

Mutualistic Relationships

In this type of relationship both species benefit. Examples to consider:

1. Oxpeckers

These are birds that live on the backs of **buffalo**, eating **pests** like ticks, fleas and maggots, so providing the birds with a **food source**.

In return the birds **alert** the buffalo to predators that are near, by **hissing**.

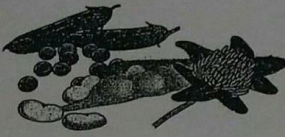
Oxpeckers are an example of **cleaner species**.



2. Cleaner Fish

Cleaner fish are another example of cleaner species that eat **dead skin** and **parasites** off larger fish, so providing them with food. In return the big fish **don't eat** the cleaner fish.

3. Nitrogen Fixing Bacteria in Legumes



These bacteria change **nitrogen** into **nitrates** that plants need. **Leguminous plants**, like beans, peas and clover, carry these bacteria in special **nodules** in their **roots**.

The plants get **essential nitrates** from the bacteria and in return the bacteria get a constant supply of **sugar** from the plants.

4. Chemosynthetic Bacteria in Deep Sea Vents

These bacteria live inside **giant tube worms** or inside the gills of **molluscs** in **deep-sea vents**.

The tube worms provide the bacteria with **chemicals** from the seawater which the bacteria change into **food** for themselves and the host worms.

Q1. Describe the difference between a parasitic relationship and mutualistic relationship.

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- **Raw materials**, including **non-renewable energy resources**, are rapidly being used up.
- More and more **waste and rubbish** are being produced,
- More **pollutants** are being produced like **phosphates** from detergents, **nitrates** from fertilisers and **sulphur dioxide** from coal burning power stations.

Use of Fertilisers.

..... fertilisers containing **nitrates** and **phosphates**, which are necessary for **modern farming**.