

Name _____

Unraveling the Mysteries of Nitrification and Denitrification

Open-Ended Response Answer Key

1. Human activities like agricultural fertilization and wastewater discharge can increase nitrate levels in soil and water, impacting nitrification and denitrification rates. These activities can lead to nutrient pollution, eutrophication, and biodiversity loss in aquatic ecosystems.
2. Strategies to enhance nitrification and denitrification include reducing fertilizer use, implementing cover crops and buffer strips, and restoring wetlands to promote natural nutrient cycling processes.
3. Wetlands and riparian zones provide habitat for denitrifying bacteria and promote anaerobic conditions, facilitating denitrification and reducing nutrient runoff into water bodies.
4. Nitrification and denitrification interact with other biogeochemical cycles, such as the carbon and phosphorus cycles, to regulate nutrient availability and ecosystem productivity. These processes are essential for maintaining the health and resilience of ecosystems in the face of environmental changes.

