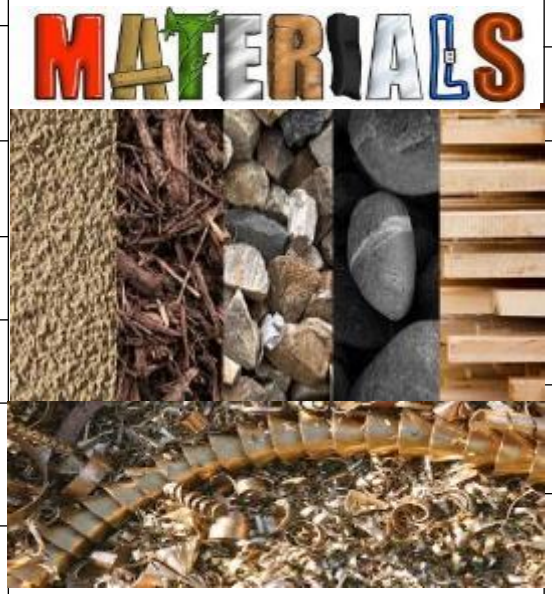
Year 1: Materials Knowledge Mat

Subject Specific Vocabulary

materials	What something is made of, e.g. wood or plastic.
wood	The material that comes from a tree. It varies in hardness.
plastic	A 'man-made' material that can be shaped or moulded to any shape.
metal	A tough and strong material which can be heated and shaped into anything.
liquid	Liquids can flow and take on the shape of their container.
gas	We can't see gas but it is all around us. There are different types of gas.
stretch	A stretchy material is one that is like elastic.
stiff	A stiff material is firm and hard and not flexible.
bend	A bendy material is one that can be twisted and is flexible.
waterproof	A material that does not allow water or liquid through.
shiny	A shiny material is sparkly or glossy and sometimes glittery.

Materials for clothes

1	**Leather** – used for shoes, jackets and belts.
2	**Wool** – used for jumpers, socks, pyjamas and coats
3	**Cotton** – used for clothes we wear on warmer days and shirts.
4	**Silk** – expensive material used for scarves and blouses



Sticky Knowledge

1 Glass is used for …

- **Windows** in houses and cars to see through.
- **Mirrors** – to see yourself – reflection.

2 Metal is used for …

- **Strength** –in construction of planes, cars and trains and especially tall buildings.

3 Wood is used for …

- **Doors** – most doors are made from wood.
- **Furniture** – most furniture is made of wood, often special wood.

4 Plastic is moulded or shaped …

- to form any shape from buckets to animal jelly casts.

Year 1: Animals Knowledge Mat

Subject Specific Vocabulary

fish	A fish is a scaly skinned creature with a spine that swims in water and breathes using gills.
amphibians	All amphibians begin their life in water with gills and tails. Examples are frogs and newts.
reptiles	Are animals that are cold-blooded. Most lay eggs and their skin is covered with hard, dry scales.
birds	Birds have feathers and wings. They lay eggs and are warm-blooded animals.
mammals	Mammals are also warm blooded animals. They breath air and have a backbone.
carnivore	A carnivore is a meat-eating animal that gets its food from killing other animals.
herbivore	A herbivore eats plants.
omnivore	An omnivore eats plants and meat.
tame	Domesticated animals that are not frightened of humans and do not try to hurt humans.
wild	Living in the natural environment and not belonging to humans.
nocturnal	Animals that are active during the night time.

Interesting Book

Wild Animals

Sticky Knowledge about animals

- ❑ The blue whale can produce the loudest sound of any animal.
- ❑ Horses and cows sleep while standing up.
- ❑ Giant Arctic jellyfish have tentacles that can reach over 36 metres in length.
- ❑ Tigers can grow up to a length of 3 metres and weigh up to 300 kilograms when fully developed.
- ❑ There are about 400 million+ dogs in the entire world. The average life of a dog depending on the breed can vary from 10 to 14 years.
- ❑ Dolphins use whistling, clicking and other sounds to communicate with each other.
- ❑ Camels can survive up to six months without water or food due to the fatty tissues stored in their humps.
- ❑ The cheetah is the fastest animal to roam the earth with top speeds of 113 km per hour.

Year 1: Plants Knowledge Mat

Subject Specific Vocabulary

buds	A small lump on a stem or twig that will grow into a leaf, flower or shoot.
bulbs	The resting stage of a plant that is usually formed underground.
deciduous	Deciduous is the name given to trees that lose their leaves in autumn and are bare in the winter.
evergreen	Evergreen is the name of trees that have leaves all year round.
trunk	A tree's trunk holds up its crown, protects its inner parts and works like a pipeline, transporting essential materials to the different parts of the tree.
vegetable	A vegetable is a plant or part of a plant which is used as food, for example cabbage or potato.
wild plants	These are plants that don't grow in our gardens and are self-seeded.
environment	The area where a plant or tree lives is its environment.
blossom	Blossom is the flower that comes before the fruit. For example, apple blossom comes before the apple starts to grow.
petals	A petal is a part of the flower and is usually coloured. The colour attracts insects.
branches	Branches come from the tree trunk and grow outwards.

Interesting Books

Important facts to know by the end of the plants topic:

- ❑ **Know the names of a variety of common wild and garden plants**
- ❑ **Know the names of a variety of common trees**
- ❑ **Know the difference between deciduous and evergreen trees**
- ❑ **Know which plants grow in the local environment**

Sticky Knowledge about plants

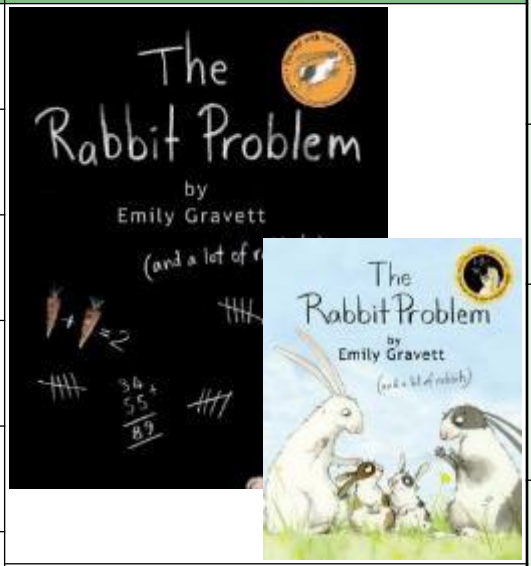
- ❑ Some trees can live for thousands of years.
- ❑ Around 2000 different types of plants are used by humans to make food.
- ❑ Some plants are carnivores. A well known example of a carnivorous plant is the Venus Flytrap.
- ❑ Bamboo can be a fast growing plant. Some types can grow almost a metre in just one day!
- ❑ Touching poison ivy will cause an allergic reaction, usually in the form of an itchy rash on the skin.
- ❑ As well as looking beautiful, trees help purify the air and provide food and shelter for all sorts of creatures.
- ❑ Water and nutrients travel up the tree trunk, through the branches and all the way out to the leaves.

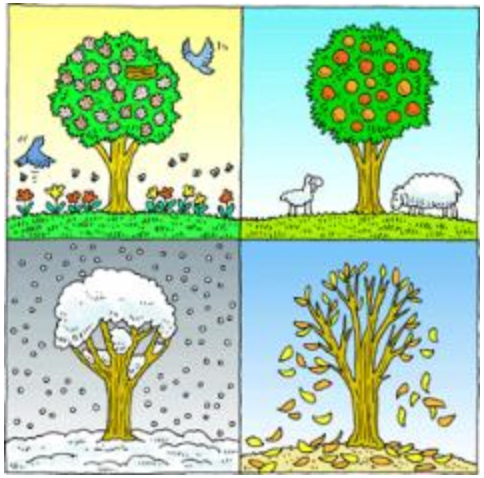
Year 1: Seasonal Change Knowledge Mat

Subject Specific Vocabulary

Autumn	The time of year between September and November. Many leaves fall off the trees.
Spring	The time of year between March and May. There is usually lots of signs of new growth in Spring.
Summer	The hottest season in the UK. It happens between June and August. The longest day is June 21st.
Winter	The coldest season in the UK. We can have snow in this season. It occurs between December and February.
Fall	The name given to the Autumn season by Americans. It is because so many leaves fall off the trees.
weather	Weather is what the sky and the air outside are like, such as cold and cloudy.
temperature	It is measurement of hot or cold that can be measured using a thermometer.
thermometer	This is the instrument that measures the temperature.
weather symbol 	These are signs used to help us understand more about our daily weather.
deciduous	Deciduous trees are trees that shed their leaves once a year, usually during the season of autumn.
coniferous	Most conifers are evergreens, or trees that keep their leaves year-round.

Interesting Book





Sticky Knowledge about seasonal change

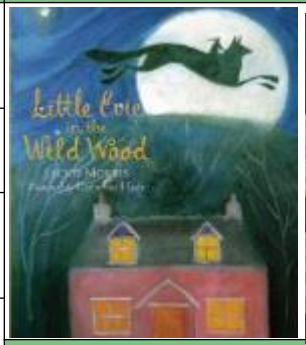
- ❑ In the UK we have four seasons: spring, summer, autumn and winter. Summer is the hottest season and winter the coldest.
- ❑ Spring starts when the day and night are the same length (usually 21st March. However, many say that Spring starts on March 1st).
- ❑ In summer the longest day of the year is around June 21st and in winter the shortest day of the year is usually December 21st.
- ❑ When we have our summer it is winter in the southern hemisphere. When we have our winter Australia has its summer.
- ❑ In the USA and many other countries the season 'Autumn' is known as the 'Fall'. This is because so many leaves fall from the trees in Autumn.
- ❑ Seasons change throughout the year because of the way the Earth travels around the Sun.

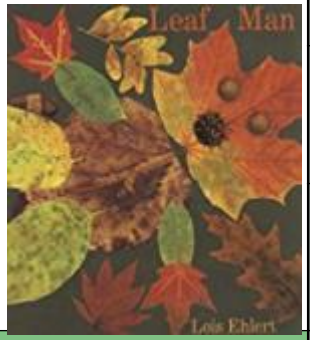
Year 2: Plants and Trees Knowledge Mat

Subject Specific Vocabulary

roots	It is the part of a plant that is usually hidden under the ground. They make the plant stable and give it nutrients.
crown	The crown is made up of the leaves and branches at the top of the tree.
deciduous	Deciduous trees are trees that shed their leaves in the Autumn and grow new leaves in the spring.
evergreen	Evergreen trees are the same as coniferous trees. They do not lose their leaves in Autumn.
blossom	Is the mass of flowers created by a tree. Almost all fruit bearing trees have blossom. The blossom is usually at its best in the spring.
bulb	Bulbs are underground masses of food storage from which plants grow.
trunk	A tree's trunk holds up its crown, protects its inner parts and works like a pipeline, transporting essential materials to the different parts of the tree.
stem	The stem is the main part of the plant. It supports the weight of the leaves, as well as the flowers or fruit.
woodland	A woodland is a habitat where trees are the dominant plant form.
habitat	The place where a plant or animal (mostly) lives. There are different kinds of habitats, such as grassland, forest, river, sea and desert.
oxygen	Oxygen is used by animals and plants in the respiration (breathing) process.

Interesting Books





Common trees found in the UK

oak

Horse chestnut

conifer

willow

Sticky Knowledge about trees

- ❑ Trees and shrubs take in water and carbon dioxide and give out oxygen.
- ❑ Trees can live for a very long time. The oldest known tree is over 5000 years old.
- ❑ A single tree has many roots. The roots carry food and water from the ground through the trunk and branches to the leaves of the tree.
- ❑ The trunk is the main body of the tree. The trunk is covered with bark which protects it from damage.
- ❑ The leaves can be of many different shapes. They take in sunlight and use water and food from the roots to make the tree grow.
- ❑ As a tree grows, it usually produces growth rings as new wood is laid down around the old wood.

Year 2: Habitats Knowledge Mat

Subject Specific Vocabulary

dinosaur	Dinosaurs were the main animals on Earth for more than 150 million years. They were lizard-like reptiles.
indigenous	Produced, growing, living, or occurring naturally in a particular region or environment.
rivers	A river is a flowing, moving stream of water. Usually a river feeds water into an ocean, lake, pond, or even another river.
woodland	Woodland is a low-density forest with plenty of sunlight and limited shade.
ponds	A pond is a body of water smaller than a lake. Ponds support a very wide range of wildlife.
sea	A sea is part of the ocean partially enclosed by land. Seas are found on the margins of the ocean and are partially enclosed by land.
rainforest	Tropical rainforests are forests with tall trees, warm climates and lots of rain.
desert	A desert is any large region that gets very little rain each year. Very few plants or animals live in desert areas.
species	A group of animals, plants or other living things that all share common characteristics and that are all classified as alike in some manner.
microhabitats	Microhabitats are the small-scale physical requirements of a particular organism or a community of organisms.

Interesting Books

Important facts to know by the end of the habitats topic:

- **know how a specific habitat provides for the basic needs of things living there**
- **identify and name plants and animals in a range of habitats**
- **match living things to their habitat**
- **know how animals find their food**
- **name some different sources of food for animals**

Sticky Knowledge about habitats

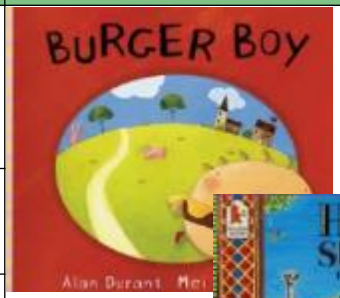
- ❑ A habitat is a place that an animal lives. It provides the animal with food, water and shelter.
- ❑ There are many different sorts of habitats around the world from forests to grasslands and from mountain slopes to deserts.
- ❑ Animals like cockroaches are really important in a habitat - they eat the dead plants and recycle the nutrients back into the soil.
- ❑ People are causing harm to many habitats. Forests are being burnt down, lakes and rivers polluted and the polar ice caps are melting.
- ❑ Because resources like water and food may be limited, plant and animal species often compete with each other for food and water.
- ❑ Because the Earth is always changing, habitats are constantly changing.

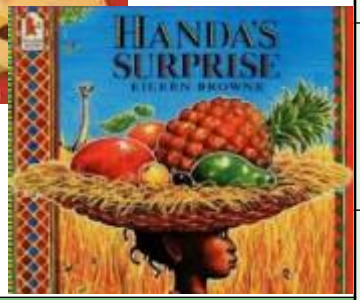
Year 2: Healthy Living Knowledge Mat

Subject Specific Vocabulary

healthy	Keeping healthy means doing things that are good for your body – things like eating nutritious foods, exercising, brushing your teeth and getting enough sleep
diet	Eating a balanced diet means choosing foods in the right amounts from each of the food groups.
off-spring	You can refer to a person's children or an animal's young as their off-spring.
exercise	Means to keep your body healthy by running, walking and playing. You will need to feel out of breath if you have exercised properly.
proteins	Protein is a food group which includes meat, eggs, fish, dairy products, nuts and seeds
carbohydrates	Carbohydrates are sugars (such as fructose, glucose, and lactose) and starches, which are found in foods such as starchy vegetables, grains, rice, breads, and cereals.
fats	Fats are found in meat and other animal products, such as butter and cheese.
nutrition	Nutrition is the process by which the body nourishes itself by transforming food into energy and body tissues.
survival	Survive usually means to succeed in keeping alive.
hygiene	Taking care of our body by being clean and making sure we don't smell.

Interesting Books





Important facts to know by the end of the healthy living topic:

- **Know that animals, including humans, have young animals that look like them.**
- **Know that the babies will grow into adults.**
- **Know what humans need to survive (including food and water).**
- **Know what animals need to survive.**
- **Know why it is important to exercise.**
- **Know why it is important to eat the right amounts of food.**
- **Know why it is important to keep clean and wash regularly.**

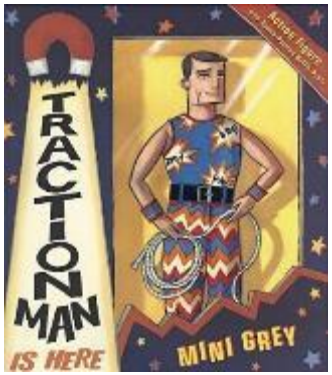
Sticky Knowledge about healthy living

- ❑ Keeping healthy means caring for your body so you have enough energy to learn, play and grow.
- ❑ All foods contain nutrients which your body needs to stay active throughout the day. Some foods have more nutrients than others.
- ❑ Everyone should have their '5 a day' – this means five portions of fruit and vegetables, to get the right amount of nutrients.
- ❑ It's important not to eat too much sugar and salt: sugary foods are bad for your teeth and can be fattening, and salty foods can lead to heart disease.
- ❑ Keep your mouth healthy by brushing and flossing to have clean teeth and gums.
- ❑ It's important to have 30-60 minutes of exercise every day. This can include running around and playing games with friends.

Year 2: Materials Knowledge Mat

Subject Specific Vocabulary	
metal	When heated, metals can be shaped into anything from a tiny paperclip to a huge aircraft.
plastic	Plastics are made from natural materials such as wood, coal and oil.
Charles Macintosh	We know Charles Mackintosh for inventing mackintoshes which was a special type of coat. We use the word 'mac' today because of his invention.
John Dunlop	John Dunlop was a person who improved the tyres on cars. You may see tyres on cars with the name DUNLOP on them.
wood	Wood is a material that comes from trees and is used to make furniture, floors and many other things
squashing	Squashing is pushing things closely together.
bending	Bending is changing the shape and direction of something.
twisting	To twist something you move one part clockwise and the other part anticlockwise.
stretching	Stretching is to change shape by pulling it to make it longer or wider.
John McAdam	John McAdam is most famous for inventing the tar used to make roads. It was known as Tar McAdam.

Interesting Book



Important facts to know by the end of the Year 2 materials topic:

- ❑ **Know why some materials are more suitable than others for specific uses**
- ❑ **Know why glass, wood, plastic, brick or paper would be used for certain jobs**
- ❑ **Know that some materials can be squashed, twisted or bent according to need**
- ❑ **Know why certain materials are suitable for many different uses**
- ❑ **Know about the lives of important people who have developed useful new materials**

Sticky Knowledge about materials

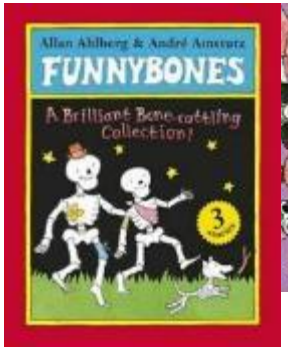
- ❑ Wood is used to make buildings and furniture and for making fires and heating.
- ❑ Most of the paper or cardboard we use came from trees.
- ❑ Glass is a hard transparent material that can be made in many shapes.
- ❑ Glass is usually transparent, which means you can see through it, but can also come in different colours.
- ❑ Glass is often used to make windows and bottles.
- ❑ Many churches have special coloured glass often used to make religious pictures.
- ❑ Plastics are used to make many of the things we use in everyday life. They are used for toys, bicycle helmets, mobile phones, window frames and many other common items.
- ❑ Petrol is used to make plastic and it invented just over a 100 years ago.

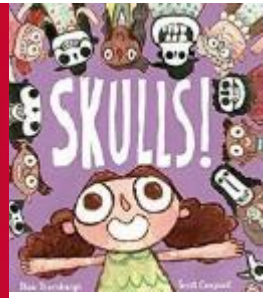
Year 3: Skeleton and Muscles Knowledge Mat

Subject Specific Vocabulary

nutrition	Nutrition involves drinking enough water and eating the right amount of items from the four main food groups.
skeleton	The human skeleton is made of bone and grows as we grow. Our skull protects our brain and our ribs protect our heart and lungs.
muscles	Muscles are attached to bones by tendons and help them to move. When a muscle contracts it gets shorter and pulls on the bone it is attached to.
diet	Our bodies need a balanced diet to work properly. This involves drinking enough water and eating healthily.
joint	Joints allow the body to make movements. The body has many bones and are connected through the joints.
pelvis	The pelvis is a bony cradle-shaped structure located at the base of the spine.
cartilage	Cartilage is a connective tissue found in many areas of the body including joints between bones e.g. the elbows, knees and ankles.
rib cage	It is made up of curved bones. The rib cage is found in the chest area. It protects a person's internal organs from damage.
tendon	Muscles are attached to the bone by tendons and work in pairs to allow for smooth movement.
spine	Also known as your backbone, your spine is a strong, flexible column of ring-like bones that runs from your skull to your pelvis.

Interesting Books





Important facts to know by the end of the skeleton and muscle topic:

- **That humans cannot make their own food. They get their nutrition from what they eat.**
- **That humans have skeletons and muscles for support, protection and movement.**
- **Know that the body parts have special functions.**
- **Know the names of the body parts associated with skeleton and muscles.**
- **Compare the diets of different groups of animals, including humans.**
- **Know what a healthy meal looks like.**

Sticky Knowledge about our skeleton and muscles

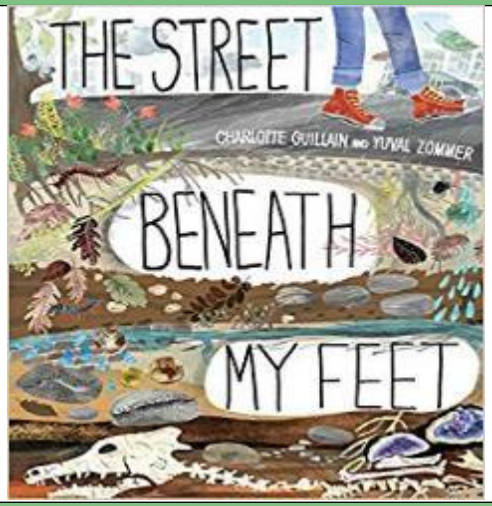
- ❑ The spine is made up of 33 bones and the smallest bone is found in our ear.
- ❑ Muscles make up 40% of our total body weight and the smallest muscle is found in our ears.
- ❑ When we are born we have about 300 bones in our body by the time we are adults we have 206 because some bones have fused together.
- ❑ When broken our bones will repair themselves. Doctors use casts or splits to make sure they grow back straight.
- ❑ The longest bone in the human body is the thigh bone called the femur.
- ❑ Bone marrow makes up 4% of a human body mass. It produces red blood cells which carry oxygen all around the body.

Year 3: Rocks and Magnets Knowledge Mat

Subject Specific Vocabulary

fossil	A fossil is the preserved remains or traces of a dead organism.
soil	Soil consists of a mix of organic material (decayed plants and animals) and broken bits of rocks and minerals.
crystals	Crystals are a special kind of solid material where the molecules fit together in a repeating pattern.
sedimentary	Sedimentary rocks are made when sand, mud and pebbles get laid down in layers. Over time, these layers are squashed under more and more layers.
metamorphic	When a rock experiences heat and pressure, it becomes a metamorphic rock. All metamorphic rocks start as another type of rock.
igneous	Igneous rock is formed when magma cools and solidifies. It may do this above or below the Earth's surface.
magnetic pole	Either of two areas on the earth's surface, one near the geographic north pole and one near the geographic south pole, where the Earth's magnetic fields are strongest.
organic matter	Organic matter is matter that has come from a recently living organism. It is capable of decaying.
attract and repel	A magnetic field is the area around the magnet where it can attract or repel things. When you bring two magnets together they will either attract or repel.

Interesting Book



Important facts to know by the end of the rocks and magnets topic:

- Know how fossils are formed.
- Know what soil is.
- Know that magnets attract some objects but not others.
- Know the difference between igneous, sedimentary and metamorphic rocks.
- Predict whether two magnets will attract or repeal each other.
- Know that magnets have two poles.
- Group together different rocks according to different attributes.

Sticky Knowledge about our rocks and magnets

- ❑ Rocks have been used by humans for millions of years, from early tools and weapons through to construction materials for modern buildings.
- ❑ Sediment deposited over time, often as layers at the bottom of lakes and oceans, forms sedimentary rocks.
- ❑ Extreme pressure and heat over time forms metamorphic rocks. Examples are marble and slate.
- ❑ When magma cools and solidifies it forms igneous rock. Examples are granite and pumice.
- ❑ The Earth is a very big magnet. Its North and South poles are highly magnetic.
- ❑ A magnet always has north and south poles. Cutting a magnet in half makes two magnets, each with two poles.
- ❑ Magnets only attract certain types of metals, other materials such as glass, plastic and wood aren't attracted.

Year 3: Light and Dark Knowledge Mat

Subject Specific Vocabulary

reflection	A reflection occurs when a ray of light hits a surface and bounces off.
shadows	A shadow is formed when an object blocks out the light. The object must be opaque or translucent to make a shadow.
light source	The main light source for Earth is the Sun. Some other luminous objects give out light, for example, torches, candles and lamps.
opaque	Opaque objects do not allow light to pass through them, in most cases creating a shadow.
refraction	It is the change of direction of a light ray as it passes through different surfaces, for example, from air to water.
periscope	A periscope is an instrument people use to look at things from a hidden position.
nocturnal	If something is nocturnal, it belongs to or is active at night. For example, bats and owls.
orbits	An orbit is a repeating path that one celestial body takes around another.
convex	Convex lenses, also called positive lenses, are lenses that curve outward from the edges to the centre.
concave	A concave lens is one where the centre of the lens is thinner than the edges.

Interesting Books

Important facts to know by the end of the light and dark topic

- What dark is (in relation to absence of light).
- Know that we need light so we can see things.
- Know that light can be reflected.
- Know how a shadow is formed.
- Understand why shadows change shape.
- Know the dangers of looking directly at the Sun.
- Know how to protect oneself from direct sunlight.

Sticky Knowledge about light and dark

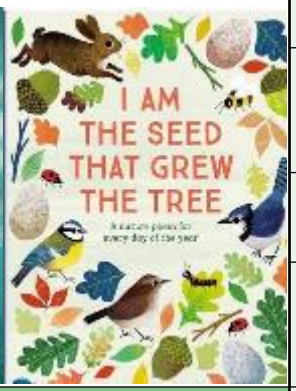
- ❑ Black and dark objects absorb light and heat whilst white or light objects reflect it.
- ❑ Some objects like glass are transparent which means that light can shine through them.
- ❑ Our main source of light on Earth comes from the Sun. A ray of light travels very fast.
- ❑ Darkness is made by blocking light from the sun or some other source of light, which makes shadows.
- ❑ The Sun and other stars, fires, torches and lamps all make their own light and so are examples of sources of light.
- ❑ A mirror is not a source of light, it merely reflects light. Similarly, the Moon is not a source of light because it reflects the light from the Sun.
- ❑ Some animals are nocturnal. They are awake at night and can see very well in the dark. Our eyes aren't designed to see at night.

Year 3: Plants Knowledge Mat

Subject Specific Vocabulary

roots	The root is the part of a plant that typically lies below the surface of the soil.
stem	The stem is the plant axis that bears buds and shoots with leaves.
nutrients	Nutrients are the food the plant wants. Most of the plant's nutrients comes from the soil.
pollination	Pollination is the act of transferring pollen grains from the male anther of a flower to the female stigma.
seed dispersal	Seed dispersal is the movement or transport of seeds away from the parent plant.
fertiliser	Fertilisers are used to increase the rate of a plant's growth.
seed formation	A seed is a small baby plant enclosed in a covering called the seed coat, usually with some stored food.
stigma	The stigma is usually sticky and receives pollen.
anther	The stamen has a pollen producing structure at the end which is called the anther.
soil	The soil has water and nutrients that a plant needs to grow healthily.

Interesting Book



Important facts to know by the end of the plant topic

- ❑ Know the function of the different parts of the flowering plant.
- ❑ Identify and know the names of: stem; roots; leaves and flowers.
- ❑ Know what a plant needs to grow.
- ❑ Know that light, air, water, nutrients from soil are all important for plant growth.
- ❑ Find out how water is transported within a plant.
- ❑ Know the part that flowers play in the life cycle of a flowering plant.
- ❑ Know about pollination, seed formation and seed dispersal.

Sticky Knowledge about plants

- ❑ Trees are more than just part of our natural landscape. They provide shelter and food for wildlife.
- ❑ Trees absorb carbon dioxide and produce breathable air.
- ❑ A large tree can consume 100 gallons of water out of the ground in one day.
- ❑ Not only do trees provide shade in the summer, but they serve as a windbreak in the winter too.
- ❑ The oldest known living tree is 4,800 years old.
- ❑ Trees are able to communicate and defend themselves against attacking insects.
- ❑ Several centuries ago in Holland, tulips were more valuable than gold.
- ❑ Some plants such as orchids do not need soil to grow-they get all of their nutrients from the air.
- ❑ Broccoli is actually a flower.

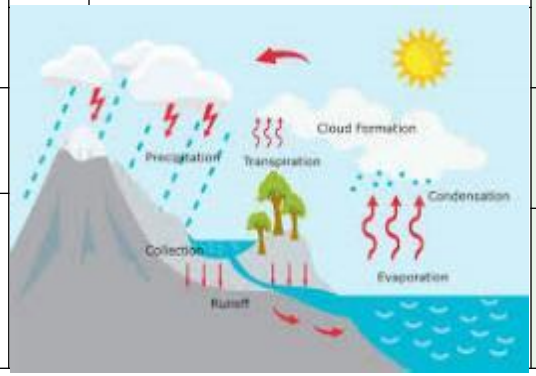
Year 4: Solid, Liquid and Gases Knowledge Mat

Subject Specific Vocabulary

water vapour	Water that is in the form of gas.
condensation	When water vapour that is around us changes from a gas back to liquid.
precipitation	Any watery substance such as rain, water, snow, hail or sleet that falls to Earth.
evaporation	When liquid changes into gas, usually when it heats up.
substance	Any solid, liquid, powder or gas is a substance.
matter	Any solid, liquid or gas that exists in the universe.
lava	Very hot liquid that comes out of a volcano.
solid	A substance that stays the same shape. Its particles do not move.
liquid	Liquids will flow as they are made up of loosely packed particles.
gas	Gaseous matter is made up of matter that is so loose it is always moving.

Stages of the water cycle

1	The sun heats up rivers, lakes and the sea.
2	Water evaporates into the air. This is called water vapour.
3	The water vapour rises, cools and condenses to water in the form of clouds.
4	The droplets in the clouds become too heavy and fall as rain, snow or hail.
5	The rain, snow or hail is then collected in rivers that run off to the sea.
6	The cycle starts again.



Sticky Knowledge about water

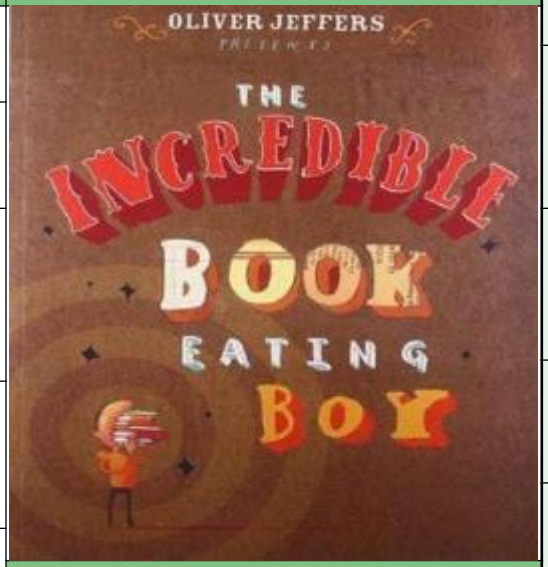
1	Water can exist in three forms: liquid (water), solid (ice) or gas (water vapour).
2	About 70% of Earth is covered in water.
3	There are underground reservoirs called aquifers.
4	Some water in the ground may stay there for thousands of years.
5	Water can be used to create electricity through a hydro-electric power station.
6	The Nile is 4132 miles long, making it the longest river in the world.
7	Humans are made up of about 75% water.
8	97% of water is in the oceans (this is salty water) and 2% is in the ice caps, leaving only 1% available for us to drink.

Year 4: Digestive System Knowledge Mat

Subject Specific Vocabulary

pancreas	The pancreas produces juices called enzymes which help the body digest food.
oesophagus	The oesophagus is like a stretchy tube that moves food from the back of the throat to the stomach.
intestine	The main function of the small intestine is absorption of nutrients and minerals from food. The major function of the large intestine is to absorb water from the remaining indigestible food.
organ	The skin is the biggest organ of your body. Other organs include your brain, lungs, heart, liver, stomach, intestines, pancreas, and kidneys, all called internal organs.
molars	Molars are the teeth that are used for chewing and grinding our food.
canine	Canines are the teeth used for ripping and tearing our food. We have two located at the top of our mouth and two at the bottom.
food chain	A food chain is a diagram that shows us how animals are linked by what they eat.
predators	Predators are wild animals that hunt, or prey on, other animals. Predatory animals need the flesh of the animals that they kill to survive.
prey	The term prey refers to an animal that is sought, captured, and eaten by a predator.
salivary gland	The salivary glands contain special enzymes that help digest the starches in your food.

Interesting Book



Important facts to know by the end of the digestive system topic:

- Know and name the parts of the digestive system.
- Know the function of each organ of the digestive system.
- Know and identify the different types of teeth in humans.
- Know the function of different human teeth.
- Use food chains to identify producers, predators and prey.
- Construct food chains to identify producers, predators and prey.

Sticky Knowledge about the digestive system

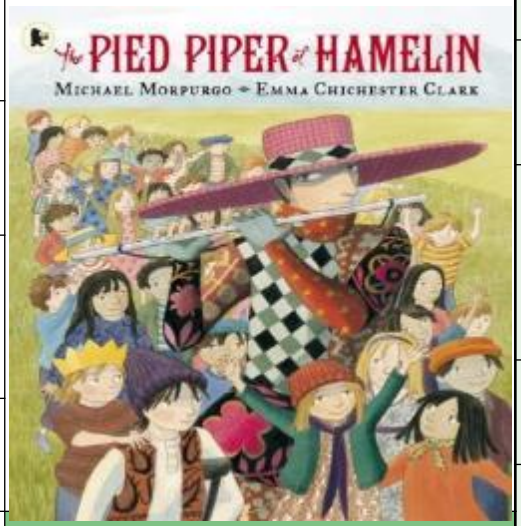
- ❑ The oesophagus is the food highway that takes your food from your mouth down into your stomach so that digestion can begin.
- ❑ The stomach is filled with powerful acids that break down the food into smaller pieces. It also lets us know when we are hungry.
- ❑ The liver creates different enzymes to help process food nutrients that are collected in the small intestine.
- ❑ The gallbladder is a storage unit for all of the bile and enzymes created by the liver. It stores them until they are needed for digestion.
- ❑ The main job for the small intestine is to absorb nutrients and minerals from food. In fact, 90% of food absorption takes place here, making it our main digestion location.
- ❑ The outside of our teeth are covered with enamel and the inside have blood vessels and nerves.
- ❑ The front teeth are called incisors, the four sharp teeth are called canines, the teeth at the back are called molars.

Year 4: Sound Knowledge Mat

Subject Specific Vocabulary

vibrating	Sound is caused by the vibration of a medium (usually air) and it travels in waves.
pitch	A high sound has a high pitch and a low sound has a low pitch. A tight drum skin gives a higher pitched sound than a loose drum skin.
volume	Volume is the perception of loudness from the intensity of a sound wave. The higher the intensity of a sound, the louder it is perceived in our ears, and the higher volume it has.
insulation	Protecting something by surrounding it with material that reduces or prevents the transmission of sound.
outer, middle and inner ear	The ear is made up of three different sections: the outer ear, the middle ear, and the inner ear. These parts all work together so you can hear and process sounds.
cochlea	The cochlea looks like a spiral-shaped snail shell deep in your ear. It plays an important part in helping you hear.
auditory	Auditory is close in meaning to acoustic, but auditory usually refers more to hearing than to sound.
frequency	Frequency is measured as the number of wave cycles that occur in one second.
hammer	The ear has little bones called ossicles that help you hear. They are called the hammer (malleus), anvil (incus), and stirrup (stapes). They amplify the sound or make it louder.

Interesting Book



Important facts to know by the end of the sound topic:

- Know how sound is made.
- Know how sound travels from the source to the ears.
- Know to associate sound with vibration.
- Know the correlation between pitch and the object producing a sound.
- Know the correlation between the volume of a sound and the strength of the vibrations that produced it.
- Know what happens to a sound as it travels away from its source.

Sticky Knowledge about Sound

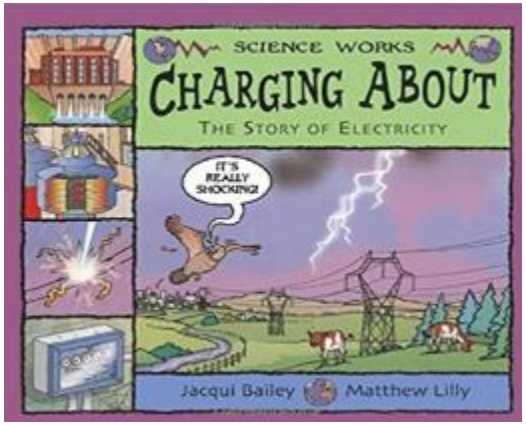
- ❑ Sound travels with a speed of 767 miles per hour but it cannot travel through a vacuum.
- ❑ Sound comes from vibrations. These vibrations create sound waves which move through mediums such as air and water before reaching our ears.
- ❑ Dogs can hear sounds at a higher frequency than humans.
- ❑ Our ear drums vibrate in a similar way to the original source of the vibration, allowing us to hear many different sounds.
- ❑ When traveling through water, sound moves four times faster than when it travels through air.
- ❑ Sound is used by many animals to detect danger, warning them of possible attacks before they happen.
- ❑ The loud noise you create by cracking a whip occurs because the tip is moving so fast it breaks the speed of sound!

Year 4: Electricity Knowledge Mat

Subject Specific Vocabulary

circuit	An electrical circuit is a completed path through which an electrical current flows.
buzzers	A buzzer is an automatic signalling device. They are used as alarms and door bells.
conductor	A conductor is an object or type of material that allows the flow of an electrical current in one or more directions
battery	A battery is a device that stores chemical energy and makes it available in an electrical form.
cells	An electrical cell is a device that is used to generate electricity.
switch	A switch is an electrical component that can 'make' or 'break' an electrical circuit.
socket	Sockets allow electrical equipment to be connected to the alternating current (AC) power supply in buildings and at other sites.
appliance	An electrical appliance is a device that uses electricity to perform a function.
appliance series circuit	Components connected in series are connected along a single path, so the same current flows through all of the components.
insulator	An insulator is a material whose internal electric charges do not flow freely.

Interesting Book



Important facts to know by the end of the electricity topic in Year 4

- ❑ Know about common appliances that run on electricity.
- ❑ Know how to construct a simple series electrical circuit.
- ❑ Identify and name the basic parts of the circuit, including cells, wires, bulbs, switches and buzzers.
- ❑ Know that a switch opens and closes a circuit.
- ❑ Know about some common conductors and insulators.
- ❑ Know that metals are good conductors.

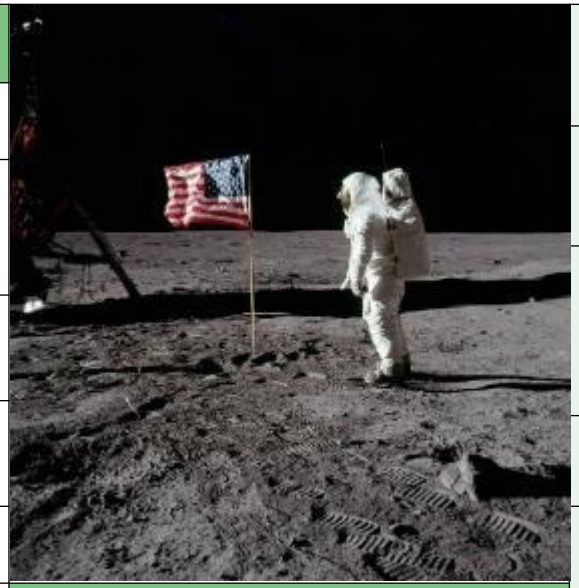
Sticky Knowledge about electricity

- ❑ Electricity can be generated by from power stations, wind, the sun, water and even animal poo!
- ❑ Electricity is a type of energy that can build up in one place to flow to another.
- ❑ A power station is a place where electricity is created and sent to our homes.
- ❑ Electricity travels at the speed of light, which is more than 186,000 miles per hour.
- ❑ One flash of lightening could power 1000 houses for a whole year.
- ❑ When an electric charge builds up on the surface of an object it makes static electricity. This is why we sometimes have a small electric shock.
- ❑ The first power plant opened in 1882 and was opened by Thomas Edison.
- ❑ Thomas Edison was a very famous inventor who helped us make the most of electricity from bulbs to fuses.

Year 5: Earth and Space Knowledge Mat

Subject Specific Vocabulary

orbit	An orbit is a repeating path that one celestial body takes around another.
solar system	The solar system is made of the eight planets that orbit our sun; it is also made of asteroids, moons, comets and lots more.
astronomical	Astronomy is the study of outer space, focusing on celestial bodies such as stars, comets, planets and galaxies.
planet	There are 8 planets in our solar system, they are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.
rotation	Rotation is when a shape is turned around a fixed point.
spherical	Something spherical is like a sphere in being round, or more or less round, in three dimensions.
crescent moon	It is a slither of the moon that is lit up and can be seen. It is less than half the moon.
gibbous moon	The best way to describe a gibbous moon is that the moon is three-quarters lit up.
eclipse	An eclipse occurs when an astronomical object is temporarily obscured. A lunar eclipse is when the Earth moves between the Sun and the Moon, therefore blocking the Sun's rays from striking the Moon.
lunar	Is anything related to the moon.



Important facts to know by the end of the Earth and space topic:

- Know about and explain the movement of the Earth and other planets relative to the Sun.
- Know about and explain the movement of the Moon relative to the Earth.
- Know and demonstrate how night and day are created.
- Describe the Sun, Earth and Moon (using the term spherical).
- Know information about the planets.
- Neil Armstrong was the first man to step on the moon.

Sticky Knowledge about Earth and space

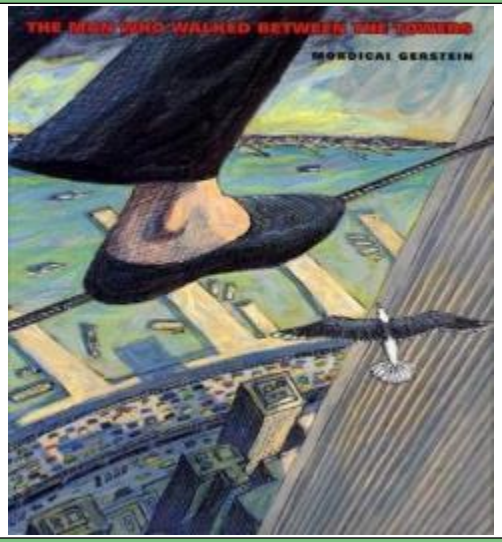
- ❑ One million Earths could fit inside the sun – and the sun is considered an average-sized star.
- ❑ An asteroid about the size of a car enters Earth's atmosphere roughly once a year – but it burns up before it reaches us.
- ❑ The sunset on Mars appears blue.
- ❑ Earth is the third planet from the sun and the only world known to support an atmosphere with free oxygen, oceans of liquid water on the surface, and life.
- ❑ There is no atmosphere in space, which means that sound has no medium or way to travel to be heard.
- ❑ Venus is the hottest planet in the solar system and has an average surface temperature of around 450° C.
- ❑ The sheer size of space makes it impossible to accurately predict just how many stars exist.

Year 5: Forces Knowledge Mat

Subject Specific Vocabulary

friction	Friction is a force between two surfaces that are sliding, or trying to slide, across each other.
gravity	Gravity is a force which tries to pull two objects towards each other.
air resistance	Air resistance is a type of friction between air and another material. For example, when an aeroplane flies through the air.
water resistance	If you go swimming, there is friction between your skin and the water particles.
levers	A lever can be described as a long rigid body with a fulcrum along its length.
pulleys	Pulley is a simple machine and comprises of a wheel on a fixed axle, with a groove along the edges to guide a rope or cable.
gears	Gears are wheels with teeth that slot together. When one gear is turned the other one turns as well.
parachute	A parachute is a device used to slow down an object that is falling towards the ground. As the parachute opens, the air resistance increases.
Galileo	Galileo developed the telescope to enable close observation of the night sky.
Newton	During his lifetime, Newton developed the theory of gravity and made breakthroughs in the area of optics, such as the reflecting telescope.

Interesting Book



Important facts to know by the end of the forces topic:

- Know what gravity is and its impact on our lives.
- Identify and know the effect of air resistance.
- Identify and know the effect of water resistance.
- Identify and know the effect of friction.
- Explain how levers, pulleys and gears allow a smaller force to have a greater effect.
- Know who Isaac Newton and Galileo were.

Sticky Knowledge about Forces

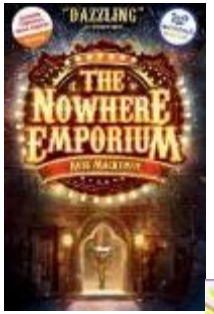
- ❑ Frictional force is any force that is caused due to friction. An example of this might be when you put on the brakes on your bike.
- ❑ Gravity is the pulling force acting between the Earth and a falling object, for example when you drop something. Gravity pulls objects to the ground.
- ❑ Surface resistance is the force on objects moving across a surface, such as an ice-skater skating on ice.
- ❑ Any kind of force is really just a push or a pull.
- ❑ Air resistance is the force on an object moving through air, such as a plane moving through the sky. Air resistance affects how fast or slowly objects move through the air
- ❑ Water resistance is the force on objects floating on or moving in water.
- ❑ Magnetic force is an invisible force created by electrons. Magnetic force controls magnetism and electricity.

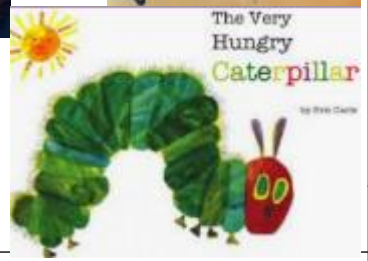
Year 5: Life Cycles Knowledge Mat

Subject Specific Vocabulary

puberty	Puberty is the name for the time when your body begins to develop and change as you move from childhood to adulthood.
gestation	Gestation, in mammals, is the time between conception and birth, during which the embryo is developing in the uterus.
classification	This is the grouping together of similar species of plant, animal and other organisms.
precision	For scientists, precision describes a measurement system, that is, how reliable it is at giving the same result every time it measures the same thing.
reproduction	Reproduction is the way different plants and animals make new plants and animals. The reproduction system differs in plants and animals.
teenager	The age between thirteen and nineteen. The 'teen' element gives rise to the word teenager. It is a time that humans mature quite rapidly.
obese	Obesity is the condition of being much too heavy for one's height so that one's health is affected. In other words, it means to be too overweight.
toddler	Is the period that a young child starts to walk and become more independent.
embryo	Fertilisation happens when an egg cell meets with a sperm cell and joins with it. The fertilised egg divides to form a ball of cells called an embryo.

Interesting Books





Important facts to know by the end of the life cycles topic:

- Know the life cycle of different living things, e.g. mammal, amphibian, insect and bird.
- Know the differences between different life cycles.
- Know the process of reproduction in plants.
- Know the process of reproduction in animals.
- Create a timeline to indicate stages of growth in humans.

Sticky Knowledge about Life Cycles

- ❑ The years between 6 and 14 - middle childhood and early adolescence - are a time of important developmental advances that establish children's sense of identity.
- ❑ Many insects have four stages in their life cycle: egg or the unborn stage; larva – young stage; pupa – inactive (no feeding) stage; and adult stage.
- ❑ In general, the life cycles of plants and animals have three basic stages including a fertilised egg or seed, immature juvenile, and adult. However, some organisms may have more than three life cycle stages, and the exact names of each stage can slightly differ depending on the species.
- ❑ The early years, especially the first three years of life, are very important for building the baby's brain. A child's brain develops rapidly during the first five years of life, especially the first three years. It is a time of rapid cognitive, linguistic, social, emotional and motor development.

Year 5: Reversible and Irreversible Changes Knowledge Mat

Subject Specific Vocabulary

solubility	Is a chemical property referring to the ability for a given substance, the solute, to dissolve in a solvent.
conductivity	Conductivity defines a material's ability to conduct electricity.
transparency	In general, transparency is the quality of being easily seen through.
thermal evaporation	Something that is thermal is hot, retains heat, or has a warming effect. Evaporation is the process of a substance in a liquid state changing to a gaseous state due to an increase in temperature and/or pressure.
dissolve	To dissolve is defined as to become broken up or absorbed by something or to disappear into something else.
bicarbonate of soda	A white water-soluble powder, used chiefly as an antacid, a fire extinguisher, and a leavening agent in baking.
thermal	Something that is thermal is hot, retains heat, or has a warming effect.
filtering	To filter a substance means to pass it through a device which is designed to remove certain particles contained within.
melting	Melting is a physical process that results in the transition of a substance from a solid to a liquid.
separate	Separate, part, and divide mean to break into parts or to keep apart.

Interesting Books

Important facts to know by the end of the reversible and irreversible changes topic:

- Know what a reversible change means.
- Know what an irreversible change means.
- Give examples of reversible and irreversible changes.
- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating

Sticky Knowledge about Reversible and Irreversible changes

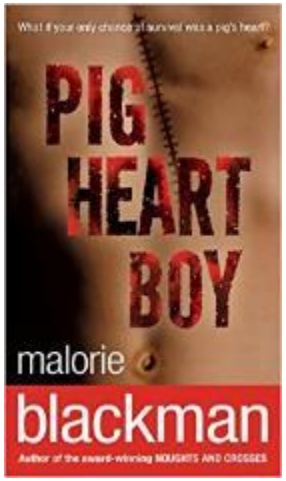
- ❑ Irreversible changes, like burning, cannot be undone. Reversible changes, like melting and dissolving, can be changed back again.
- ❑ Mixtures can be separated out by methods like filtering and evaporating. A change is called irreversible if it cannot be changed back again.
- ❑ Examples of reversible changes: Melting is when a solid converts into a liquid after heating. An example of melting is turning ice into water. Freezing is when a liquid converts into a solid.
- ❑ A cooked egg cannot be changed back to a raw egg again. Mixing substances can cause an irreversible change. For example, when vinegar and bicarbonate of soda are mixed, the mixture changes and lots of bubbles of carbon dioxide are made. Burning is an example of an irreversible change.

Year 6: Circulatory System Knowledge Mat

Subject Specific Vocabulary

blood vessels	Blood vessels are a series of tubes inside your body. They move blood to and from your heart.
drugs	A drug is a chemical that is not food and that affects your body. Some drugs are given to people by doctors to make them healthy.
atriums	The atriums are the two uppermost chambers of the heart. Blood is pushed from the atriums to the ventricles.
William Harvey	He was the first person to accurately describe the function of the heart and the circulation of blood around the body.
cardiovascular	The blood circulatory system (cardiovascular system) delivers nutrients and oxygen to all cells in the body.
ultrasound	An ultrasound machine uses sound waves to take pictures of the inside of the body.
cardiologists	A cardiologist is a doctor with special training and skill in finding, treating and preventing diseases of the heart and blood vessels.
capillaries	Capillaries are very thin blood vessels. They bring nutrients and oxygen to tissues and remove waste products.
pulse	Your heart has to push so much blood through your body that you can feel a little thump in your arteries each time the heart beats.
ventricles	The ventricles are the two lower chambers in the heart.

Interesting Book



Important facts to know by the end of the circulatory system topic:

- Identify and name the main parts of the human circulatory system.
- Know the function of the heart, blood vessels and blood.
- Know the impact of diet, exercise, drugs and lifestyle on health.
- Know the ways in which nutrients and water are transported in animals, including humans.
- Know who William Harvey was.

Sticky Knowledge about the circulatory system

- ❑ Your heart will beat about 115,000 times each day. Your heart pumps about 2,000 gallons of blood every day.
- ❑ The entire trip around your body only takes blood about 20 seconds in total. Blood is what is used to transport oxygen, waste, nutrients, and more throughout the body.
- ❑ The circulatory system includes the heart, blood vessels and blood, and is vital for fighting diseases and maintaining proper temperature.
- ❑ Because your heart is crucial to your survival, it's important to keep it healthy with a well-balanced diet and exercise, and avoiding things that can damage it, like smoking.
- ❑ Your heart affects every part of your body. That also means that diet, lifestyle, and your emotional well-being can affect your heart.

Year 6: Animal Classification Knowledge Mat

Subject Specific Vocabulary

micro-organism	Micro-organisms are tiny. They are so small they can only be seen with a microscope.
vertebrates	A vertebrate animal is one that has a backbone.
invertebrates	An invertebrate animal does not have a backbone and 97% of creatures belong to this group.
species	This is the grouping together of similar types of plants, animals and other organisms that can reproduce with each other.
fungi	Fungi are a classification or group of living organisms. This means they are not animals, plants, or bacteria.
monera	The whole organism is made up of just one cell. This cell is more basic than cells of other organisms.
bacteria	Bacteria are tiny little organisms that are everywhere around us.
protista	Protists are not animals, plants, fungi, or bacteria. Many protists are so small that people can see them only through a microscope.
algae	Algae is a single or multi-cellular organism that has no roots, stems or leaves and is often found in water.
Carl Linnaeus	Carl Linnaeus is famous for his work in Taxonomy, the science of identifying, naming and classifying organisms (plants, animals, bacteria, fungi etc.).

Interesting Books

Important facts to know by the end of the classification of animals topic:

- Be able to classify living things into broad groups according to observable characteristics and based on similarities and differences.
- Know how living things have been classified.
- Give reasons for classifying plants and animals based on specific characteristics.

Sticky Knowledge about Classification of animals

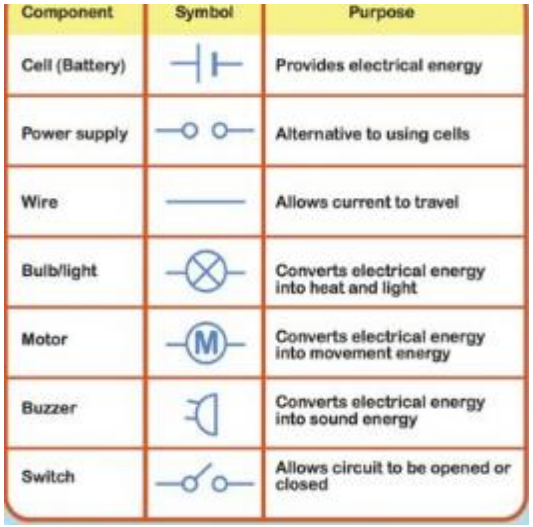
- ❑ The largest vertebrate is the blue whale, which can grow to 25m long and weighs 140,000kg.
- ❑ The smallest vertebrate is thought to be a tiny frog called the Paedophryne amauensis. It only grows to about 8mm in length.
- ❑ Vertebrates tend to be much more intelligent than invertebrates.
- ❑ Vertebrate animals can be either warm or cold-blooded. A cold-blooded animal cannot maintain a constant body temperature. The temperature of their body is determined by the outside surroundings.
- ❑ An invertebrate is an animal that does not have a backbone. 97% of all animal species are invertebrates.
- ❑ Frogs can breathe through their skin.
- ❑ There are a wide variety of interesting ocean animals that are invertebrates. These include sponges, corals, jellyfish, anemones, and starfish.

Year 6: Electricity Knowledge Mat

Subject Specific Vocabulary

conductor	Some materials let electricity pass through them easily. These materials are known as electrical conductors.
insulator	Plastic, wood, glass and rubber are good electrical insulators.
socket	A socket is a safe device to plug your electrical items into at home. Almost every room at home will have at least one socket.
series circuits	A series circuit is one that has more than one resistor, but only one path through which the electricity (electrons) flows.
cells	An electrical cell is a device that is used to generate electricity, or one that is used to make chemical reactions possible by applying electricity.
volts	Voltage is an electrical potential difference, the difference in electric potential between two places.
generator	A machine that converts energy into electricity.
turbine	A machine that creates continuous power in which a wheel, or something similar, moves round and round by fast moving water, steam, gas or air.
fuses	These are safety devices. A fuse is a strip of wire that melts and breaks an electric circuit if it goes over a safe level.
Thomas Edison	He was a great inventor that came up with a way of making the electric light bulb accessible for homes, industry and outside in the streets.

Electrical symbols



Component	Symbol	Purpose
Cell (Battery)		Provides electrical energy
Power supply		Alternative to using cells
Wire		Allows current to travel
Bulb/light		Converts electrical energy into heat and light
Motor	M	Converts electrical energy into movement energy
Buzzer		Converts electrical energy into sound energy
Switch		Allows circuit to be opened or closed

Important facts to know by the end of the electricity topic:

- Know that the brightness of a bulb is associated with the voltage.
- Compare and give reasons for variations in how components function.
- Use recognised symbols when representing a simple circuit in a diagram.
- Construct simple series circuits.
- Be able to answer questions about what happens when they try different components, for example; switches, bulbs, buzzers and motors.

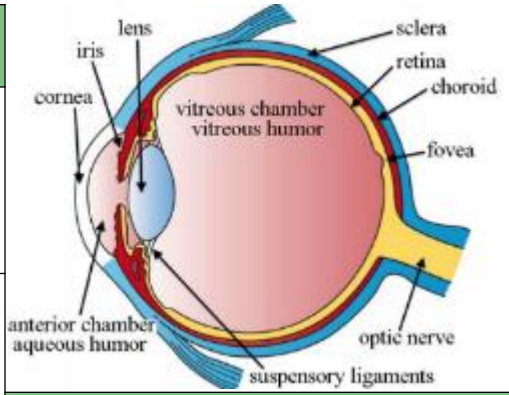
Sticky Knowledge about Electricity

- ❑ Electricity travels at the speed of light. That's more than 186,000 miles per second!
- ❑ Electricity comes from the power station, the wind, the sun, water and even an animal's poo!
- ❑ Electricity is a type of energy that builds up in one place (static), or flows from one place to another (current electricity).
- ❑ Coal is the biggest source of energy for producing electricity. Coal is burned in furnaces that boil water and create steam.
- ❑ A popular way of generating electricity is through hydropower. This is a process where electricity is made by water which spins turbines attached to generators.
- ❑ A bolt of lightning can measure up to 3,000,000 volts, and lasts less than one second!
- ❑ Electric fields work in a similar way to gravity. Whereas gravity always attracts, electric fields can either attract or repulse.

Year 6: Light Knowledge Mat

Subject Specific Vocabulary

light wave	One of the characteristics of light is that it behaves like a wave. Light can be defined by its wavelength and frequency. The frequency is how fast the waves vibrate up and down.
light source	Light, or illumination, is a form of energy that travels in waves, like sound. You can find different sources of light, such as a candle or the sun.
concave	Is a lens that curves inwards and reflects light differently as a result.
convex	Is a lens that curves outwards and reflects light differently as a result.
filters	A filter is a transparent material that absorbs some colours and allows others to pass through.
lens	A lens is a curved piece of glass or plastic designed to refract light in a specific way.
retina	The retina is at the back of your eye and it has light-sensitive cells called rods and cones.
cornea	The cornea is thin, clear and covers your eye. It's important because it helps you see by focusing light as it enters the eye.
iris	By opening and closing the pupil, the iris can control the amount of light that enters the eye.
pupil	The pupil can be compared with the shutter of a camera. It is surrounded by the iris which is the coloured part of the eye.



Important facts to know by the end of the light topic:

- Know that light travels in straight lines.
- Understand that because light travels in straight lines objects are seen because they give out or reflect light into the eye.
- Know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.
- Know that light travels in straight lines and therefore shadows have the same shape as the objects that cast them.

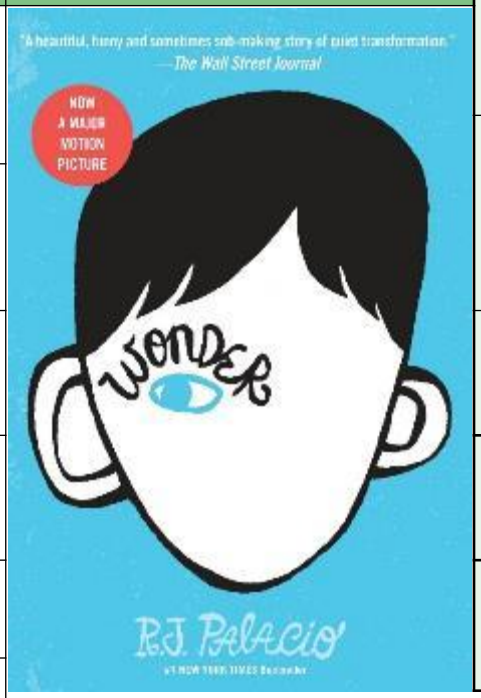
Sticky Knowledge about Light

- ❑ Light will travel in a completely straight line until it hits an object that will reflect it.
- ❑ Space does not have any light. We can see things in space due to light bouncing off of the objects in space.
- ❑ Light doesn't travel as fast when it has to pass through mediums that are different, such as air, water or glass.
- ❑ The light that we see from the sun actually left the sun ten minutes before we see it.
- ❑ Light can be controlled and produced in so many ways. A camera can control the amount of light that comes into the camera lens. We also use light in televisions, medical systems, copy machines, telescopes and satellites.
- ❑ Light is used by plants to convert the light into energy as their 'food'. The process is called 'photosynthesis' and converts carbon dioxide through the energy of the light.

Year 6: Evolution & Inheritance Knowledge Mat

Subject Specific Vocabulary	
off-spring	When living things reproduce they pass on characteristics to their offspring. All living things produce offspring of the same kind, but normally offspring are not identical to their parents
adaptation	Adaptation is the process by which animals, plants and other living things have changed so that they better suit their habitat.
evolution	Evolution is the theory that all the kinds of living things that exist today developed from earlier types.
inheritance	When living things reproduce they pass on characteristics to their offspring. This is known as inheritance.
palaeontologist	A palaeontologist is someone studying the life of past geological periods, as known from fossil remains.
Charles Darwin	Charles Darwin was an English scientist who studied nature. He is known for his theory of evolution.
genes	Genes that are passed on to you determine many of your traits, such as your hair colour and skin colour.
chromosomes	Chromosomes are tiny structures inside cells made from DNA and protein.
syndrome	A syndrome is a genetic condition which can affect learning and physical features.
genotype	A genotype refers to a particular gene or set of genes carried by an individual.

Interesting Book



Sticky Knowledge about evolution & inheritance

- ❑ Evolution is a scientific theory used by biologists. It explains how living things changed over a long time, and how they have come to be the way they are.
- ❑ We know that living things have changed over time, because we can see their remains in the rocks.
- ❑ We know that the animals and plants of today are different from those of long ago.
- ❑ Evolutionary questions are still being actively researched by biologists.