorganic and organic (living) creatures.