



Science



Disciplinarians Concepts: Questioning, predicting and planning, Observing and Recording Evidence, Interpreting, analysing and concluding, Reflecting and evaluating

Human and animals, Plants, Materials, Life and Living things, Forces, Energy, Earth Science

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn						
<p>Autumn 1 My Planet</p> <p>To know the name of the seasons Autumn.</p> <p>To know that leaves change colour.</p> <p>To know that the trees change.</p> <p>To that animal's collet food. – squirrels,</p> <p>To know about natural things, you will find in Autumn time – conkers, pine cones</p> <p>To know the types of clothes you might wear in autumn</p> <p>To know some animals that you might see at Autumn time – squirrel, hedgehog</p> <ul style="list-style-type: none"> • How are these animals similar/different? • How could we sort them? 	<p>I'm Here Human Body</p> <p>- We have five senses: sight, hearing, touch (feeling), taste, smell. We use: Our eyes to see Our ears to hear Our tongues to taste Our nose to smell Our skin to feel and hands to touch (feel) Our eyes use light that enters the eye to enable us to see.</p> <p>- Light does not come out of the eye. Parts of the eye and what their purpose is. (e.g. the eyelashes, eyelids and cornea protect the rest of the eye). Sometimes people need help to see and can use glasses, contact lenses, telescopes, microscopes.</p> <p>- Sounds travel through our ears to send messages to our brain. - Sounds can be very different, some loud and some quiet. Some people need help to hear and some people cannot hear at all.</p> <p>- Our senses help us to understand the world around us. Our senses can warn us of danger. - Our senses send messages to our brains.</p>	<p>Children should be seen and not heard Humans</p> <ul style="list-style-type: none"> •Animals need water, food and air to survive. •When water, food or air is scarce, humans and animals suffer. •When animals, including humans, have water, food and air, they can have offspring that grow into adults. •Animals need water, food and air to survive •Our skeleton is made up of bones inside our body. Our muscles help us to move. Exercise is an important way of keeping our body healthy. •Digestion means breaking down the food we eat. •Our bodies take things we need out of the food we eat. <ul style="list-style-type: none"> •It is important to feed our bodies with healthy foods. •The heart is a muscle inside our body. •The heart pumps blood around our body. •Our blood circulates around our body, which means it goes around and around. •We need to take care of our bodies through exercising, keeping clean, eating a balanced diet and resting. •Germs can make us unwell. •Scientists have found ways to help us stay healthy 	<p>Stones, Bones and Survival Human Body</p> <ul style="list-style-type: none"> •Muscles help us move and keep us alive. •Some of our muscles are voluntary muscles that we control, such as our biceps. •Some of our muscles are involuntary muscles that we do not control, such as our heart. •Our bones give us shape, allow us to move and protect our bodies. •Humans have a skeleton inside our bodies. This is called an endoskeleton. •A joint is the place where our bones come together, connected by tissue called ligaments. •The brain sends messages around our bodies through our nervous system. •The brain is divided into different parts; each one has a different job to do. •Our brain is connected to our spinal cord which passes messages to nerves in our arms, fingers, legs and toes. •When we see food, a signal is sent from the eyes to the brain. Our brain tells our mouth to prepare to eat. •Our brain tells our stomach to prepare for food. <p>To know that the purpose of digestion is to break down</p>	<p>Settle and Stamp Human Body</p> <ul style="list-style-type: none"> •All living things are made up of cells, too small to be seen without a microscope. •Our bodies require nutrients to keep healthy. Nutrients are found in the food we eat •There are four main different types of teeth: incisors, canines, pre-molars and molars. Incisors cut, canines the ar, premolars crush, molars grind food. •Humans have teeth for ripping and for grinding because we are omnivores •The stomach stirs up the food and mixes it with acid The intestines move the food around. •The small intestine is a long coiled up tube that winds around inside your tummy. •Whilst in the intestine, the nutrients are absorbed by the blood. •Our diet should include lots of different types of food. Our diet needs to provide all the nutrients our bodies need. Sugars are already naturally produced in many foods, such as fruit. •Vitamins and minerals are important nutrients. 	<p>Tombs Raiders Human Body</p> <ul style="list-style-type: none"> - Humans have a gestation period of nine months. - Human babies need immediate care and attention after birth. - Once born, humans continue to grow steadily through childhood and when they reach puberty they become able to reproduce. - The human body changes as it goes through puberty. - Hormones are released into bloodstream during puberty that cause physical, mental and emotional changes. -During puberty, muscles and bones grow larger, females develop breasts and their hips widen, males' shoulders widen and their voice deepens. - Humans stop growing at about twenty years old. -Peak physical fitness for humans is between 20 and 30 years old. -Lifespan in the UK is around 80 years old. - Growth is a process where cells increase in size and number in living things. - All living things follow a life cycle including birth, growth, reproduction and death. - Some living things only live a few days, some live for over 200 years, but all living things eventually die and the cycle of life continues. <p style="text-align: right;">Materials</p>	<p>The Great Wars Human Body</p> <ul style="list-style-type: none"> -Our heart pumps blood around our body. - The left atrium and left ventricle carry oxygenated blood which is pumped around the body. - The right atrium and right ventricle carry deoxygenated blood which is pumped out to the lungs - All the cells in our body need oxygen. It is delivered to them by the blood. - Arteries carry blood that has been oxygenated in the lungs away from the heart to the cells. - Veins carry deoxygenated blood from the cells back to the heart to be pumped to the lungs for more oxygen. - Your heart rate indicates how often your heart squeezes to pump blood through your body. - When you exercise your cells use more oxygen than usual. That is why exercise makes you breathe harder and makes your heart pump faster. -Drugs and poor health can affect how well our heart works -Independent variables can be controlled or manipulated. - Dependent variables will affect the independent variable. Control variables must be held constant.

**Autumn 2
Our Planet
Explore the**

To know animals that we might find in a garden – birds, fish, fox, cat

To know animal body parts – wings, beak, claws

To know some of the animals that live in/around a garden pond – fish, insects

To know some of the body parts of the animals – gills, fins

- How are these animals similar/different?
- How could we sort them?

-Some people have problems with their senses. Helen Keller was taught to read, write and speak even though she was deaf and blind. Helen Keller helped other people who were also deaf and blind.

Animals and their needs

- There are many different types of animals. Some animals live in water, some live on land, some fly in the sky.
- Scientists group animals according to their features.
- Animals can be grouped according to their features.
- Amphibians are cold blooded animals that live in water and also on land. They lay eggs underwater.
- Mammals are warm blooded animals give birth to live young.
- Animals that eat other animals are called carnivores.
- Animals that eat plants are called herbivores.
- Animals that eat both plants and other animals are called omnivores.
- Pets need food, space, shelter, medicine and company. Some animals are suitable for keeping as pets but some are not.
- Animals that are not pets are known as wild animals.
- We can use scientific words to describe animals.
- Scientists observe carefully and draw detailed diagrams Fish

Living Things and their Environments

- Living things move, grow, need air and reproduce.
- Dead things were once alive, but are no longer alive.
- Inanimate things have never lived; for example, a rock.
- A habitat is the name given to a place where plants or animals live.
- In a woodland habitat we might see: oak trees, ferns, mosses, beetles, foxes and squirrels.
- In a desert habitat we might see: camels, scorpions, rattlesnakes, cacti and tumbleweed.
- Some animals and plants that might be found in rainforests are banana trees, orchids, monkeys and parrots.
- Deserts are very dry, whether hot or cold, and plants and animals have adapted to survive
- Some animals live in underground habitats.
- Animals that live in underground habitats include badgers, moles, foxes, rabbits and worms.
- These animals have adapted to living underground.
- A food chain describes 'who eats what' within a habitat.
- Green plants make their own food; we call these plants producers. Animals who eat plants, or other animals, are called consumers.

food enough that it can be processed in the body

- To know the basic parts of the digestive system
- To understand the function of each basic part of the digestive system

Cycles in Nature

- Cycles are processes that repeat again and again.
- We have four seasons: spring, summer, autumn and winter.
- We have seasons because the Earth is tilted as it makes its journey around the sun
- During the spring, plants begin to grow.
- During the summer, plants grow and fruit ripens.
- During the autumn, plants drop their seeds and begin to die.
- During winter, seeds are dormant in the ground.
- Flowering plants produce pollen.
- When fertilised, pollen can join with the ovule and grow into a seed. In the right conditions, seeds grow into new plants.

• Many vitamins and minerals are found in our food. Your body needs the mineral iron to build blood cells, and calcium for strong bones and nails

Classification of Plants and Animals

- A vertebrate is an animal with a backbone.
- An invertebrate is an animal without a backbone. Scientists sort living things using a process of classification.
- Fish are cold-blooded vertebrates that live in water. Amphibians are cold blooded vertebrates that live both in water and on land.
- Fish have gills that help them to take oxygen from the water.
- Reptiles are cold blooded vertebrates with scaly skin.
- Birds are warm blooded vertebrates with feathers that can fly.
- Mammals are hairy, warm blooded vertebrates that breathe air.
- Insects are invertebrates, they have no backbone, six legs and three body parts
- Molluscs are invertebrates, they have no backbone and a soft body, some have shells.
- Arachnids are invertebrates, they have no backbone, eight legs and two body parts.
- To know that a flowering plant produces flowers to make seed in order to reproduce
- To know that a non-flowering plant grows from spores instead of seeds.

- A property is something that describes a material. - -- Some properties are visible; some can be found by testing.
- Materials can be grouped by their properties
- Thermal conductivity means heat can be transferred through a material.
- Materials are selected for uses that suit their properties.
- Results from an investigation can be shown using a graph.
- Dissolving is a process where one substance becomes incorporated with another to form a solution.
- A solvent is a substance that can dissolve other substances.
- Some substances are soluble some are not.
- Mixtures can be separated using sieves, filters, magnetism.
- Dissolved solids can be regained by evaporation of the solvent.
- Heating a solution can speed up the process of evaporation.
- All changes are either reversible or irreversible. Making a mixture is a reversible change.
- Changes of state are reversible.
- Dissolving a solid in a liquid is an example of a mixture, so it is a reversible change.

Classification of Living things

- Living things or organisms are classified into five main kingdoms
- The members of each kingdom share features that are unique to that group.
- The five kingdoms are: plants, animals, fungus, protist and monera
- Cells are the tiny building blocks that make up all living things.
- There are two main types of cells: animal and plant cells
- Animal and plant cells are structured differently
- Taxonomy is a way of grouping organisms
- All organisms are placed in one group and then are divided into smaller and smaller groups
- Organisms are divided into kingdoms, phylum, class, order, family, genus, species
- All organisms have a scientific name made of the genus and species
- There are five groups of vertebrates
- Fish are cold-blooded, have gills, live in water and lay eggs
- Amphibians are cold blooded, have gills and lungs, live in water and on land and lay eggs
- Reptiles are cold-blooded, have scales and lay eggs
- Birds are warm-blooded, have feathers, wings and lay eggs
- Mammals are warm blooded, have hair and feed their young milk
- Invertebrates have no backbone.
- Some groups of invertebrates include molluscs, insects and arachnids.
- Cnidarian include coral, jellyfish and anemones

have gills to help them breathe, fins to help them swim and scales to protect their bodies.

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Spring

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Spring 1 Frozen Planet</p> <p>To know the name of the seasons Winter.</p> <p>To know that the trees change.</p> <p>To know about natural things, you will find in Winter time</p> <p>To know the types of clothes you might wear in winter</p> <p>To know about their environment and changes in Winter</p>	<p>Castles and Kingdoms Seasons</p> <p>- Our four seasons are spring, summer, autumn and winter. - Colder weather comes in autumn and winter. - Warmer weather comes in spring and summer. -Our days of sunlight are longest in the summer and shortest in the winter - A rain gauge measures how much rain has fallen. - A weather vane shows which way the wind is blowing. - A thermometer measures the temperature.</p>	<p>Britain is Great Electricity</p> <p>•Many things around us use electricity to make the work. Electricity is an energy that we can store or use to make things work. •Electricity can be very useful but can also be dangerous. Electricity can be very dangerous. •We must use electricity safely to make sure it is not a danger to us. •We can use electricity safely by; not putting fingers in plug sockets, not using electrical items with wet hands and checking that wires are not frayed. •An electrical circuit is a loop that allows electricity to travel around it. An electrical circuit must have wires and a battery. If a circuit is broken, electricity will not be able to flow around it.</p>	<p>Riotous Romans Light</p> <p>•Mirrors reflect light. •Convex mirrors are arched. Concave mirrors have a hollow. •Mirrors of different shapes reflect light differently. •A shadow is created when an object blocks the path of light. •The Sun appears to move across the sky as our planet revolves on its axis. •Our shadows change in size and shape throughout the day.</p> <p>Plants</p> <p>- A botanist is a scientist who studies plants. - Botanists look closely at plants and study their features. - Flowering plants have roots, a stem or trunk, leaves and flowers. - Around the world, there are many different types of plant. -</p>	<p>Victorious Vikings Ecology</p> <p>•There are seven life processes which living things all have in common. •A habitat is the natural home or environment of an animal, plant, or other organism. •Living things depend on each other within their habitat. •A producer makes their own food using sunlight, water and nutrients. •A consumer eats other living things to gain their energy. •A decomposer breaks down the remains of dead living things into smaller pieces which leaves nutrients in the soil. •An ecosystem is the interaction of organisms in their environment.</p>	<p>The Time of Illumination Forces</p> <p>A force is either a push or a pull. -A force can cause an object to: increase speed, decrease speed, change direction, change shape. -Gravity is a force that pulls objects to the centre of the earth. A force is either a push or a pull. -A force can cause an object to: increase speed, decrease speed, change direction, change shape. - Gravity is a force that pulls objects to the centre of the earth. -Air and water resistance are both a kind of friction that slows down moving objects. -We can change the shape of objects to change the air or water resistance acting upon them. -Parachutes work to slow down a falling item because they have a large surface area Levers use a long pole and a pivot point to increase a force. - Pulleys use a rope running over a pulley wheel to increase a force</p>	<p>Time Travel Electricity</p> <p>•Electricity can flow from one place to another, this is called electrical current. •We can control electricity by causing it to flow in a circuit. •Circuits can contain components that turn electrical energy into different energy forms, for example a light bulb •Voltage is the pressure from a battery that pushes electricity around a circuit. •Buzzers and lamps need electricity to make them work. •The voltage of a battery, or the number of batteries can change the brightness/volume of lamps and buzzers. •A switch creates a gap in a circuit Making a gap in a circuit prevents electricity from flowing</p>

<p>Identify animals that live in cold places - penguins, polar bears</p> <p>Identify animals that hibernate in the winter - hedgehogs, bats, squirrels</p> <p>To investigate what happens to snow/ice in different conditions – asking simple questions</p> <p>Spring 2 Underwater Planet</p> <p><i>To know the season Spring</i> <i>To know some of the change at Spring time – blossom, daffodils, flowers</i></p> <p><i>To identify sea creatures – sharks, fish, octopus, jellyfish</i> <i>To know body parts of different sea creatures</i></p> <p><i>To know about what effects the sea and the creatures – litter, pollution</i></p> <ul style="list-style-type: none"> • What makes these animals able to live in water? (gills, fins, etc.) • How are these animals similar/different? • How could we sort them? <p><i>Explore what happens to water when we put different things in</i></p>	<ul style="list-style-type: none"> - Data is a collection of facts. - We can present data using a graph. We can gather information from a graph which helps us to understand the weather. - A weather forecast tells us what the weather will be in the next few days. -- <p>Scientists study the weather and use computers to make forecasts. (A scientist who studies the weather is called a meteorologist.)</p> <p>-Weather forecasts help people to be prepared for different kinds of weather</p> <p>- Some weather can be very dangerous. A flood is an overflow of water.</p> <p>- A hurricane is a storm with very strong winds</p> <p>Taking Care of the Earth</p> <ul style="list-style-type: none"> •Humans do things that can damage the Earth. -- •People are causing pollution that is damaging our earth. •When forests are cut down the wild animals' environment is lost <p>Resources are the things in the world we can make use of</p> <ul style="list-style-type: none"> •A natural resource is something that is found in nature that people can use. • A manufactured resource is something people have created to use. Some natural resources cannot be easily replaced, they are non-renewable. 	<ul style="list-style-type: none"> •Materials that allow electricity to pass through them are conductors. •Materials that do not allow electricity to pass through them are insulators. Many, but not all metals conduct electricity <p>Material and matter</p> <ul style="list-style-type: none"> - Everyday materials include plastic, fabric, wood, paper, metal and glass. - Every material has its own properties, these can include being hard, soft, opaque, shiny, bendy. - Materials are used for a purpose depending on their properties. <p>Inventors need to think about the best materials to use for their inventions.</p> <ul style="list-style-type: none"> - Scientists and engineers can work for many years on a project before they have success. -Velcro was made to help join two fabrics together. <p>Scientists use a microscope to look closely at very small things.</p> <ul style="list-style-type: none"> -Sometimes, materials look very different when we look at them using a microscope. -Everything around us is made from tiny building blocks we cannot see called atoms <p>Solids have a definite shape. The shape of some solids can be changed by squashing, bending, twisting and stretching</p> <p>The atoms in a solid are tightly packed together and have a strong bond.</p> <p>Liquids can be poured.</p> <ul style="list-style-type: none"> -The shape of a liquid depends on the container is being held in. -Water can be a solid and can also be a liquid. 	<ul style="list-style-type: none"> - Some plants need lots of water to grow, others only need a little. - Some plants thrive in the shade, others need a lot of sunlight. - Plants absorb water from the soil to help them to live and grow. -Water moves around the plant via the stem. - Plants with large root systems can take more water from the soil. -Flowering plants create seeds. Flowering plants can only produce seeds if pollen is transferred from the anther to the stigma. Insects, like bees and butterflies are essential for pollination. - Plants spread their seeds in order to reproduce. Some plants rely on the wind to spread their seeds. - Some plants rely on animals to spread their seeds. <p>of results and conclusions</p>	<ul style="list-style-type: none"> •Every ecosystem is very delicately balanced, so if one organism is removed or a new one introduced it can have a negative impact on other organisms. •Human beings are part of many eco <p>Pollution is any substance that is introduced into an environment that can damage or affect quality of life.</p> <ul style="list-style-type: none"> •Exhaust and smoke often contain harmful chemicals that pollute the air. •Air pollution can damage ecosystems. •To know how humans have changed the environment in our local area <p>Sound</p> <ul style="list-style-type: none"> -Sound is caused by a back and forth movement called vibration Sound waves move out from a vibrating object - Sound can travel through different types of matter - - Sound is fainter further from the source <p>In warm air, sound travels at about 340 metres per second.</p> <ul style="list-style-type: none"> -The speed of sound in water is about four times faster than in air. -There are jet aeroplanes that can travel as fast as sound -Loud sounds are made by big vibrations. More energy is needed to make louder sounds. -Quiet sounds are made by small vibrations. More vibrations every second makes higher pitched sounds. -When you sing a high note, your vocal cords vibrate very fast, hundreds of times a 	<ul style="list-style-type: none"> -Gears use cogs with teeth to increase the force. <p>Living things and habitats</p> <ul style="list-style-type: none"> •Oak trees grow from acorns and become a habitat for many animals. Squirrels are mammals who can make their homes in oak trees, eat acorns, build nests and have young. •Plants and animals are interconnected within an ecosystem. •A mammal is born and grows into a mature adult. • Most amphibians hatch from eggs underwater, before beginning a process of metamorphosis. •Metamorphosis is a significant change in an animal as it grows into an adult. •Queen Bumblebees build nests and fill them with pollen to feed young. •Cuckoos lay an egg in the nest of another bird and leave them to care for and feed their young. All animals are born, grow and mature, but in very different ways. •Most large plants re by combining a male and female gamete (pollen and ovule) to make a fertilised egg that grows into an embryo. • The embryo or baby plant is protected inside a seed. Most plants clothe their seeds with fruit. •There are many different jobs in the world of science. •David Attenborough has studied the natural world and communicated through documentaries. Jane Goodall spent 60 years studying the lives of chimpanzees. 	<ul style="list-style-type: none"> •Electricity costs money, so switching off a circuit saves money •When we design something, we think about what we will need and how it will work. •When we are making something, we may face problems that need to be solved. •To know which components to use for a particular purpose, and how to connect them <ul style="list-style-type: none"> •Light illuminates allowing us to see. •Some light sources are natural and some are artificial. •Light travels in straight lines. •The cornea is a transparent covering on the outside of your eye. •The iris is the coloured part of the eye which helps the pupil to 'open and close'. • Inside the retina, the light rays become electrical signals which travel along the optic nerve to the brain •Light travels in straight lines. Shadows are always the same shape as the object that made them. •The size of shadows can change, but the outline shape is always the same as the original object. •Scientists call the light that comes from the sun 'white light' •The light from the sun is made up of all the colours of the rainbow •When light travels through a prism, the glass slows it down, and changes its course. • Different colours are slowed down different amounts. •A periscope helps you to see something that is out of sight •A periscope reflects an image using light and mirrors
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things in it – sugar,
coffee - dissolving

- A natural resource is something that is found in nature that people can use. A manufactured resource is something people have created to use. •Some natural resources cannot be easily replaced, they are non-renewable.
- Trees are a natural resource that people can use for paper, furniture and other uses.
- Logging means cutting down trees. Sometimes logging can cause damage to the environment
- Pollution occurs when an environment is damaged by waste. Pollution is caused by things that people do, for example driving a car.
- We can reduce the amount of pollution we create
- When something used is reused for a new purpose, it is recycled.
- We recycle items to reduce waste.
- The following things that we may find in our homes can be recycled: newspapers, letters, magazines, plastic bottles, drinks cans, food tins, cardboard boxes, glass jars.

second. When you sing a low note, your vocal cords vibrate more slowly. - Faster vibrations make a sound with a higher pitch. Slower vibrations make a sound with a lower pitch. -The larynx is in the throat and the muscles vibrate the vocal cords
We hear sounds when sound waves enter our ear, travel through it and messages are sent to our brain.
The structure of the ear includes ear drum, bones called the hammer, anvil, and stirrup, cochlea. Hairs inside the cochlea are connected to nerve

- Submarines use periscopes to see above the surface of the water whilst still submerged

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Summer

EFYS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Summer 1 Hot Planet</p> <p>To know the name of the seasons Summer.</p> <p>To know about the weather in Summer time.</p> <p>To find out about how plants grow and vegetables grow</p> <p>To know that flowers grow</p> <p>To know the types of clothes you might wear in summer</p> <p>To know about animals that live in hot countries- lions, giraffes, zebras (Africa)</p> <p>To know about the body parts of these animals</p> <p>To investigate what happens when things melt – ice cream, ice lollies</p>	<p>Time Travellers Plants</p> <ul style="list-style-type: none"> Plants need warmth, light and water to grow. Plants grow from seeds. If seeds do not have warmth, light and water, they may not grow into healthy plants. The roots of a plant act as an anchor, fixing the plant into the ground. The stem of a plant grows above the ground. The leaves and flowers grow from it. A plant's leaves absorb sunlight and turn it into energy that the plant uses to grow. Plants spread their seeds in order to make new plants. When plants make seeds to make new plants, we call this reproducing. Plants must spread their seeds to help them grow into new plants. Evergreen trees keep their leaves all year around. Deciduous trees drop their leaves during autumn time and grow fresh leaves in spring time. Oak trees are deciduous and fir trees are evergreen. We eat different parts of plants including the roots, stem, leaves and sometimes the flowers. 	<p>Earth Explorers Plants</p> <ul style="list-style-type: none"> There are many different kinds of plants. Around my school I can find plants such as: Around my school I can find trees such as: (complete depending on your environment) A seed can grow into a flowering plant. When a seed germinates, it changes from a seed into a seedling. Some plants create bulbs that live underground, and their leaves grow up through the soil When a plant has no water, it cannot grow well. When a plant has no light, it cannot grow well. Plants often grow well in the Spring as the temperatures get warmer and there is often rain Some plants are grown for food. Farmers grow crops for food. Crops are harvested, packaged and transported for people to buy and eat <p>Astronomy</p> <ul style="list-style-type: none"> The Sun is a star at the centre of our solar system. There are eight planets in our solar system. The planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. Planets travel around the Sun. We call this journey an orbit. As the planets orbit the Sun, they also spin around. We call this rotation. Night and day 	<p>The Kingmaker Rocks</p> <ul style="list-style-type: none"> There are many different types of rocks. Different rocks have names and can be sorted into groups according to their properties. To know that the three main groups of rock are called sedimentary, igneous and metamorphic To know that sedimentary rocks are formed by layers of sediment under the sea To know that metamorphic rocks are formed under immense heat and pressure and igneous rocks are formed by volcanoes Rocks can have small air spaces in them allowing water to pass through them. If a rock type allows water to pass through it is called permeable rock. Rocks that are permeable will give off air bubbles when put in water Fossils are formed when rock forms around things that once lived. Fossils are rare and take thousands of years to form. Scientists who study fossils are called palaeontologists. Soil is made from rocks and organic matter. Organic matter is made from the decaying remains of living things. <p>Forces and Magnets</p> <ul style="list-style-type: none"> Gravity is a force that makes objects fall to the ground. The effect of a force is to make something move, or change 	<p>Industrial Revolution States of Matter and The Water Cycle</p> <ul style="list-style-type: none"> There are three states of matter that water can form: solids, liquids and gases. Water exists in these states of matter in nature. Water can change into each state in both directions, we call this the Water Cycle. To know that water evaporates from all water sources (puddles, lakes, oceans even a cup). When water evaporates, it becomes water vapour. The amount of water in the air is called humidity To know that condensation is when water vapour turns back into liquid. High in the sky the air is cooler and turns vapour back into water droplets. There is always water vapour in the air and the temperature changes its appearance. Clouds are formed of millions of water droplets or ice particles if the air is very cold, their shape, size and colour can tell us what the weather will be like. When the water droplets get large enough, often in dark cumulonimbus or nimbostratus clouds they precipitate and fall as rain, sleet, hail or snow. 	<p>Earth in Crises Astronomy</p> <p>Galaxies are groups of stars held together by gravity</p> <ul style="list-style-type: none"> Our galaxy is the Milky Way and our nearest neighbour is Andromeda galaxy Astronomers believe the universe started 14 billion years ago with a Big Bang Gravity is the force which pulls all objects towards each other Although all objects attract all others by the force, gravity, it is too weak to notice unless one object (like the Earth) is huge The Earth's gravity holds us to the Earth's surface; the Sun's gravity holds the Earth in orbit around it The Sun is at the centre of the Solar System Our solar system contains 8 planets, 4 terrestrial planets and 4 jovian planets There are also trillions of smaller rocks called asteroids, as well as dwarf planets like Pluto and Ceres The moon is the Earth's natural satellite The moon is a planet, it does not make its own light Depending on the position of the Sun, we see all, part or none of the Moon; these are known as the phases of the Moon. Neil Armstrong and Buzz Aldrin were the first humans to land on the moon The universe is immensely vast Our Solar System is a tiny part of The Milky Way galaxy The Milky Way's closest neighbour is Andromeda, 2.5 million light years away Our home supercluster is called Laniakea and contains over 100,000 galaxies 	<p>The Americas Reproduction</p> <ul style="list-style-type: none"> The asexual reproduction does not require male and female and doesn't alter genetic information. Asexual reproduction is when an organism simply copies itself. Some plants and some simple animals reproduce asexually Most flowering plants reproduce by combining a male and female gamete (pollen and ovule) to make a fertilised egg that grows into an embryo. The embryo or baby plant is protected inside a seed. Most flowering plants clothe their seeds with fruit. Fruits are seed coverings. Fruit protect and keep seeds moist. Fruits help with seed dispersal. Animals can have male cells; sperm produced in testes, or female cells; eggs produced by ovaries. When an egg is fertilised by sperm it is called a zygote. The zygote develops into an embryo and then a foetus. When a foetus can live outside the mother, it is born. Gestation is the period of time that a living thing develops before it is born. Different animals have different gestation periods. Different species of animal have different ways of looking after their young

Summer 2 Fantasy Planet

To continue to find out about plants that grow – beanstalks, different types of flowers

To know about different types of plants

To compare different environments – rainforests, forest, gardens

To look at some less common animals – bearded dragon lizards, giant snails

To investigate different changing state of matters – making different ice sculptures,

Some plants are dangerous to eat and would make us ill.
• We need a variety of fruit and vegetables in our diet.

Materials and Magnets

- Objects all around us are made from types of materials. Some everyday materials that objects are made from include: wood, plastic, glass and metal. - Each material can be used to make many different things, for example plastic can be made into cups, plates, toys, chairs. - Properties of materials are things we can measure, see or feel. - We can describe and compare properties of different materials. -Materials have different properties that make them useful for different tasks. -Materials have different properties that make them useful for different tasks. When designing or making objects, materials are chosen for their properties. -Some materials will be better suited to certain purposes than others -Certain materials are attracted to magnets. We cannot see the force of magnetism. -Magnets can be useful, for example in toys or around the home. -An investigation helps us to find out the best answer. –

occur due to the Earth rotating.
•The Moon orbits the earth.
•The moon reflects the light of the sun. As the Moon’s position changes, we can see different parts of it.
•A constellation is a group of stars that, when seen from Earth, form a pattern. People have given constellations names and have told stories that imagine how the constellations were formed.
•Astronomers have studied the stars for many years, learning from each other and making new discoveries
•Scientists, including astronomers, study space to find out more about what lies beyond our planet.
•The International Space Station orbits earth and allows scientists to find out more about space. Scientists have sent a rover to Mars to look for signs of life long ago.

speed or direction, or change shape.
• We can change the amount of force we use when we push and pull things.
• When a car rolls down a slope, the force of friction can slow it down.
• Rough surfaces create greater friction. Smooth surfaces create less friction.
• Magnetic force is an invisible push or pull force.
• When a magnet pushes an object away, we say it repels it. If a magnet pulls an object towards it, we say it attracts it.
• A lodestone is a naturally occurring rock that has magnetic properties
• A magnet has two opposite poles, the north and south pole.
• A magnetic field is the space around a magnet where the magnetic force can be felt.
• Larger magnets are often, but not always the strongest. • The strength of magnetic force can be tested.
• Magnetic strength can be weakened over time.

-Precipitation returns water to the surface of the earth within the water cycle.
- To know that water evaporates from all water sources (puddles, lakes, oceans even a cup).
- To know that condensation is when water vapour turns back into liquid. Precipitation returns water to the surface of the earth within the water cycle

Electricity

Electricity can be very dangerous.
-We must use electricity safely to make sure it is not a danger to us.
-We can use electricity safely by; not putting fingers in plug sockets, not using electrical items with wet hands and checking that wires are not frayed
- An electrical circuit is a loop that allows electricity to travel around it.
- An electrical circuit must have wires and a battery. If a circuit is broken, electricity will not be able to flow around it.
-A switch opens and closes a circuit.
-Opening a circuit prevents electricity from flowing.
-Sometimes we need to stop electricity from flowing for safety reasons, switches help to do this.
-Thomas Edison invented the first lightbulb suitable to use in homes.
-Lewis Latimer invented a lightbulb that could last for a long time.
-A long time ago, electric lighting was used in

Evolution

Meteorology
• Meteorology is the study of the weather.
• The Atmosphere is made up of several layers of air which protect Earth from the sun’s energy.
• The atmosphere is essential for life on Earth
• Ozone is a gas that absorbs some of the sun’s UV radiation
• By using certain harmful chemicals, humans created a hole in the ozone layer over Antarctica
• Since the harmful chemicals were banned, the hole in the ozone layer has been repairing
• Our climate is called a maritime climate, because it is largely influenced by the sea
• The polar maritime and the tropical maritime air masses bring wetter weather from the sea.
• The polar continental and the tropical continental air masses bring drier weather from land. The boundary where warm and cold air meet is called a front
• Warm fronts are symbolised by a line with red semi-circles
• Cold fronts are symbolised by a line with blue triangles
When electrical charge moves through the atmosphere it creates a flash of light and sound.
• Light travels faster than sound, so we often see lightning before we hear thunder.

-Fossils are the remains of organisms
-A small percentage of life on earth is preserved as a fossil, most organisms decompose
-Fossils provide evidence for evolution
-Inheritance is passing on characteristics from a parent to their offspring -There are various combinations of characteristics, resulting in variation Evolution is the change in inherited traits
-Animals and plants that adapt well to an environment have more chance of surviving
-Adaptation plays an important part in evolution as species change over time
-Charles Darwin spent years observing, comparing and analysing many specimens of plants and animals
-Animals and plants that adapt well to an environment have more chance of surviving, this is called natural selection
-Alfred Wallace explored the Amazon, collecting species of beetles, butterflies and birds He explored Malay
-Archipelago and noticed how certain areas had certain animals He created an imaginary line, known as the Wallace Line

- recording data and results of increasing complexity using scientific diagrams

streetlights before it was used in people's homes.
 -Materials that allow electricity to pass through them are conductors.
 -Materials that do not allow electricity to pass through them are insulators. Many, but not all metals conduct electricity.

Working Scientifically

Principles

- These skills can be taught discretely and do not have to all be done together.
- Teacher introduces substantive idea. Children ask questions and teacher selects class question to investigate. Teacher models skills to be developed in investigation e.g.
- Modelling of each skill follows school: I do, We do, You do
- Goal is by UKS2, children know the different enquiry types and can plan them without teacher direction, although guidance would still be necessary.
- Children will **present findings** orally, in writing, through display or presentation at least once per year.

EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
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Questioning, predicting and planning

Ask a questions	Ask a question about something they have seen Attempt to answer a question based on own experience Suggest or demonstrate a way of finding out the answer to a question. Follow a suggestion to find an answer to a question. Choose a way of answering a question from a range of options.	Ask a question, beginning with different Wh- words, that can be answered by an investigation. Consider and decide on best way to answer a question (link to enquiry types). Choose suitable equipment	Suggest a question that can be investigated. Plan a suitable enquiry to answer a question. Make a justified prediction based on prior learning. Identify and control variables
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Observing and Recording Evidence

Observe and talk about what they see	Choose what they want to observe. Describe features of things e.g. size, shape, smells. Draw what they see. Uses egg timers to measure time. Uses rulers to measure length in m/cm. Use magnifying glasses/hand lenses to look at something and describe it. Describe how something changes over time. Record results in a prepared table/format. Take photographs of things noticed. Collect things they notice. Perform simple tests	Decide what to observe. Decide how long to observe. Choose appropriate equipment. Draw a simple table to record findings. Create a tally chart to record findings. Present findings in different ways. Use a simple graph or chart to show results. Use and decide which rulers to use to measure length in m/cm/mm Use a balance to measure mass. Use a stopwatch to measure time. Use a thermometer to measure temperature. Use a data logger to record temperature, light and sound. Record measurements accurately using correct units.	Choose which observation should be made. Select and use appropriate equipment and units to make accurate and precise measurements. Use repeated readings to increase precision of measurements. Choose length of observation. Choose appropriate method of recording evidence. Record observations using classification keys, tables, scatter graphs, bar charts, line graphs and labelled diagrams. Use scientific vocabulary during observation.
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Interpreting, analysing and concluding

Answer their question with yes or no	Answer their question with yes or no Try to answer their question with evidence Suggest an answer	Present what they have found out . Say and write about what they have found out . Draw what they have found out . Use what they have found out to make a new prediction. Make a conclusion based on what they have found out . Suggest ways of improving the investigation based on what they have found out . Link scientific vocabulary and ideas to what they have found out . Find a pattern in results. Find similarities and differences in results.	Use evidence to form a conclusion Recognise when something causes something else to happen Use scientific understanding to answer enquiry question Say if the evidence is adequate to answer the question Identify evidence which supports the conclusion and which doesn't Identify evidence which can be used to refute a claim Say how much they trust the results Use the words 'fair' and 'reliable' to discuss evidence
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Reflecting and evaluating

Talk about what they found out	Can say if their findings answer a question Say if what happened was expected Describe any unexpected events or outcomes Say if the way they chose to investigate answered the question	Describe a way to improve what worked. Use findings to suggest improvements. Asks a new question based on findings. Identify any evidence that doesn't fit pattern (anomaly) Say if evidence is good enough to answer question. Identify which evidence supports conclusion and which doesn't.	Identify any issue with fairness Identify any issue with accuracy/precision Say how much they trust the evidence Say why evidence can or cannot be trusted based on accuracy and precision Identify any inconsistencies in data which affects how much they can be trusted Suggest how to improve accuracy and precision Suggest a new way of answering the question Suggest a new prediction to investigate
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EYFS Statements

- Reception**
- Explore the natural world around them
 - Describe what they see, hear and feel whilst outside
 - Understand the effect of changing seasons on the natural planet around them. –
- ELG**
- Explore the natural world around them, making observations and drawing pictures of animals and plants; -
 - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
 - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. –