

5.4 NUTRIENT CYCLES

Fertilisers

Improves productivity

Provides nitrates and phosphates to plants for growth

Leaching

Excretion from animals returns the phosphate ions to the water

Phosphates in water may form sedimentary rocks

Remains are deposited and phosphates are returned to rocks

Death of plants and animals with phosphorus-containing compounds

Plants absorb phosphate ions

Eutrophication

Natural (organic) and artificial (inorganic)

Phosphorus cycle

Found in ATP, proteins and phospholipids

Phosphorus is mainly found as phosphate ions in rocks

Weathering and erosion of rocks

Phosphate ions become dissolved in rivers, oceans and lakes

Nitrogen cycle

Ammonification - ammonia is produced from nitrogenous compounds e.g. urea, proteins

Saprobiontic fungi and bacteria release ammonia into soil

Absorption of nitrate ions by plants

Producers and consumers die and excrete waste with nitrogen-containing compounds, which undergoes ammonification again

Mycorrhizae improves water and ion uptake in plants

Occurs in anaerobic conditions

Denitrification - bacteria convert nitrates in soil into nitrogen gas

Nitrogen fixation - conversion of nitrogen gas into nitrogen-containing compounds by bacteria

Nitrification - conversion of ammonia to nitrite ions, then to nitrate ions

Nitrifying bacteria and oxygen are required

AQA