

Biological compounds that contain Nitrogen

proteins
vitamins
DNA
RNA
ATP
chlorophyll
amino acids

What happens after nitrogen fixation

Assimilation into plants as proteins
into bacteria as proteins
into animals after feeding on plants

Nitrification by nitrifying bacteria to make nitrite and nitrate ions

Nitrates will be assimilated into plants as proteins after being absorbed in the soil by **active transport** through root hair cells

nitrates might be denitrified by denitrifying bacteria

decomposition

Animals, plants and bacteria excrete nitrogenous waste

Decomposers digest by extracellular enzymatic digestion the nitrogenous waste products and dead remains into ammonia

Nitrogen Fixing Bacteria

Free in soil	in root nodules
convert nitrogen gas into ammonia that is used by bacteria to make amino acids and proteins	found in leguminous plants e.g. peas, clovers

When bacteria die, their proteins decompose and they release NH ₃ in the soil	convert N ₂ to NH ₃ to be used to make amino acids, proteins and other compounds
--	--

when leguminous plants die, nitrogen containing compounds decompose releasing ammonia back

2. Nitrification

nitrifying bacteria in the soil oxidise ammonia from nitrogen fixation to nitrite and then to nitrate ions

Nitrate ions can be absorbed through active transport by plants to make amino acids and then proteins

nitrate ions can be converted back to nitrogen by denitrifying bacteria

Lightning

oxidization of nitrogen that produces nitrogen oxides

nitrogen oxides dissolve in rain water and enter the soil

converted into nitrates by nitrifying bacteria

Haber Bosch process

artificial nitrogen fixation

nitrogen + hydrogen --> ammonia

ammonia used to make fertiliser

Denitrification

denitrifying bacteria in the soil convert nitrate ions back to nitrogen

Feeding and assimilation

Feeding	Assimilation
animals feed on plants or other animals that have fed on plants	plants absorb nitrate ions by AT in the soil
they digest animal or plant protein	make amino acids
assimilate the proteins in their body	make proteins in the plant
	also used to make chlorophyll, DNA

