



Competition

When organisms of the same or different species 'fight' for necessary resources that are in short supply.

Intra-specific competition:

Between members of the same species



Inter-specific competition:

Between members of different species

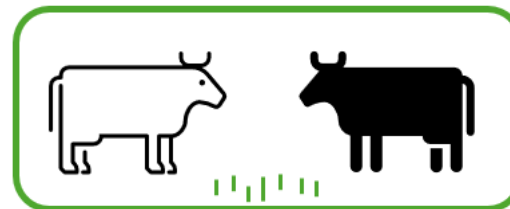




Contest Competition - involves an active physical contest between two organisms – only one wins.



Scramble Competition - Each organism tries to get as much of the same resource as possible. e.g. an ivy plant and a hawthorn tree may compete for light.





Predation

Predator – hunts, captures & kills other animals (**prey**) for food.

Adaptations in prey

- Plants may have thorns, spines or stings.
- Nasty taste when eaten e.g. giant hogweed.
- Are slightly faster than their predator.
- Staying in herds or flocks - safety in numbers.
- Camouflage - greenfly, stick insects.





Parasitism

A parasite in an organism that lives off another organism and often causes harm.



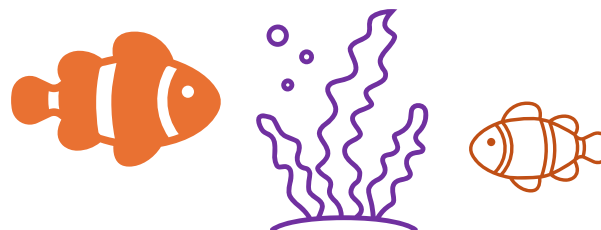
Symbiosis

This occurs when two organisms live close together and at least one of them benefit.

e.g. Nitrogen-fixing bacteria live on the roots of clover.



e.g. Clownfish and sea anemones have a **mutually beneficial** relationship. The clownfish get protection from the anemone and the anemone gets fertilizer and cleaned from the clown fish.





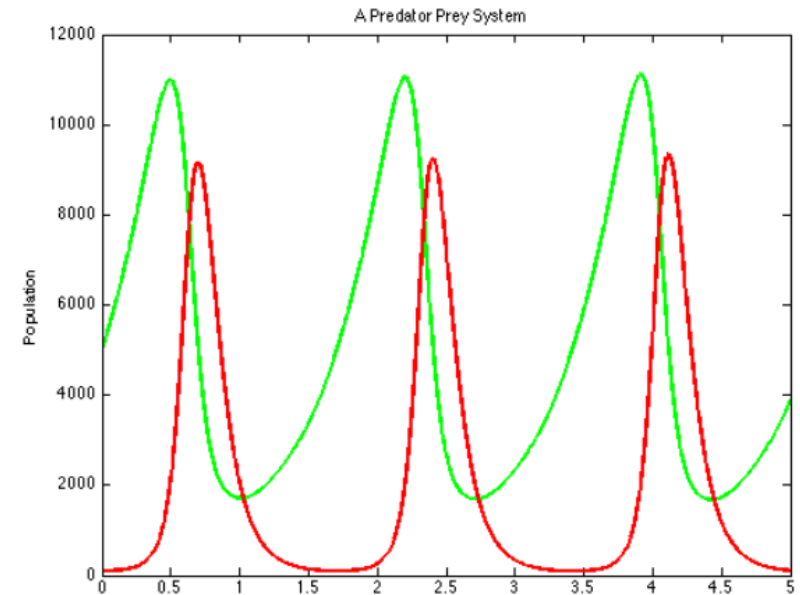
Population Dynamics

Predator and Prey numbers are linked.

An example is Foxes and Rabbits.

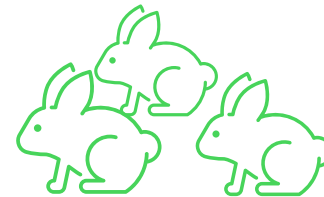
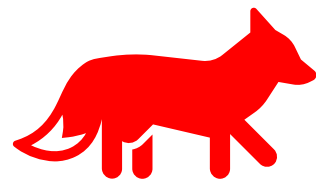
The green line shows **Rabbit numbers**,
and red line shows **Fox numbers**.

In these graphs the predator is always
below and **to the right** of the prey.



As the number of rabbits goes up so does the number of Foxes.

The foxes eat too many rabbits, their numbers drop, and so foxes die of starvation.





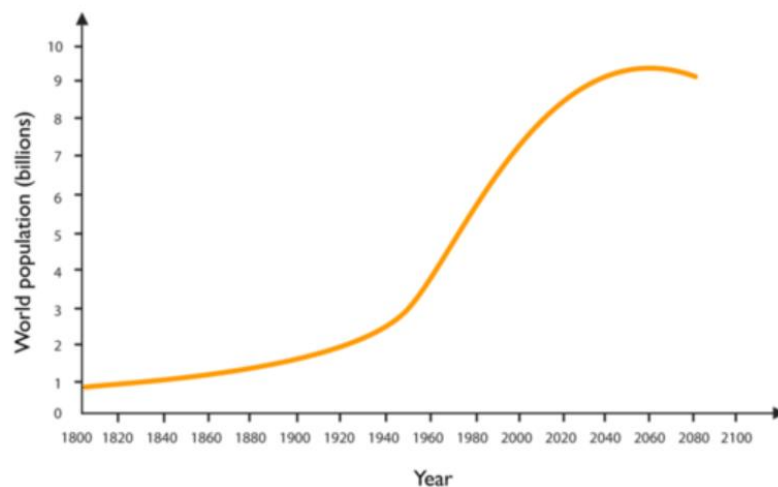
Human Population Growth

Population has continued to rise since the early 1900's. This is due to the falling death rates. People are living longer because of disease control methods and medicine.

Factors that reduce a population are war, famine and poverty.

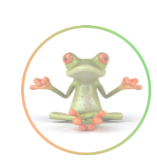
More people are born due to poverty and lack of contraception.

As people's living standards improve across the world, we find that less people are born due to wealth and contraception.



By 2050, the world's population will peak at 10 billion and then begin to drop.





Questions on this topic

Q.1 What is a predator?

Q.2 Give an example of contest competition?

Q.3 What is symbiosis? Give an example.

Q.4 Give 3 reasons for human population decline?

Q.5 Give 3 adaptations of prey to avoid predation.

