

Name _____

Green Chemistry: Plant's Nitrogen-Nurturing Magic

Open-Ended Response Answer Key

1. Nitrogen-fixing plants enhance soil fertility, reduce the need for synthetic fertilizers, and promote biodiversity by providing nitrogen to other plants and supporting beneficial soil microbes.
2. Excessive nitrogen runoff can lead to eutrophication, algal blooms, oxygen depletion, and harm to aquatic organisms. Mitigation strategies include buffer zones, cover crops, and nutrient management practices.
3. Plants play a crucial role in reducing atmospheric nitrogen pollution by sequestering nitrogen in their tissues and facilitating nitrogen fixation and denitrification processes.
4. Challenges of integrating nitrogen-fixing cover crops include species selection, management practices, and balancing nitrogen fixation rates with crop nutrient requirements. However, benefits include improved soil health, reduced input costs, and enhanced ecosystem resilience.

