Ladywood Primary School Year 3- Science– Animals including Humans

What should I already know?

- All animals need water, air and food to survive.
- Examples of healthy and unhealthy food choices.
- The parts of the human body and what they do.
- Vertebrates have a backbone. and Invertebrates do not have a backbone.
- All animals need water, air and food to survive.

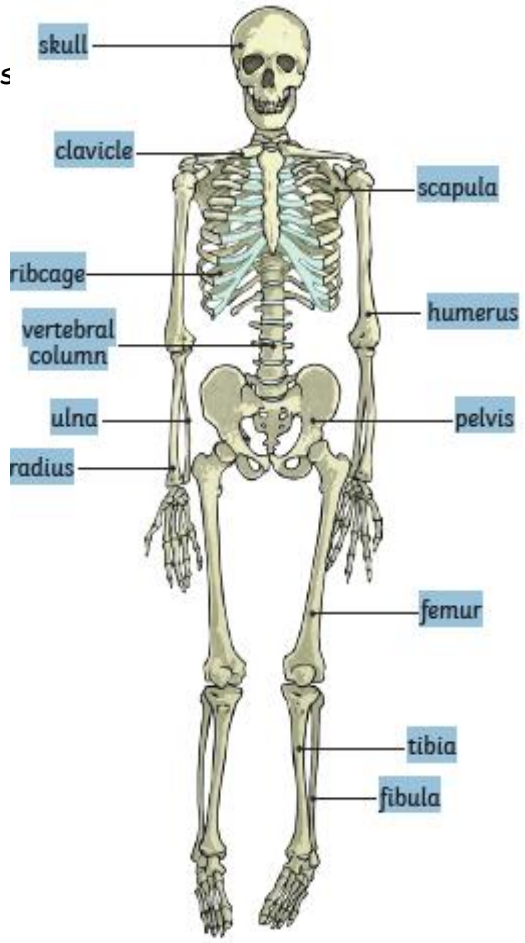
What will I know by the end of the unit?

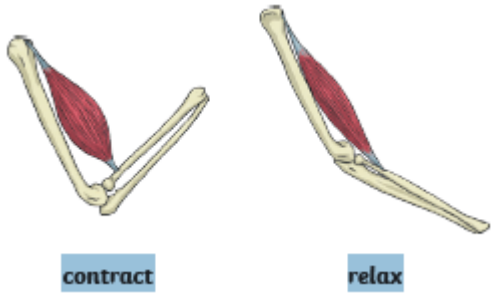
Living things need food to grow and to be strong and healthy.

Plants can make their own food, but animals cannot.

To stay healthy, humans need to exercise, eat a healthy diet and be hygienic.

Nutrient	Found in... (examples)	What it does/they do
carbohydrates		provide energy
protein		helps growth and repair
fibre		helps you to digest the food that you have eaten
fats		provide energy
vitamins		keep you healthy
minerals		keep you healthy
water		moves nutrients around your body and helps to get rid of waste





What is a Muscle?

A muscle is soft tissue in the body that contracts and relaxes to cause movement of the skeleton.

What is a tendon and joint?

A tendon is a cord that joins muscles to bone.

A joint is where two or more bones are joined together.

What is a Skeleton?

A skeleton is a structure of bones that supports the body of a person or animal.

Skeletons do three important jobs:

protect organs inside the body,

allow movement,

support the body and stop it from falling on the floor.

Investigate!

Compare and contrast the diets of different animals them according to what they eat.

Learn about how to prepare food hygienically.

Find out about how some groups of people (e.g. vegetarians) may compensate for missing a group.

Identify and group animals with and without skeletons and compare the ways in which they move.

Measure and compare the size of straight arms and bent it is bent .What do you notice?

Key Vocabulary

Energy -strength to be able to move and grow.

Saturated fat -types of fats, considered to be less healthy, that should only be eaten in small amounts.

Unsaturated fat -fats that give you energy, vitamins and minerals.

Organs- part of your body that performs a specific function: like your brain, lungs, or skin.

Exoskeleton -the protective or supporting structure covering the outside of the body of many animals.

Endoskeleton - the internal skeleton of an animal, especially the bony skeleton of vertebrate.

Contract -When a muscle becomes smaller, shorter and tighter.

Relax – when a muscle relaxes it becomes bigger, longer and less stiff.

Ladywood Primary School Year 3 Science – Plants

What should I already know?

The structure of common flowering plants, including trees.

That seeds and bulbs grow into mature plants.

Plants need water, light and a suitable temperature to grow and stay healthy.

What will I know by the end of the unit

The petals on a flower are usually bright - this is to attract bees and other insects so that they can collect pollen to make seeds.

The seeds are then able to grow to make new plants. This is called germination.

Leaves use carbon dioxide and sunlight to make food for the plant.

The stem carries water and other nutrients from the roots to the rest of the plant. Leaves use this water to make food.

The stem also helps to keep the plant upright so that the sunlight can reach it easier.

The roots help to 'anchor' the plant in the soil. They also absorb water and nutrients from the soil for the stem to carry to the rest of the plant.

Investigate!

Compare the effect of different factors in plant growth (e.g. the amount of water, the amount of light and the amount of fertiliser). Discuss what would make this a fair test.

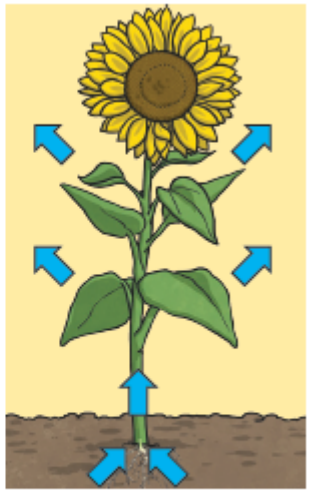
Place white carnations in dyed water to observe how plants transport water.

Dissect fruits to observe their structure and use this to explain how seeds are dispersed.

Dissect a flower and identify each of the different parts that help with fertilisation.

How Water Moves through a Plant

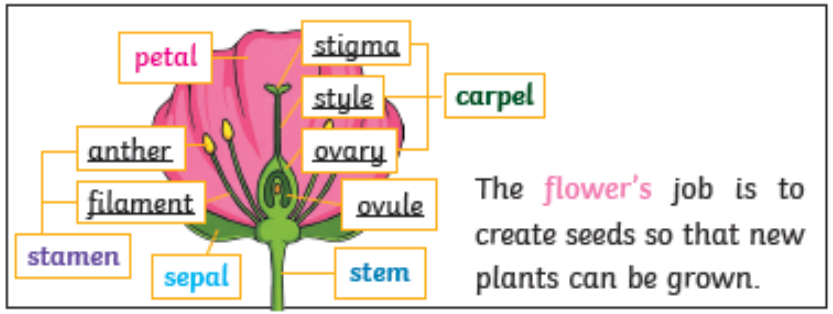
1. The roots absorb water from the soil.
2. The stem transports water to the leaves.
3. Water evaporates from the leaves.
4. This evaporation causes more water to be sucked up the stem.

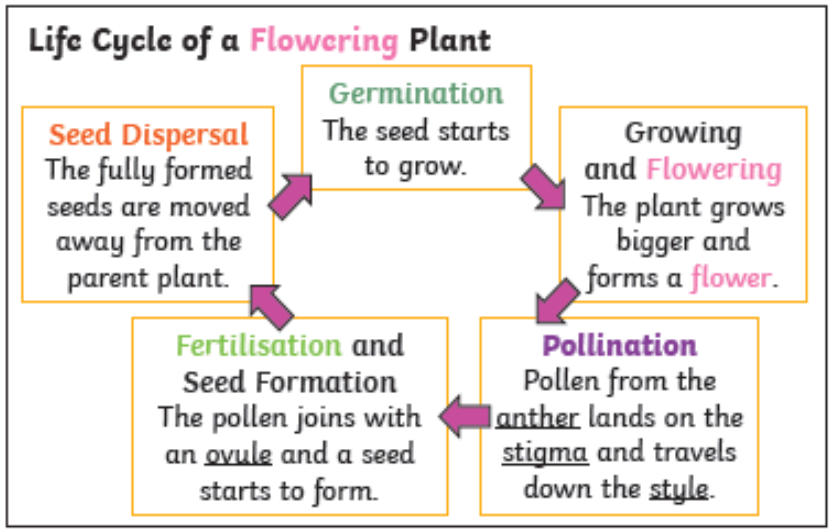


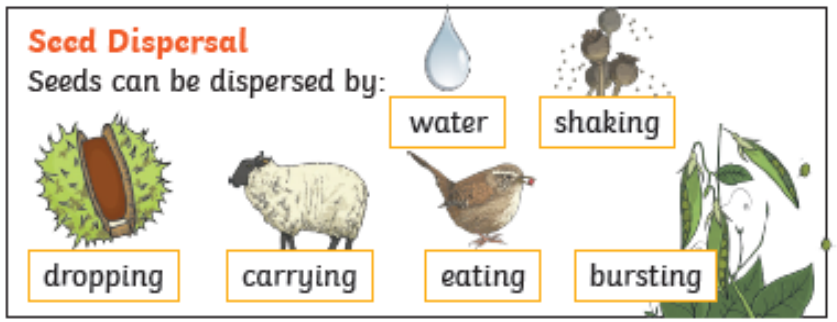
The water is sucked up the stem like water being sucked up through a straw.

Key Vocabulary

Absorb – soak up or take in.
Transported – moves around.
Carbon dioxide- a gas produced by animals and people breathing out.
Nutrients- needed by living things to survive.
Fertilization -when the male and female parts of the flower have mixed in order to make seeds for new plants.
Pollen -a powdery yellow substance.
Pollination- to fertilise it with pollen. This is often done by insects.
Nectar-a sweet fluid in flowers that attracts insects.
Disperse - spreading things over a wide area.







Ladywood Primary School Year 3 Science – Rocks

What should I already know?

- Soil contains nutrients and these help plants to grow.
- Why some materials are used for certain purposes because of their properties.

What will I know by the end of the unit

What are the different types of rocks?

There are three types of rocks that are formed naturally.

Sedimentary rocks are formed from particles of sand, shells, pebbles, and other fragments of material. Together, all these particles are called sediment. Gradually, the sediment accumulates into layers and over a long period of time hardens into rock.

Metamorphic rocks are formed under the surface of the earth from the metamorphosis (change) that occurs due to intense heat and pressure (squeezing).

Igneous rock is formed when magma cools and solidifies, it may do this above or below the Earth's surface.

How are fossils formed?

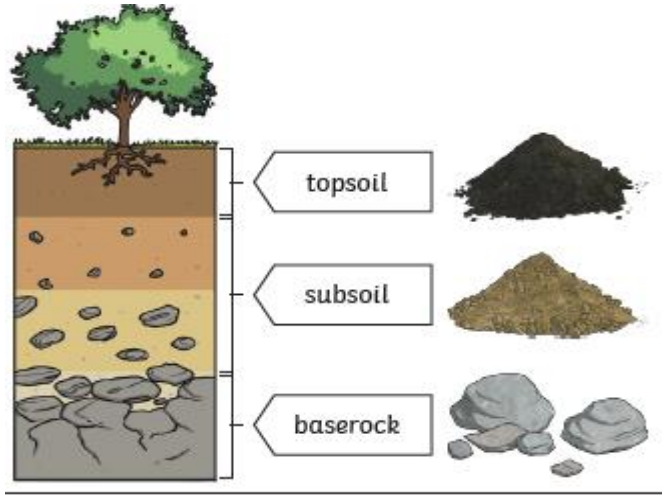
Fossils are the remains of prehistoric life.

- An animal dies, its skeleton settles on the sea floor and is buried by sediment.
- The sediment surrounding the skeleton thickens and begins to turn to stone.
- The skeleton dissolves and a mould is formed.
- Minerals crystallise inside the mould and a cast is formed.
- The fossil is exposed on the Earth's surface.

What is soil?

Soil is the uppermost layer of the earth. It is a mixture of:

- Minerals (small stone fragments: clay, silt or sand).
- Organic Matter (decaying plants and animals).
- Water (which the nutrients in the minerals and the organic matter dissolve into).
- Air (which fills the gaps between the mineral and organic matter parts).
- Types of soil are:-sandy soil, clay soil, chalky soil, peat.



Key Vocabulary

Sediment - solid material that settles at the bottom of a liquid, that have been carried along and then left by water, ice, or wind.
Lava – molten rock that comes out of the ground.
Magma –molten rock that remains under ground.
Molten-has been heated to a very high temperature and has become a hot, thick liquid.
Permeable –allows liquids to pass through it.
Impermeable –doesn't allow liquids to pass through it.
Erosion- when water, wind or ice wears away land.
Palaeontology –the study of fossils.
Fossilisation – the process of making fossils.
Crystallise –to form and make crystals.
Decaying – go bad or rot away.

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Investigate!

- Explore the types of rocks you can find in the local environment. Sort different types of rocks based on their properties.
- Research the different living things whose fossils are found.
- Explore and compare the different kinds of soils , you can find in the local environment.
- Investigate what happens when rocks are rubbed together.

Ladywood Primary School Year 3 Science – Forces

What should I already know?

- The shape of some materials can be changed when they are stretched, twisted, bent and squashed.
- Know what a force is and that a push and pull are types of forces.
- That when forces are applied to an object they allow them to move or stop moving.

What will I know by the end of the unit?

What are forces?

Forces are pushes and pulls.
These forces change the motion of an object.
They will make it start to move or speed up, slow it down or even make it stop.
For example: when a cyclist pushes down on the pedals of a bike, it begins to move. The harder the cyclist pedals, the faster the bike moves.
When the cyclist pulls the brakes, the bike slows down and eventually stops.

How do different surfaces affect the motion of an object?

Forces act in opposite directions to each other.
When an object moves across a surface, friction acts as an opposite force.
Friction is a force that holds back the motion of an object.
Some surfaces create more friction than others which means that objects move across them slower.
On a ramp, the force that causes the object to move downwards is gravity.
Objects move differently depending on the surface of the object itself and the surface of the ramp.

How do magnets work?

Magnets produce an area of force around them called a magnetic field.
When objects enter this magnetic field, they will be attracted to or repelled from the magnet if they are magnetic. When magnets repel, the push each other away
When magnets attract, they pull together.

Objects that are magnetic, are attracted to magnets.
Iron and steel are magnetic.
Aluminium and copper are non-magnetic.

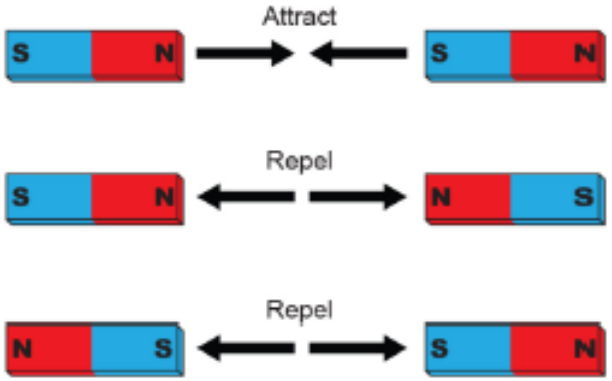
The ends of a magnet are called poles.
One end is called the north pole and the other end is called the south pole.

Investigate!

- Investigate the amount of friction created by different surfaces. Use measures (such as length and time) to show how far or fast and object travels.
- Observe how a magnetic field attracts iron filings by using a bar magnet.
- Investigate how magnets are used in everyday life.
- Investigate which materials are magnetic and sort them into groups.
- Investigate if the size of a magnet affects how strong it is (using chains of paper clips of varying lengths).

Key Vocabulary

Forces -pushes or pulls.
Friction – a force that acts between two surfaces or objects that are moving.
Surface – top layer of something.
Magnet – an object that produces a magnetic force and pulls thing towards it.
Magnetic – objects that are attracted to a magnet Magnetic forces.
Magnetic field – the area around a magnet where there is a magnetic force and will pull objects towards it.
Repel- a force that pushes objects away.
Attracts – a force that pulls objects together.



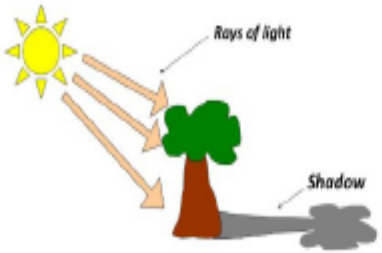
Ladywood Primary School Year 3 Science – Light

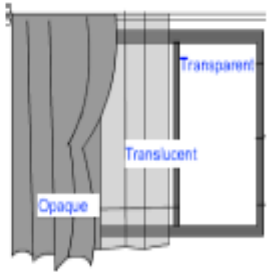
What should I already know?
- Certain things produce light, usually by burning (e.g. the Sun) or electricity (e.g. street lights.

What will I know by the end of the unit?

What is a light source?

A light source is something that makes its own light, such as: the sun, stars, candles, electric lights. Flames.
It is NEVER safe to look directly at the sun, you should were sunglasses.
The moon, mirrors and other shiny things aren't light sources but reflect light. Shiny things reflect light better than other things.
Light travels very quickly and in straight lines, if something gets in the way of the light, a shadow is formed.





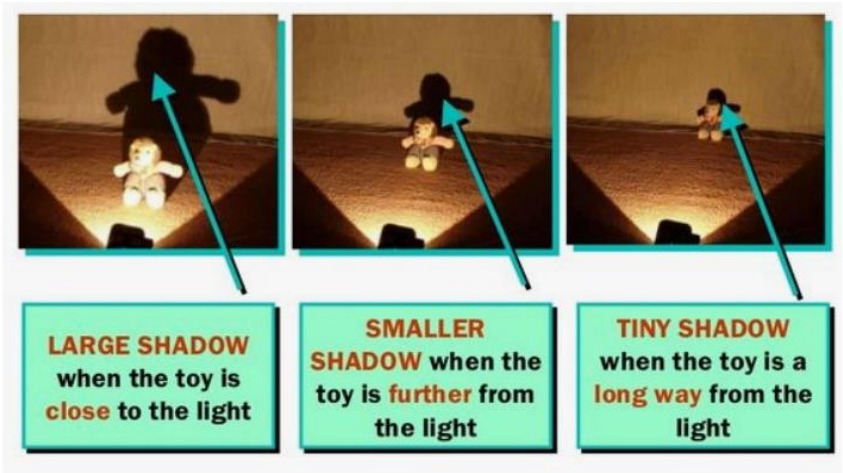
We see things when light from a source enters our eyes.

Above: Light travels directly from the light source (candle flame) to the eye.

Here the light goes form the light source, bounces off the object and into your eyes, so that you see the object.

How are shadows formed?

When light from a source is blocked by an opaque object, you get a shadow.
an object is moved closer to the light sources, the shadow gets bigger.
If an object is moved further away from the light source, the shadow gets smaller.



Key Vocabulary

Light – a form of energy that travels in a wave form a source.
Dark – the absence of light.
Pupil – the black part of the eye which lets light in.
Retina – layer at the back of the eye. Lets light in and changes it to nerve signals to the brain.
Ray- waves of light are called rays or beams.
Reflection- the process where light hits the surface of an object and bounces back into our eyes.
reflective –something that reflects light well.
Shadow- area of darkness where light is blocked.
Opaque – doesn't let light through.
Transparent_– lets light through easily.
Translucent – lets some light through but scatters light so we can see them clearly.

Investigate!
- The brightness of torches - can you put torches in order from brightest to dimmest? What would make it a fair test?
- Explore which objects form shadows when light is shone on them.
- How can you change the size and shape of shadows by using the same object?
- What happens when light is reflected from different surfaces? What happens when light is reflected from a mirror? What happens when the angle of the mirror (or light source changes?)
- Make a shadow puppet theatre.