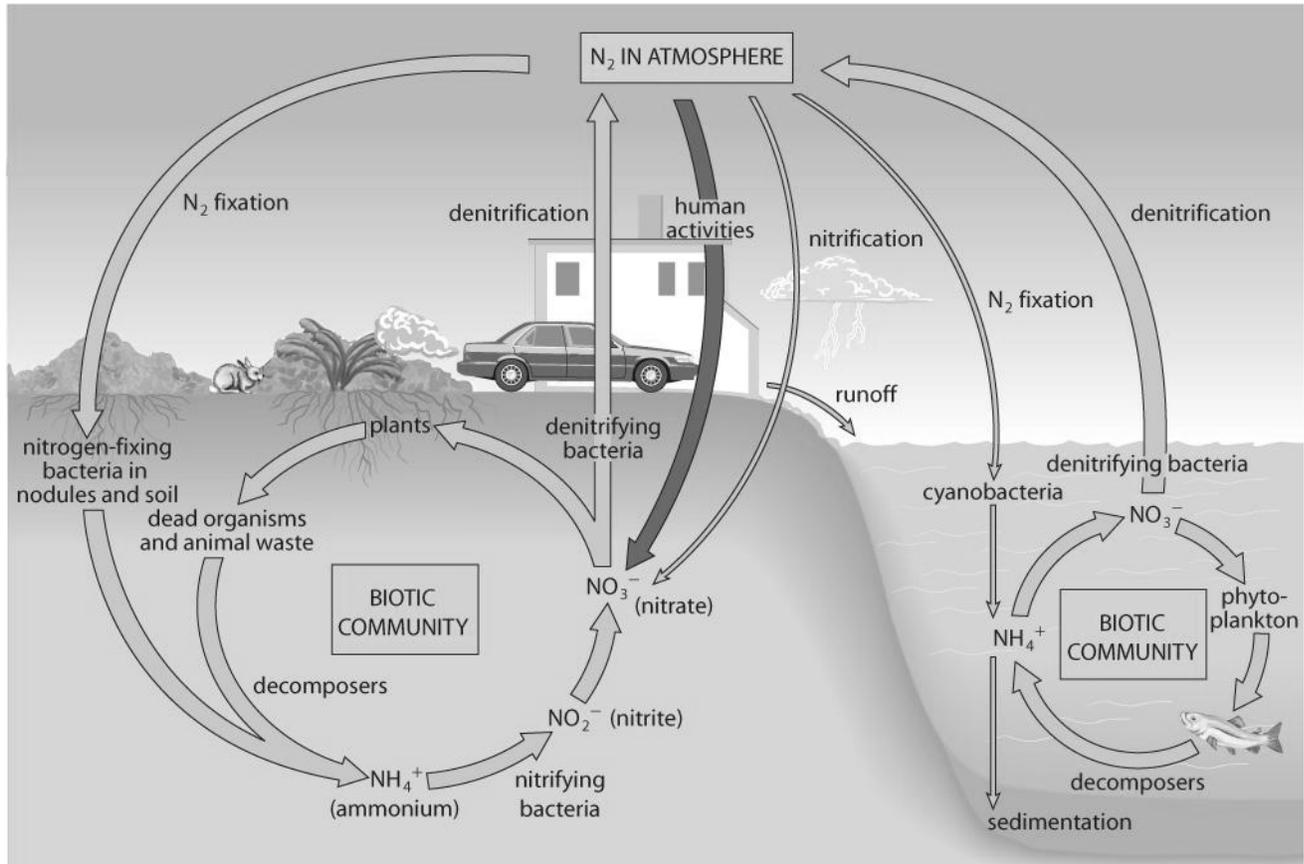


The Nitrogen Cycle Activity

Answer Key

1.



2. Ammonium (NH_4^+) and nitrate (NO_3^-).

3. Bacteria play an essential role in the nitrogen cycle by converting atmospheric nitrogen, which most organisms are unable to use, into the usable forms of ammonium (NH_4^+) and nitrate (NO_3^-). They also convert nitrite or nitrate back into nitrogen gas via denitrification to complete the cycle.

4. Most plants cannot use atmospheric nitrogen. Instead of adding fertilizer directly to their crops, some farmers grow plants that form close relationships with nitrogen-fixing bacteria. For example, the lumpy nodules on the roots of legume plants, such as clover, contain nitrogen-fixing bacteria that live in a mutually beneficial relationship with the plants. These bacteria fix (convert) nitrogen into ammonium, which is shared with the plants. The plants provide the bacteria with sugars produced in photosynthesis. A common farming method is to grow legumes (such as alfalfa and clover) one growing season and crops (such as corn) the following season. This method, called crop rotation, helps to maintain a high nitrogen content in the soil.