School of Professor Brock

KEY STAGE 2

Teacher notes

Food chains

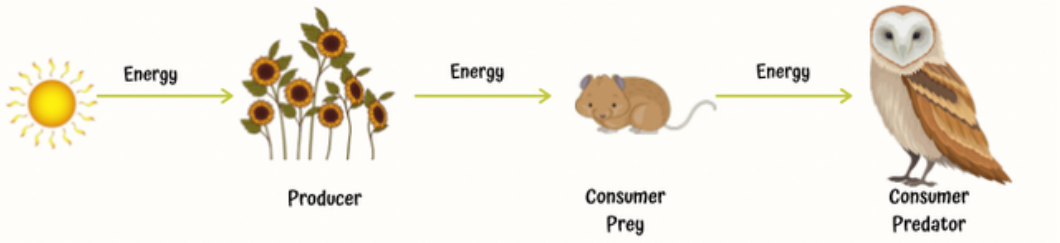
Learning objectives

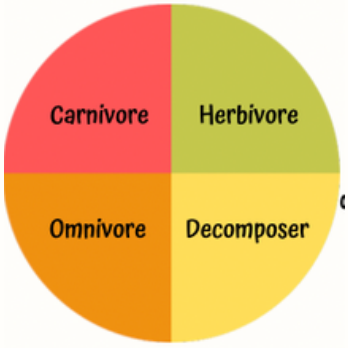
- To gain and deploy knowledge and understanding of food chains particularly in relation to the British wildlife and countryside;
- To identify animal and plant roles in the ecosystem;
- To develop knowledge and understanding of technical vocabulary.

Outline

The lesson takes the form of information pages alternated with exercises.

It can be used as an introduction to the topic or to reinforce previous learning as part of a badger-themed day.





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Food chains

All living things on Earth are part of a Food Chain. All living things need food, or energy, to survive. Some organisms create their own food, some eat other organisms for their energy.

Let's start with a reminder of some of the key words before we look at some Food Chains found in the British countryside.

Producer

An organism which produces its own food, such as plants. Plants make their food from the sun's energy, plus water and minerals from the soil. Without plants, birds and animals would have no food to eat.

Consumer

An organism which eats or consumes other animals or plants, such as a rabbit which eats grass or a badger which eats earthworms.

Predator

An organism which eats other animals, eg. a badger eats or PREDATES earthworms.

Prey

An animal that is eaten by other animals, eg. the blue tit might be eaten or PREYED ON by a sparrowhawk or other 'bird of prey'.

Ecosystem

An ecosystem is a natural location based on:

- a physical environment created by a combination of rock, soil, water, air and sunlight;
- habitats which are places that living things occupy within the physical environment;
- a community of animals, plants, fungi and micro-organisms that share that habitat.

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Pupil worksheet

Food chains

	Which of the below are Producers and which are Consumers?		Which are Predators and which are Prey? And which can be both?	
	Producer	Consumer	Predator	Prey
Badger				
Fox				
Rabbit				
Hedgehog				
Deer				
Rat				
Earthworm				
Wasp				
Slug				
Bat				
Bluebell				
Blackberries				
Sweetcorn				
Dead leaves				

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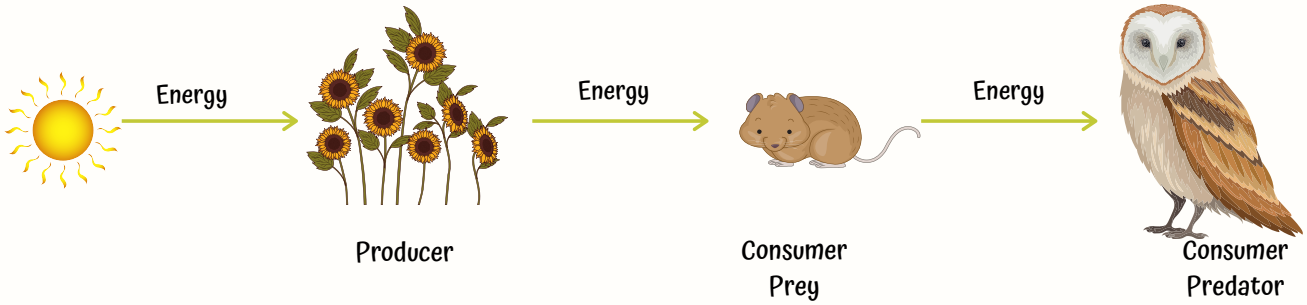
Food chains

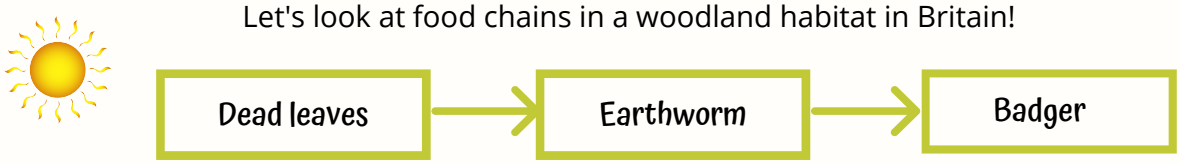
- Every organism, both Producers and Consumers, needs food to survive and grow;
- Producers get their food, or energy, from the sun and are then eaten by Consumers;
- Consumers get their food, or energy, from consuming Producers or other Consumers;
- All types of organism in an ecosystem can be connected in a Food Chain. A Food Chain illustrates the flow of energy from one organism to the next.

Each food chain starts with energy from the sun, followed by plants which produce their food based on this solar energy. All the links after this will be Consumers. Here's an example from a farmland habitat:

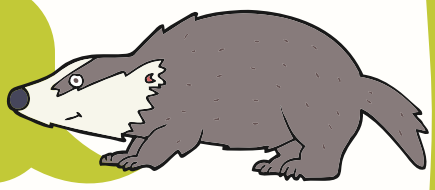


The arrow direction shows the flow of energy from one organism to another, ie. who is eaten by whom.

Let's look at food chains in a woodland habitat in Britain!



A badger's favourite food is the earthworm and they can eat up to 200 a night. But they will eat lots of other things if they can't find enough earthworms, including an occasional hedgehog. This would give us a food chain with 4 parts.



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Pupil worksheet

Food chains

Fill in the empty boxes below, using words from this word tree, to create your own food chains, with:

one Consumer and one Producer:

one Producer and 2 Consumers:

one Producer and 3 Consumers:

one Predator, one Prey item and one Producer:

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KEY STAGE 2

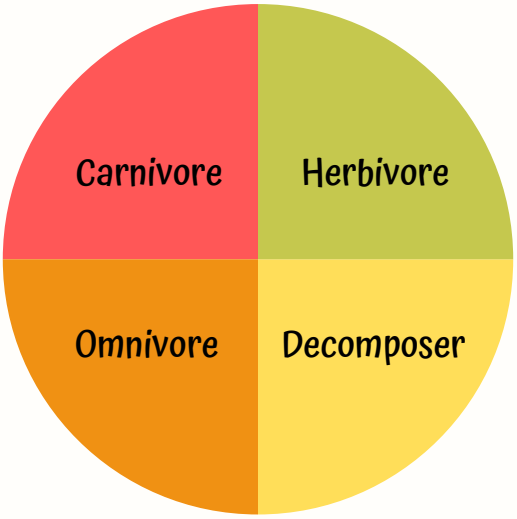
Food chains

Types of consumer

All consumers eat <u>either</u> plants or animals. True or False? Think about what YOU eat!

Consumers who only eat meat

Consumers who only eat plants

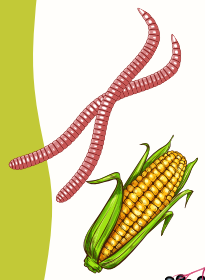


Consumers who eat meat and plants

Consumers who break down dead plants or animals

The badger is known as an OPPORTUNISTIC OMNIVORE:

- A badger's favourite meal is earthworms as they come up to the surface but they cannot always find enough earthworms to satisfy their survival and growth needs;
- When earthworms are not available, badgers will eat whatever they can find;
- They are OPPORTUNISTIC eaters, not fussy eaters!
- Here's a selection of food they might also eat.











EARTHWORMS are important not only to badgers but to the health of the ecosystem as a whole.

- Not everything is eaten;
- Dead leaves and animal droppings have run out of energy and cannot grow anymore, but they contain chemicals that are recycled into the food chain with the help of organisms called DECOMPOSERS;
- An earthworm is a decomposer. They digest rotting plant and animal matter as they swallow soil. The earthworm's waste contains important minerals required for plant growth.

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Pupil worksheet

Food chains

Can you think of some other omnivores that live in our British countryside?

Can you think of some herbivores that live in our British countryside?

Can you think of some carnivores that live in our British countryside?

Can you think of some decomposers that live in our British countryside?

Why do you think earthworms might sometimes be in short supply?

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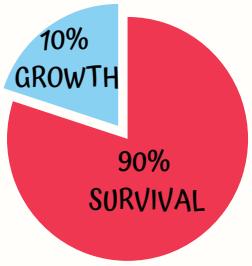
Food chains

Growth

We know that plants bring the sun's energy into the food chain but why is energy important?
All organisms need energy to LIVE and to GROW.



LIVING takes up most energy but the 10% energy use for GROWTH is really important in the food chain. The bigger each plant or animals grows, the more food they provide for the next link in the food chain.

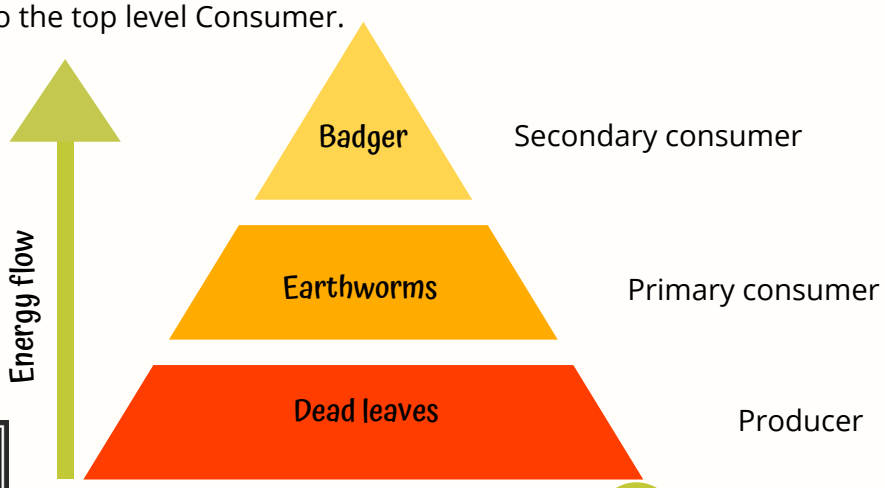
Think about a tree: the bigger it grows, the more life it can support, eg. caterpillars on leaves, bees on flowers, squirrels eating nuts, etc.

The same applies at every link in the chain - the growth in one organism becomes the food for the next link in the food chain.

Numbers

We've already seen that one badger can eat up to 200 earthworms a night. So, for a badger to survive, there must be many more earthworms than there are badgers and many more leaves than there are earthworms.

A food chain can also be viewed as a pyramid representing the NUMBER of each organism at each level. The numbers of each plant or animal decrease at each level from the Producer at the bottom to the top level Consumer.



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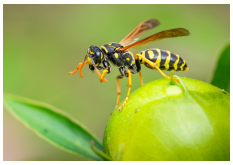
Food chains

Draw ARROWS between the pictures below where you think there is a Food Chain















- Congratulations! You've now created a Food Web where multiple Food Chains interlink!
- In reality, every ecosystem contains lots of food chains which interlink.
- A plant or animal is likely to be present in many food chains. For example:
  - earthworms are not only eaten by badgers, but also by many other animals such as birds, moles, hedgehogs, foxes and smaller creatures such as beetles;
  - a badger will eat not only earthworms, but also rats, fruit, frogs, beetle larvae, crops and lots of other organisms.

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