

Big Ideas



Biology:

The cellular basis of life - **Heredity and life cycles** - Variation, adaptation and evolution - Organisms and their environments - **Health and disease**

A life cycle is the series of changes that an animal or plant passes through from the beginning of its life until its death.

Animals, including humans, have offspring which grow into adults.

All animals need water, air and food to survive.

To keep healthy, humans need:

- to eat a balanced diet and healthy food
- some exercise to keep their muscles and bones healthy
- to take medicines that are given by doctors and nurses when feeling poorly
- to keep good hygiene by washing regularly, having clean clothes, brushing teeth and hair.

A habitat is a place where living things, such as animals and plants, can find all of the things they need to survive. This includes food, water, air, space to move and grow and some shelter.

Some habitats are large, like the ocean, and some are very small, such as under a log. Some habitats in our local area include the river and woodlands. Other habitats include the coast and the forest.



ocean forest river pond coast



desert woodland tundra habitat

Microhabitats are very small habitats where minibeasts may live.

Examples of microhabitats include under stones, in grass, under fallen leaves and in the soil. Minibeasts that can be found there include worms, snails, ants, centipedes, millipedes, and butterflies and they help to keep the microhabitat healthy.

Minibeasts are able to survive in their habitats because they can find the things they need to survive there, such as food and water. For example, caterpillars can survive on leaves as they give them food.

Vocabulary

- absorbent** - material that soaks up liquid easily
- bendy** - an object that bends easily into a curved shape
- dull** - a colour or light that is not bright
- elastic** - a rubber material that stretches when you pull it and returns to its original size and shape when you let it go
- fabrics** - cloth or other material produced by weaving together cotton, wool or other threads.
- man-made** - things are created by people
- natural** - things that exist in nature and are not made by people
- opaque** - if an object or substance is opaque, you cannot see through it
- process** - a series of actions used to produce something or reach a goal.
- properties** - the qualities or features that belong to something and make it recognisable
- recyclable** - waste or materials which can be processed and used again
- suitable** - something that is suitable for a particular purpose or occasion is right or acceptable for it
- transparent** - If an object is transparent, you can see through it
- unsuitable** - Someone or something that is unsuitable for a particular purpose or situation does not have the right properties for it
- waterproof** - does not let water pass through it
- bulb** - a root shaped like an onion that grows into a flower or plant
- crop** - plants such as wheat and potatoes that are grown in large quantities for food
- deciduous** - a tree that loses its leaves in the autumn every year
- evergreen** - a tree or bush which has green leaves all the year round
- nutrients** - substances that help plants and animals to grow
- reproduce** - when an animal or plant produces one or more individuals similar to itself
- roots** - the parts of a plant that grow under the ground
- seed** - the small, hard part from which a new plant grows

Plants require things such as water, warmth, nutrients from soil and light to grow.
If they do not have one or more of these things, they may stop growing.
Plants can: • move • grow • react to their surroundings (sense) • absorb nutrients • reproduce

Many plants provide us with food by bearing fruits which carry their seeds.
When farmers grow plants to provide us with food, these are called crops.
We eat many fruits that contain seeds (including tomatoes!).

We also eat different parts of vegetable plants:

- root vegetables (carrots, potatoes) • stem vegetables (celery, spring onion) • leafy vegetables (cabbage, lettuce)
- flowering vegetables (cauliflower, broccoli)

We eat grains and cereals from plants too (wheat, oats).

Nuts and seeds are also sometimes edible (sesame seeds, pumpkin seeds, peanuts).

Many herbs are also grown to add flavour to foods.



Chemistry:

Substances and Properties - Particles and Structure - Chemical reactions - Earth's atmosphere - Dynamic earth

Materials are used for different purposes based on their properties. For example, wood is used to make furniture and floors.

Metal can be used to make coins, cans, cars and cutlery.

Glass can be used to make windows.



glass metal rock plastic wood



water brick paper fabrics elastic foil

Glass can be used to make windows because it is transparent.

Rulers can be made from wood, plastic or rubber because these materials are smooth and can be cut straight.

Spoons are made from metal, because it is waterproof and can be cleaned easily.

They can also be made from plastic for children because plastic is light and it cannot hurt children's growing teeth.

stem - the thin, upright part of a plant on which the flowers and leaves grow

vegetation - plants, trees and flowers

weed - a wild plant that grows in garden and prevents the plants that you want from growing properly

wild - animals or plants that live or grow in natural surroundings and are not looked after by people

biomes - a natural area of vegetation and animals

carnivore - an animal that eats meat

depend - If you depend on someone or something, you need them in order to be able to survive physically

food chain - a series of living things which are linked to each other because each thing feeds on the one next to it in the series

habitat - the natural environment in which an animal or plant normally lives or grows

herbivore - an animal that only eats plants

invertebrate - a creature that does not have a spine, for example an insect, a worm, or an octopus

microhabitat - a small part of the environment that supports a habitat, such as a fallen log in a forest

minibeast - a small invertebrate animal such as an insect or spider

omnivore - person or animal eats all kinds of food, including both meat and plants

vertebrate - a creature which has

bendy - an object that bends easily into a curved shape

force - the pulling or pushing effect that something has on something else

position - The position of someone or something is the place where they are in relation to other things

pull - When you pull something, you hold it firmly and use force in order to move it towards you or away from its previous position

push - When you push something, you use force to make it move away from you or away from its previous position

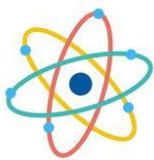
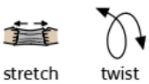
squash - pressed or crushed with such force that something loses its shape

stretchy - slightly elastic

twist - turn something to make a spiral shape



The shape of some materials can be changed when they are stretched, twisted, bent and squashed.



Physics:

Matter - **Forces and motion** - Sound, light and Waves - Electricity and Magnetism - Earth in space

- Objects move when they are pushed, pulled or twisted. These are all forces.
- A push or pull can move an object start to move, or stop it from moving.
- A push or pull can make an object speed up or slow down.
- A push or pull can make an object change direction.
- A push can squash some materials, and a pull can stretch some materials.

- backbone** - the column of small linked bones down the middle of your back
- balanced diet** - a variety of food that you regularly eat
- bar chart** - a chart which uses bars to represent the value of something and comparing it to a different group
- bones** - the hard parts inside your body which form your skeleton
- disease** - an illness which affects people, animals, or plants
- exercise** - When you exercise, you move your body energetically in order to get fit and to remain healthy
- healthy** - well and not suffering from any illness
- hygiene** - keeping yourself and your surroundings clean, especially in order to prevent illness or the spread of diseases
- life cycle** - the series of changes that an animal or plant passes through from the beginning of its life until its death
- medicine** - the treatment of illness and injuries by doctors and nurses
- offspring** - a person's children or an animal's young
- pictogram** - a simple drawing that represents something
- survive** - continue to exist

Recall Quiz



- What do you need to eat to stay healthy?
- What do humans need to continue to survive?
- Why is exercise important?
- What does the work 'Hygiene' mean? Why is it important?

Pulling forces:



rowing a boat

tug of war



archery



pulling a sledge

Pushing forces:



running



playing hockey



playing tennis



pushing a door closed

What material(s) would be best for a bus shelter? Why?

What material(s) would not be suitable? Why?

What material(s) are conductors or insulators?

What are the similarities and differences of glass and wood?

What classification would you give animals that eat: plants only, meat only, both plants and meat?

Can you give me the name of an animal that would fit into each category?

Can you give me an example of a food chain?

What habitat(s) would the plants and animals in your food chain live in?

What did/do your plants need to grow?

How do seeds grow into plants? Describe the process.

What might change the way a plant grows? Why?

What is the structure of a plant?

Teaching resources:

Animals including humans:

<https://pstt.org.uk/resources/curriculum-materials/assessment> (click 'Focussed Assessment Plans)
<https://explorify.wellcome.ac.uk/en/activities/whats-going-on/in-the-swim>
<https://www.stem.org.uk/resources/community/collection/12727/year-2-animals-including-humans>

Living things and their habitats:

<https://pstt.org.uk/resources/curriculum-materials/assessment> (click 'Focussed Assessment Plans)
<https://explorify.wellcome.ac.uk/en/activities/problem-solvers/house-hunting-hogs>
<https://www.stem.org.uk/resources/community/collection/12723/year-2-living-things-and-their-habitats>

Plants:

<https://pstt.org.uk/resources/curriculum-materials/assessment> (click 'Focussed Assessment Plans)
<https://explorify.wellcome.ac.uk/en/activities/odd-one-out/seeds-of-life>
<https://www.stem.org.uk/resources/community/collection/13299/year-2-plants>

Forces:

<https://pstt.org.uk/resources/curriculum-materials/assessment> (click 'Focussed Assessment Plans)
<https://explorify.wellcome.ac.uk/en/activities/odd-one-out/fun-floating>

Use of everyday materials:

<https://pstt.org.uk/resources/curriculum-materials/assessment> (click 'Focussed Assessment Plans)
<https://www.stem.org.uk/resources/community/collection/12724/year-2-uses-everyday-materials>
<https://explorify.wellcome.ac.uk/en/activities/what-if/all-your-clothes-were-shiny>