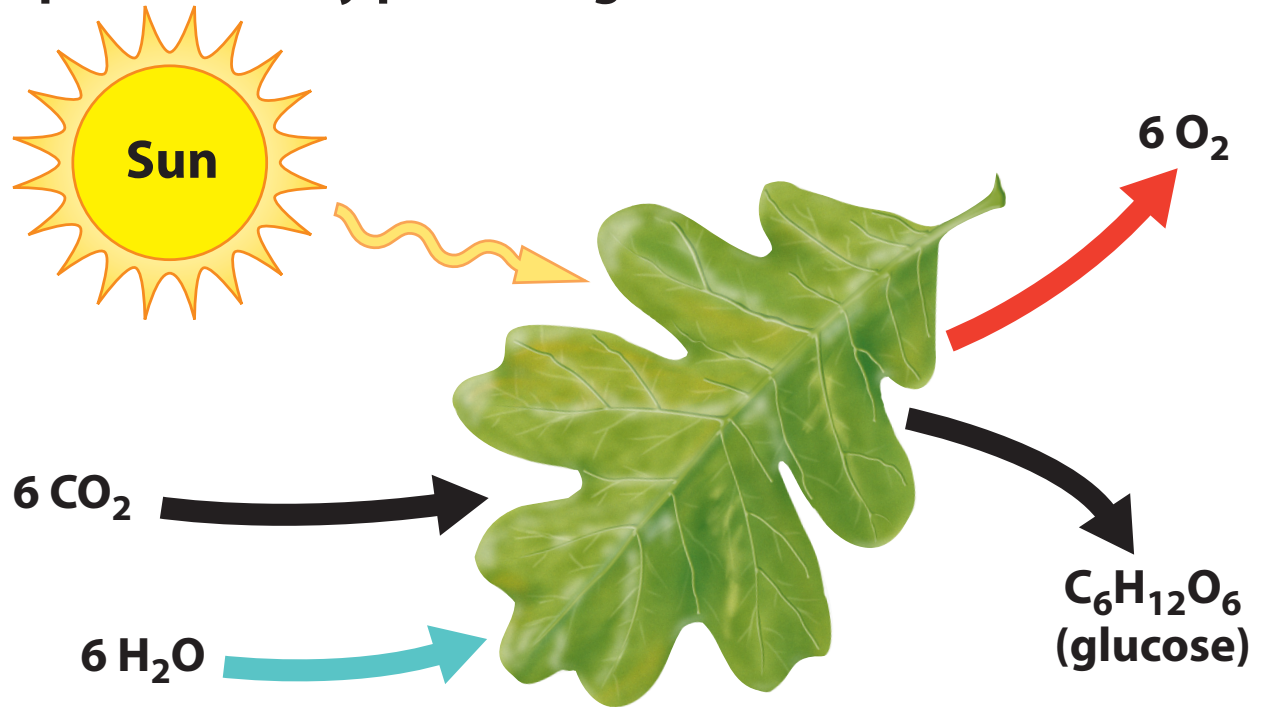


## Photosynthesis

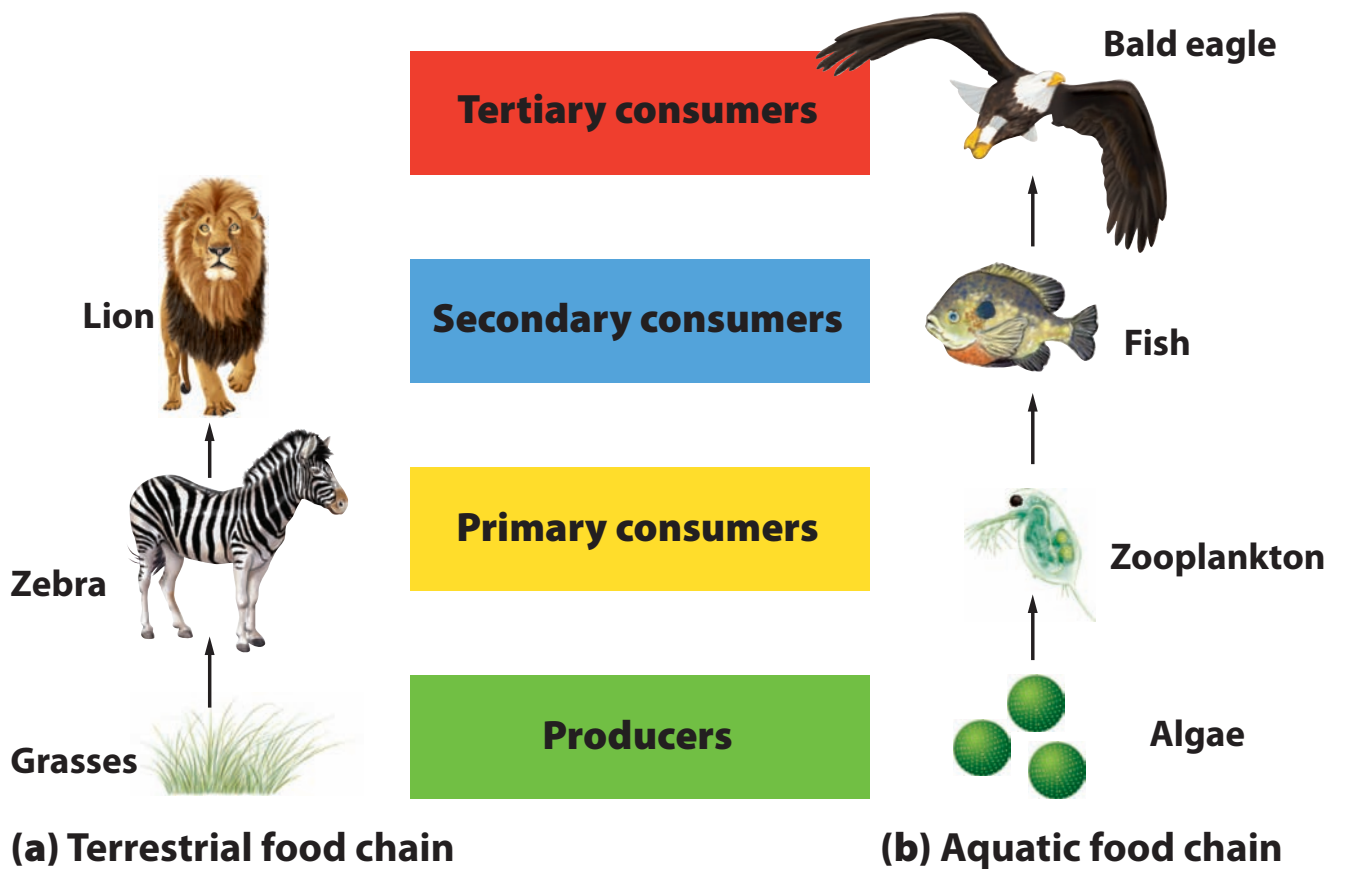
(performed by plants, algae, and some bacteria)

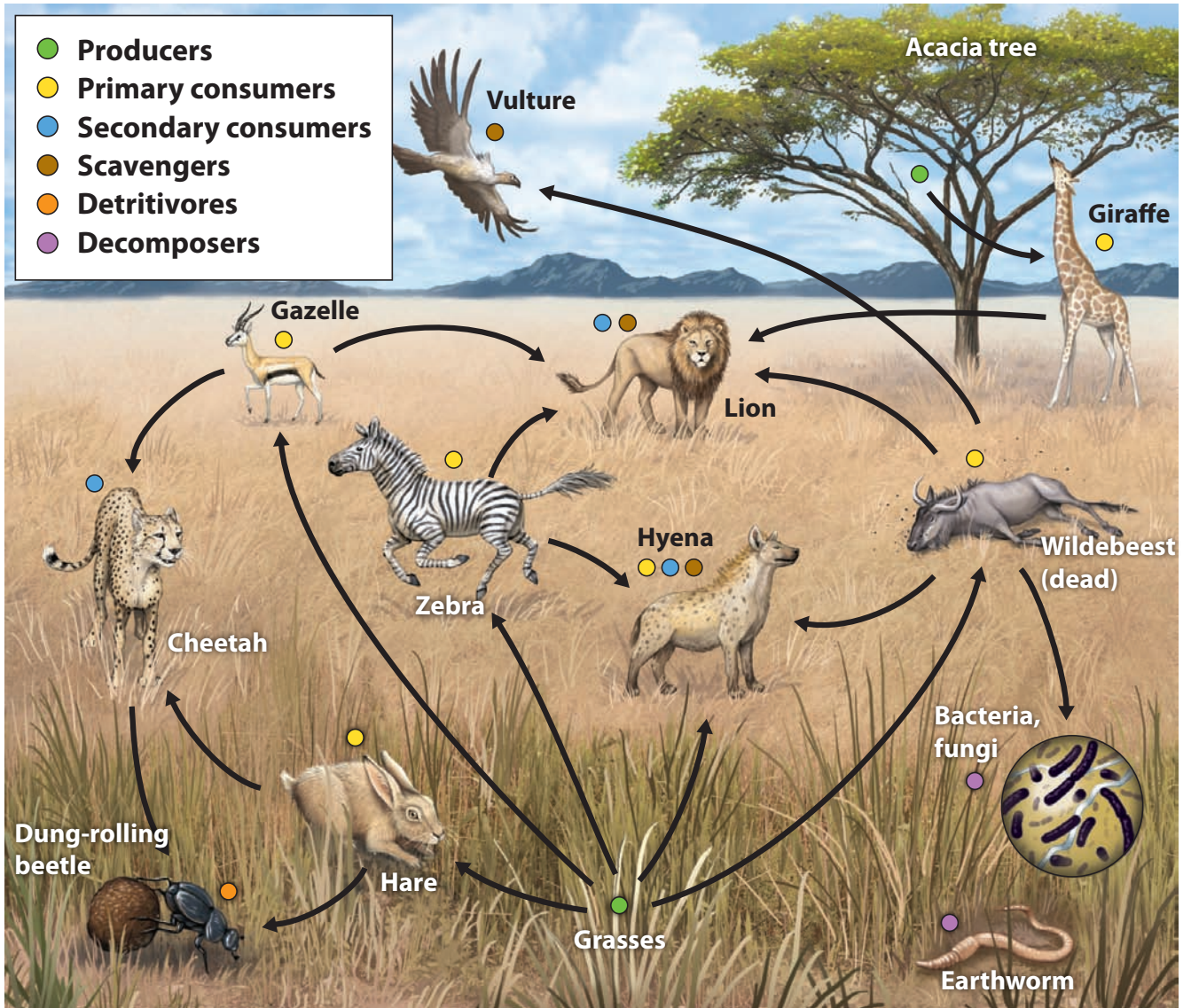


## Respiration

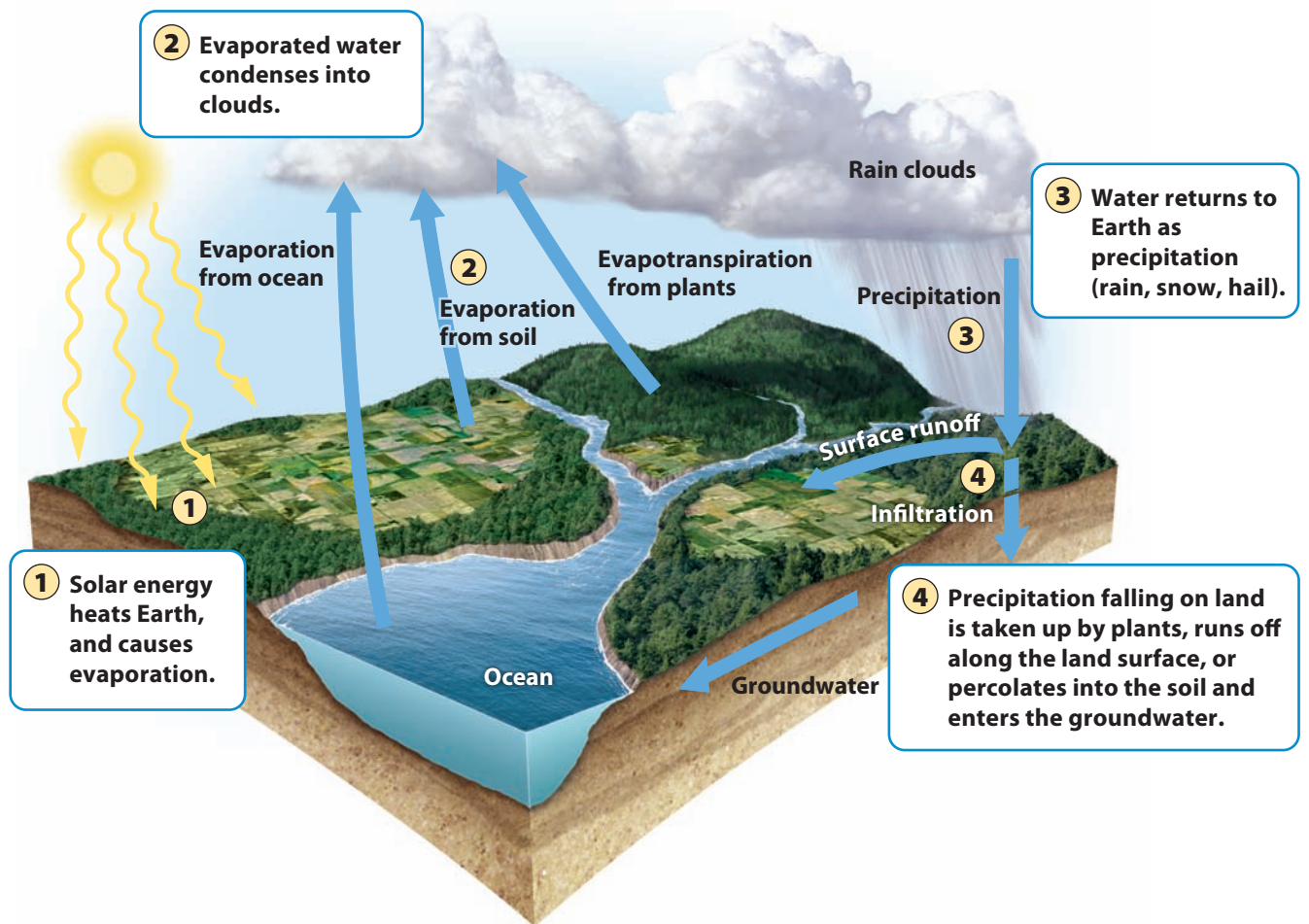
(performed by all organisms)

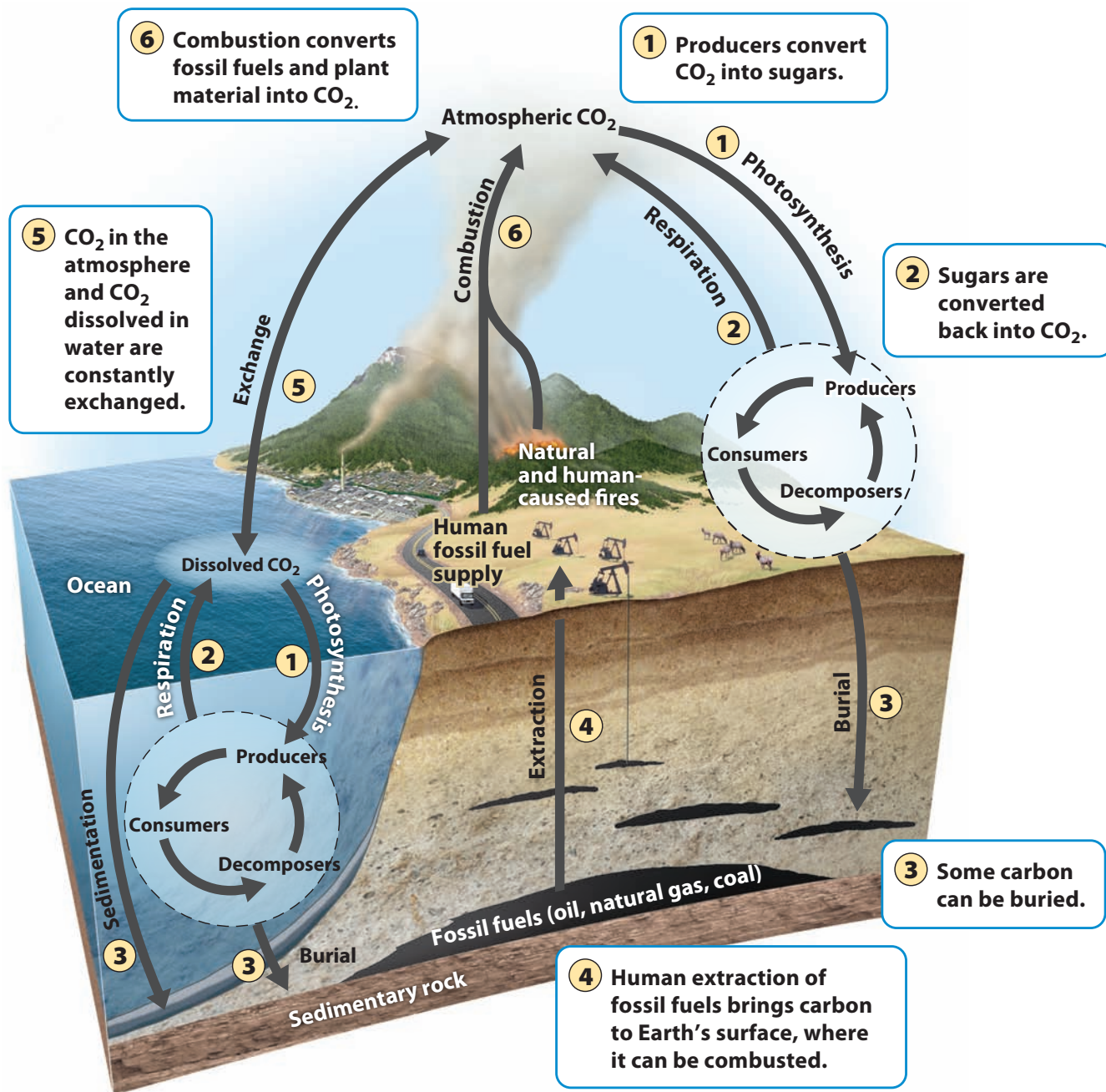


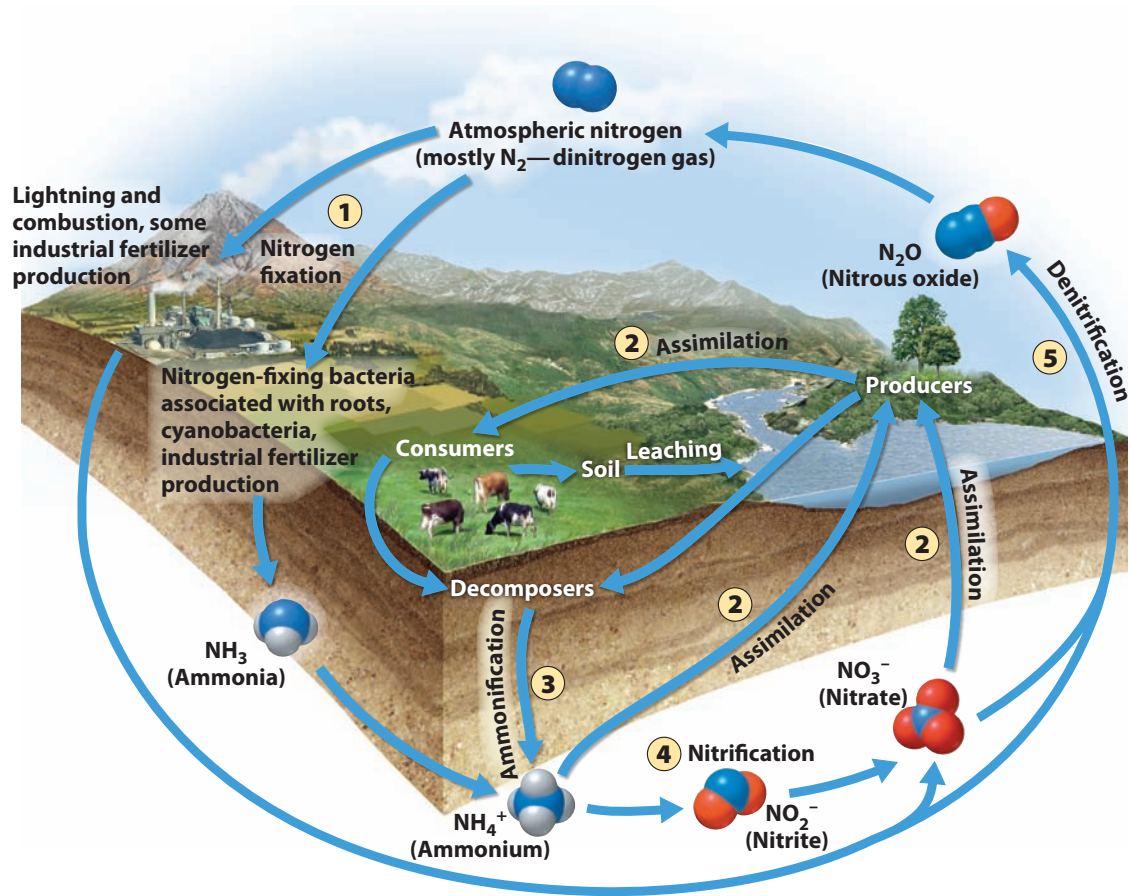












1 Nitrogen Fixation	2 Assimilation	3 Ammonification	4 Nitrification	5 Denitrification
Nitrogen fixation converts $N_2$ from the atmosphere. Biotic processes convert $N_2$ to ammonia ( $NH_3$ ), whereas abiotic processes convert $N_2$ to nitrate ( $NO_3^-$ ).	Producers take up either ammonium ( $NH_4^+$ ) or nitrate ( $NO_3^-$ ). Consumers assimilate nitrogen by eating producers.	Decomposers in soil and water break down biological nitrogen compounds into ammonium ( $NH_4^+$ ).	Nitrifying bacteria convert ammonium ( $NH_4^+$ ) into nitrite ( $NO_2^-$ ) and then into nitrate ( $NO_3^-$ ).	In a series of steps, denitrifying bacteria in oxygen-poor soil and stagnant water convert nitrate ( $NO_3^-$ ) into nitrous oxide ( $N_2O$ ) and eventually nitrogen gas ( $N_2$ ).
