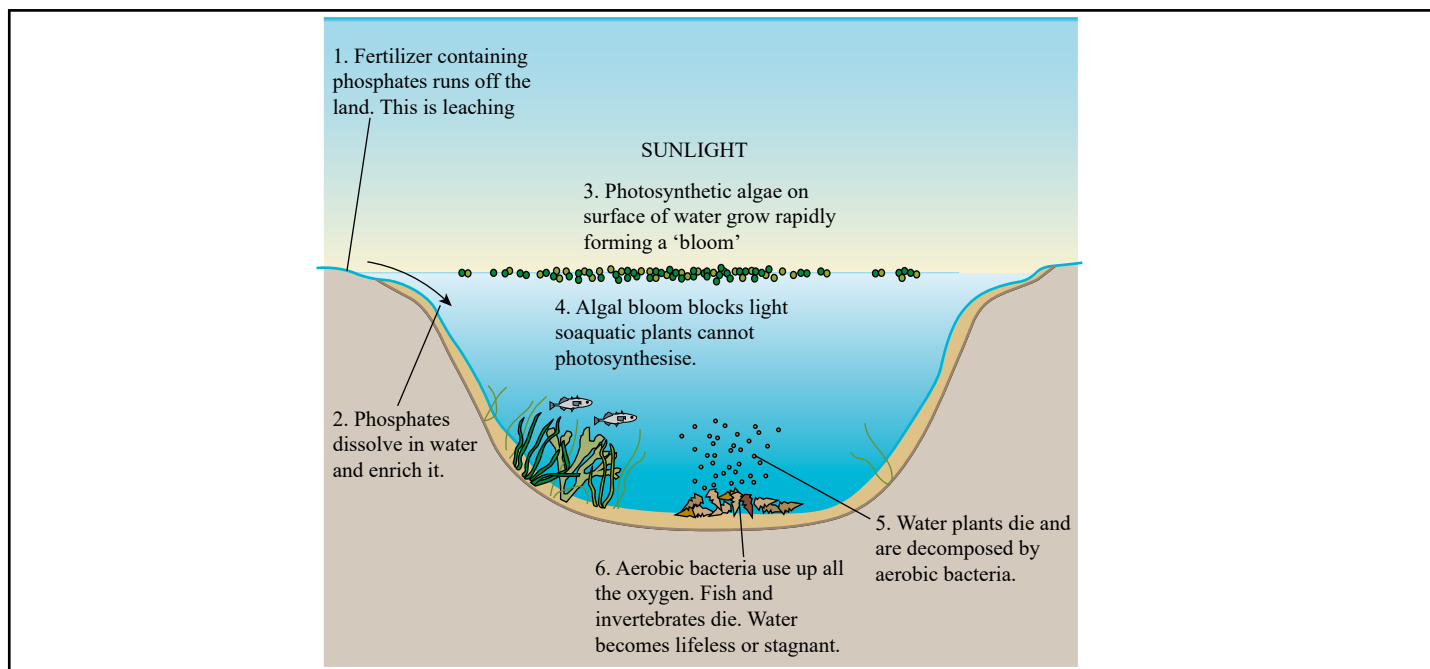


Fig 5 Diagram showing the stages of eutrophication



Exam Hint: Students often lose marks on eutrophication questions. It is the aerobic bacteria which are decomposing the mass of dead plant material that use up all the oxygen in the water. The lack of photosynthetic plants means that there is no oxygen being produced. All life in the pond dies out.

Practice Questions

1. Fill in the gaps with the most appropriate term from the list.

Phosphorus is a _____ element.

It cannot be used by living organisms unless it forms _____.

Phosphorus combines with _____ to form _____.

These compounds are very soluble and dissolve readily in _____.

Phosphates in solution can be absorbed by plant root _____.

Plants use the phosphates to make molecules that are essential for their _____.

These include _____ acids and the universal energy carrying compound _____.

Animals obtain their phosphorus by eating _____ or other animals.

Plants which lack phosphorus will have _____ growth.

A lack of phosphorus in animals may cause _____ bones.

**stunted hairs phosphates ATP nucleic
toxic oxygen metabolism plants brittle
compounds water**

2. Describe the role of living organisms in the cycling of phosphorus.

Answers

1. Phosphorus is a **toxic** element.

It cannot be used by living organisms unless it forms **compounds**. Phosphorus combines with **oxygen** to form **phosphates**. These compounds are very soluble and dissolve readily in **water**. Phosphates in solution can be absorbed by plant root **hairs**. Plants use the phosphates to make molecules that are essential for their **metabolism**.

These include **nucleic** acids and the universal energy carrying compound **ATP**.

Animals obtain their phosphorus by eating **plants** or other animals. Plants which lack phosphorus will have **stunted** growth. A lack of phosphorus in animals may cause **brittle** bones.

2. Phosphorus forms compounds in plants and animals.

Plants obtain phosphates in solution from the soil. Animals obtain phosphates by eating plants or animals. The phosphate in the living organisms is returned to the soil or water when the animal or plant dies.

Excretory products also contain phosphates.

Decomposers in the soil or water are bacteria and fungi. These decomposers digest dead organic material using enzymes. This process of decomposition returns the phosphates to the soil or water.