Solutions

Each answer shows the steps, then the **result**.

2.1

- N_2 is very stable/unreactive, so most organisms cannot use it directly

2.2

- Nitrogen-fixing bacteria

2.3

- Returns nitrogen to the air as N_2

3.1 B

- ammonia (a usable form)

3.2

(a)

- Excess reactive nitrogen runs off into the river; it fertilizes algae, causing an algal bloom (eutrophication); decomposition then depletes oxygen, harming aquatic life

(b)

- Planting legumes (nitrogen-fixing bacteria)

3.3

- Nitrogen-fixing bacteria convert unusable N_2 into ammonia, and nitrifying bacteria convert it to nitrates that plants can absorb