

KNOWLEDGE ORGANISER

BIG IDEA: ECOSYSTEMS

TOPIC: DEPENDENCE ON OTHER ORGANISMS

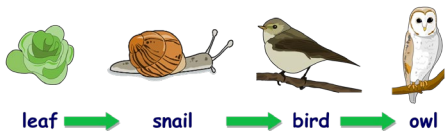
Key Word	Definition
food web	Shows the interdependence between organisms in an ecosystem
food chain	Shows the interdependence between organisms in an ecosystem. Part of a food web.
ecosystem	The living things in a given area, and their non-living environment.
interdependence	The way in which living organisms depend on each other to survive, grow, and reproduce.
population	Number of a particular species living in an ecosystem.
producer	Green plant or algae that makes its own food using sunlight by photosynthesis
consumer	Animal that eats other animals or plants.
habitat	The place where an organism lives

Food chains

A **food chain** is a diagram used to show the interdependence between living organisms in an ecosystem. It shows how energy is transferred between organisms.

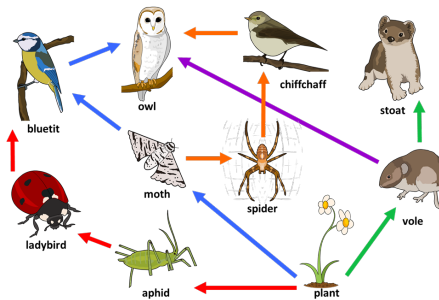
A food chain always starts with a **producer** (a green plant or algae) as they make their own food using photosynthesis.

Carnivores eat animals, and **herbivores** eat plants.



Food webs

A food web is used to show linked food chains, as most organisms eat more than one type of food. For example in the diagram, the owl eats blue-tits or voles.



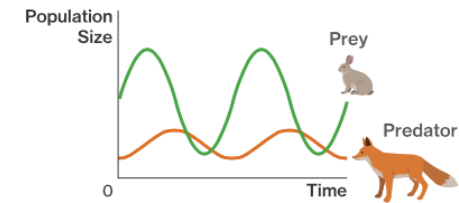
A change in the population of one species leads to changes in other species. For example, if number of voles decreased then the number of stoats would also decrease, as stoats only eat voles. The stoat is dependent on the vole.

Predators and prey

Predators and prey are interdependent as they depend on each other for survival. A predator is an organism that feeds on prey. In the diagram below the predator is the fox as it eats the rabbit.

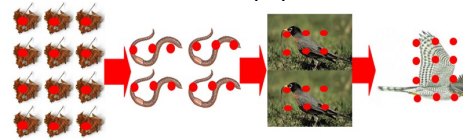
Any change in the population of rabbits will affect the population of foxes and vice versa. For example, if there are more rabbits (prey) then there is more food for the foxes (predator). More foxes will survive and the population of foxes will increase.

Predator-Prey Relationships



Bioaccumulation of toxic chemicals

Toxic chemicals are poisonous, for example pesticides. Farmers used pesticides to kill pests that might harm their crops. However these pesticides do not get broken down and are transferred to the next organism in the food chain. Toxic chemicals build up in the food chain, which is called **bioaccumulation**. This kills animals further up the food chain and cause the population to decrease.



Sampling

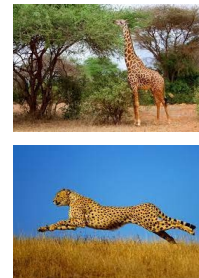
A way of measuring the numbers or percentages of an organism within a habitat. This is done using a quadrat.

We should sample randomly (not in a pattern), repeat our results and calculate a mean.



Competition and adaptation

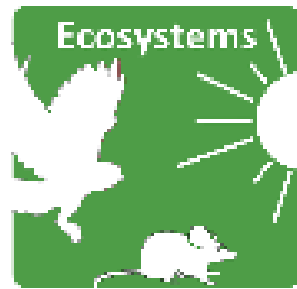
Animals and plants compete for survival needs including food, water, space and mates. Many offspring are born and there is variation (they are different), so only the best adapted survive. Those best adapted will be the best competitors and have increased survival



Ecosystems

Many different communities (plants and animals) can live in one ecosystem. For example, an oak tree ecosystem will contain squirrels, insects, worms, and many bird communities. They co-exist (live alongside each other) because they all have their own niche. For example, squirrels eat nuts and live in the branches, whereas worms break down leaves and live in the soil.

Knowledge organiser



Y7 topic: Dependence on other organisms

I have already learned:

In KS2: Plants – plants can make their own food; Living things and their habitats - interpret food chains and identify producers, predators and prey.

This topic links to:

Y8: Photosynthesis

KS4: Ecology

It is important to study about dependence on other organisms because...

Humans are dependent on other plants and animals for survival, but humans also affect other living things as all organisms are interdependent. Scientists can measure the impact of environmental changes on organisms, and we can all try to reduce our impact so we have a better future.

Possible careers involving dependence on other organisms are...

- Wildlife officer
- Conservation officer
- Ecologist
- Environmental consultant
- Researcher
- Lecturer