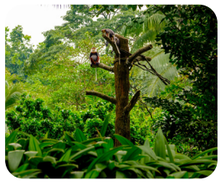
Food and the Digestive System

Producers and consumers

A producer is a living thing that makes its own food through the process of photosynthesis. Almost all producers are plants. A consumer is a living thing that feeds on other living things. All consumers fit into one of three groups depending on what they eat: herbivores eat plant parts, carnivores eat meat from other animals and omnivores eat both meat and plant parts. Animals that are hunted and eaten by other animals are called prey. Animals that hunt other animals for food are called predators.

Ecosystems

An ecosystem is a community of living organisms and their environments that interact with each other, such as a rainforest, desert or ocean. Ecosystems have biotic, or living, features including plants, animals and microorganisms. They also have abiotic, or non-living, features, such as sunlight, water, air, soil and temperature.



rainforest

desert

Interdependence

All living things depend on the biotic and abiotic features of their ecosystems to survive. This is called interdependence.

For example, the hummingbird depends on abiotic features, such as water to drink and oxygen to breathe. It also depends on biotic features, including the hibiscus flower for nutrition and trees for shelter.

Balance and change

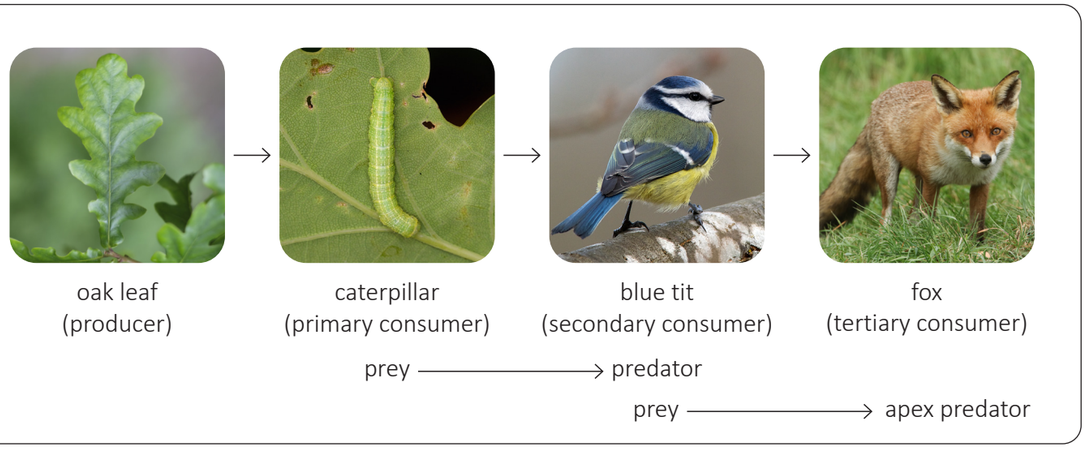
All the biotic and abiotic features of an ecosystem are finely balanced. Any change to one part will affect all the other parts. For example, a drought, or water shortage, can affect a plant's ability to grow. Animals that depend on that plant for food begin to starve and die unless they can adapt or move to a new ecosystem to survive. Human activity, such as deforestation and pollution, and natural events such as disease, floods, wildfires and drought, can damage ecosystems.

drought

Food chains

Plants and animals need energy from food to survive. A food chain is a diagram that shows how food energy is transferred from one living thing to another.

Food chains start with a producer that makes its own food. Primary consumers are herbivores that eat the producers. Secondary consumers can be carnivores or omnivores that feed on primary consumers and producers. Tertiary consumers at the end of the food chain mainly feed on the secondary and primary consumers. They are called apex predators.

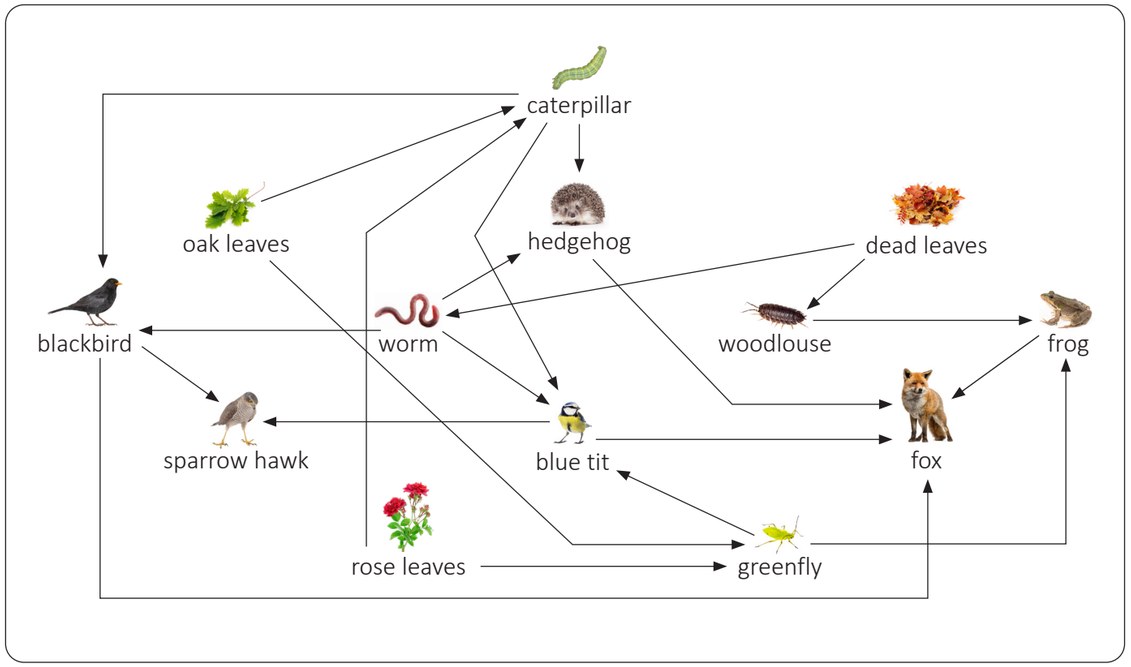


a food chain

Food webs

All the different food chains in a specific ecosystem can be linked together to make a food web.

Food webs show how different plants and animals in an ecosystem are connected through their interdependence.



a food web

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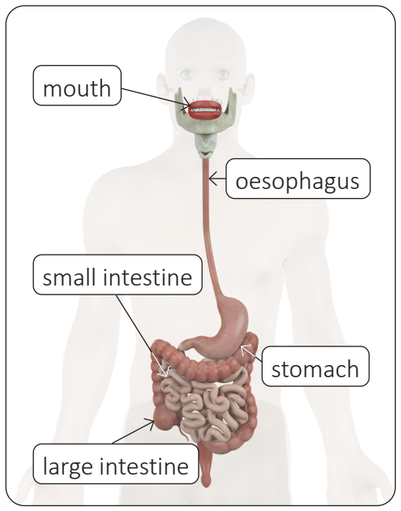
Digestion



digestive organs

Digestion is the process where food is broken down into small particles that can be absorbed by the body.

The digestive organs all work together to digest food.

Mouth

Digestion starts inside the mouth. The tongue rolls the food around and the teeth break it into smaller pieces by biting and chewing. Digestive enzymes in saliva break down the food further so the food can be swallowed.

Oesophagus

The food travels through the pharynx, or throat, then into the oesophagus. Muscles squeeze the food along the oesophagus and into the stomach.

Stomach

Inside the stomach, the food is mixed with digestive enzymes and digestive acid to chemically break it down into tiny particles. Muscles also squeeze and churn the food.

Small intestine

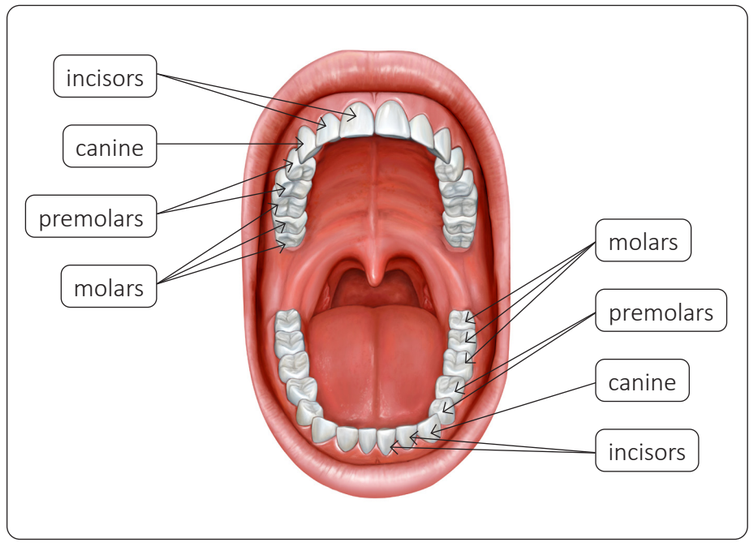
The small intestine has muscular walls which squeeze the food along its length. Chemicals from organs called the liver and pancreas break the food down further to release nutrients, which are absorbed through the intestinal wall into the bloodstream.

Large intestine

Food that cannot be digested is squeezed from the small intestine into the large intestine, where excess water is absorbed. The undigested waste, known as faeces, exits the body through the rectum and the anus at the end of the large intestine.

Teeth

Human teeth begin to grow when a baby is around six months old and continue growing until a child has 20 teeth. These are called primary teeth. These begin to fall out at around six years old and 32 permanent teeth then grow. There are four types of teeth:

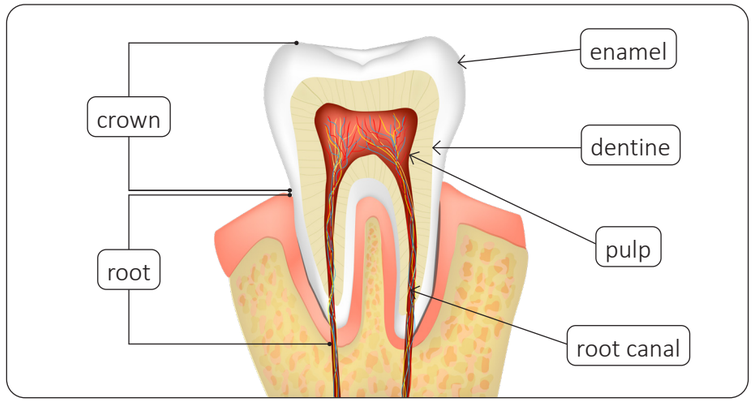


Carnivore, herbivore and omnivore teeth

Animals have different types of teeth depending on the food they eat. Carnivores usually have large canines for ripping and tearing meat. Herbivores usually have sharp incisors for cutting plant material and large flat molars for grinding. Omnivores usually have a mixture of teeth: canines for tearing meat and large, flat molars for grinding plants.

Tooth structure

A tooth has a very hard, outer layer called enamel to protect against bacteria and hot and cold temperatures. Dentine under the enamel gives the tooth its structure and colour. Pulp in the middle of the tooth contains nerve endings and a blood supply which continues through a space in the root called the root canal. These nerves send pain messages from the tooth to the brain.



Oral hygiene

Oral hygiene is the practice of keeping the mouth and teeth clean to protect against the buildup of bacteria called plaque, which can lead to tooth decay and gum disease. To ensure good oral hygiene, it is important to:

- Avoid consuming too many sugary foods and drinks.
- Brush teeth twice a day with fluoride toothpaste.
- Visit the dentist at least once a year.

Glossary

bacteria	A type of microorganism, some of which can cause disease.
fluoride	A chemical that can be added to toothpaste to prevent tooth decay.
microorganism	A living thing that is too small to be seen without a microscope.

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