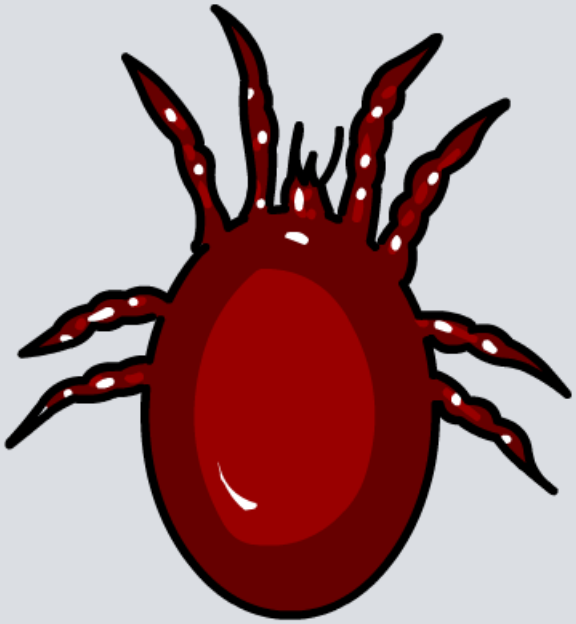
Host-Parasite Relationships



What is symbiosis?

Symbiosis occurs when two organisms of different species live together in a very close relationship.

There are different types of symbiosis depending on how each organism benefits or not from the relationship. The two most well-known types are:

- **parasitism** – one species benefits at the expense of the other species
- **mutualism** – both species benefit.

Can you think of any examples of these kinds of symbiosis?

What is parasitism?

Parasitism occurs when an organism (the **parasite**) lives on or in another organism (the **host**) at the expense of the host.

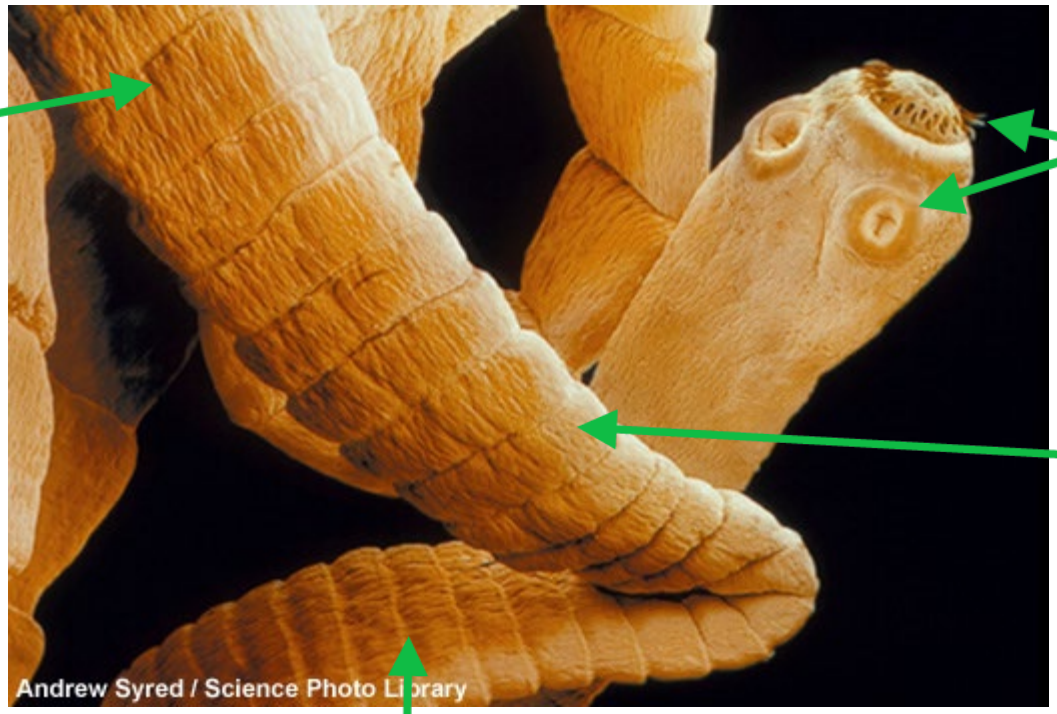
For example, ticks and fleas are tiny insects that live on larger animals, such as dogs and other mammals. They feed by piercing the host's skin and drinking its blood.

If the insect carries pathogens these can be passed onto the host, causing disease.

Adaptations of a tapeworm

Tapeworms are long, ribbon-like worms that live inside a host's gut. How are they adapted to life as a parasite?

body **covered by mucus** to protect against host's digestive juices



head has **hooks and suckers** to hold onto the gut wall

long, thin body gives large surface area for absorbing food

no digestive system needed as food has already been digested

Nitrogenous plants

Sometimes, different species don't compete with one another but actually co-operate. This is called **mutualism**.

Leguminous plants such as peas and beans live in a mutualistic relationship with **nitrogen-fixing bacteria**.

The bacteria live in root nodules of the plant, where they convert atmospheric nitrogen into nitrates. These are used by the plants for growth.

In return, the bacteria receive sugars from the plant as a source of carbon and energy.

A helping hand?

The **oxpecker** bird is a type of African starling that eats ticks, fleas and other insects attached to large mammals such as buffalo and rhinoceros.

The oxpecker is a type of **cleaner species**.

The oxpecker benefits from a source of food while the mammal is cleaned of parasites that feed on its blood.

However, oxpeckers are also known to consume a host's blood and wound tissue, which makes them partly parasitic!

Mutualism or parasitism?

Mutualism and parasitism are very different forms of symbiosis.

How well can you distinguish between them?

Click "**start**" to find out.

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