The Nitrogen Cycle

Abiotic fixation—fixing nitrogen (N_2) into ammonia (NH_3) by non-living means (The Haber process, for instance).
Biotic fixation—fixing nitrogen (N_2) into ammonia (NH_3) via a living organism. This fixed nitrogen (NH_3, NH_4^+) is essential for the biosynthesis of the basic building blocks of life (DNA, RNA, proteins, etc...).
Nitrification—is the oxidation/degradation of ammonia into nitrites (NO_2^-) and then to nitrate (NO_3^-) compounds. These compounds are more water soluble and are in a form the organisms can use for biosynthesis.
Assimilation—is to take up, as in nitrogen or some other biologically useful nutrient.
Ammonification—is the process whereby bacteria and fungi convert dead organic materials back into ammonium, then to ammonia, then to nitrtite and ultimately to nitrates.
Denitrification—this process completes the nitrogen cycle and involves bacteria converting the nitrates back into nitrogen gas (N_2) which diffuses back into the atmosphere.

Ammonifying bacteria are usually decomposers living in humus-rich soil and relaease ammonia (NH_3) by breaking down proteins and other organic compounds into the humus. There are also nitrogen fixing bacteria that convert gaseous nitrogen (N_2) into HN_3, which then becomes NH_4^+ after combining with H^+ in the soil. Nitrifying bacteria convert the NH_4 into NO_3^- which can then be absorbed by the plant. After NO_3^- is absorbed by the plant, a plant enzyme converts it back to NH_4^+ so that other enzymes can incorporate it into amino acids and a variety of organic compounds. Alternatively, denitrifying bacteria can convert the NO_3^- back into N_2 which diffuses into the atmosphere completing the nitrogen cycle.