

Science

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	The Human Body	Seasons and weather	Materials and Magnets	Taking Care of the Earth	Plants	Animals and their Needs
Year 2	The Human Body	Living things and Their Environments	Electricity	Plants	Materials and Matter	Astronomy
Year 3	Rocks	Cycles in Nature	Forces and Magnets	The Human Body	Plants	Light
Year 4	The Human Body	Classification of Plants and Animals	Electricity	Sound	States of Matter and the Water Cycle	Ecology
Year 5	Materials	Astronomy	Meteorology	The Human Body	Living Things	Forces
Year 6	The Human Body	Classification of Living Things	Light	Electricity	Reproduction	Evolution

Reception

<p>EYFS Communication & Language</p>	<p>Three & Four Year Olds (Prior Learning) Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"</p> <p>Reception Learn new vocabulary Ask questions to find out more and to check what has been said to them Articulate their ideas and thoughts in well-formed sentence Describe events in some detail Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen</p>
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	<p>Use new vocabulary in different contexts.</p> <p>Early Learning Goals Listening, Attention & Understanding - Make comments about what they have heard and ask questions to clarify their understanding</p>
<p>EYFS Personal, Social and Emotional Development</p>	<p>Three & Four Year Olds (Prior Learning) Make healthy choices about food, drink, activity and toothbrushing</p> <p>Reception Know and talk about the different factors that support their overall health and wellbeing:</p> <ul style="list-style-type: none"> - regular physical activity - healthy eating - Toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian <p>Early Learning Goals Managing Self - Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices</p>
<p>EYFS Understanding the World</p>	<p>Three & Four Year Olds (Prior Learning) Use all their senses in hands-on exploration of natural materials Explore collections of materials with similar and/or different properties Talk about what they see, using a wide vocabulary Begin to make sense of their own life-story and family's history Explore how things work Plant seeds and care for growing plants Understand the key features of the life cycle of a plant and an animal Begin to understand the need to respect and care for the natural environment and all living things Explore and talk about different forces they can feel Talk about the differences between materials and changes they notice.</p> <p>Reception Explore the natural world around them Describe what they see, hear and feel while they are outside Recognise some environments that are different to the one in which they live Understand the effect of changing seasons on the natural world around them</p> <p>Early Learning Goals The Natural World - Explore the natural world around them, making observations and drawing pictures of animals and plants. - Know some similarities & 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 & changes in the natural world around them including the seasons and changing states of matter</p>
<p>EYFS Continuous Provision</p>	<p>Continuous Provision opportunities Through all areas of continuous provision there should be opportunities for children to develop their sense of awe and wonder in the world around them. Children should be encouraged to develop their own sense of asking questions of the environment & natural world around them; explore and contrast animals and different environments, recognising both similarities & differences and develop their own basic skills in managing basic hygiene and personal needs</p>

<p>Reading- variety of texts linked to curriculum and science learning. Learning new vocabulary, asking questions and finding answers, exploring changes in nature and the environment</p> <p>Small world- making observations about animals, exploring contrasting environments, articulating their ideas & exploring the natural world through loose parts</p> <p>Home Corner- opportunities to act out and understand the importance of healthy eating, good sleep routines and taking care of our bodies, articulating ideas and describing events</p> <p>Creative- experiment with changing states of matter, drawing and labelling pictures of plants and animals</p> <p>Computers- varied opportunities to experiment with changes in state and matter, drawing pictures of plants & animals</p> <p>Writing Area- opportunities to use new vocabulary in different contexts</p> <p>Maths Area - using talk to help work out & explain how things work or why they might happen</p> <p>Computers - Exploring contrasting environments, making observations of plants & animals</p> <p>Snack Table - Discussion on healthy eating & personal hygiene</p> <p>Outside Area - developing scientific vocabulary, exploring the natural world, describing what they see, hear and feel while they are outside, experimenting with changes in state - floating & sinking, making observations of plants & animals, planting & nurturing plants, tasting fruit grown, caring for plants, measuring growth, exploring & discussing seasonal change, using equipment for physical exercise</p>
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Year 1

	The Human Body	Seasons and weather	Materials and Magnets	Taking Care of the Earth	Plants	Animals and their Needs
<p>Knowledge Goals</p> <p>These should be taken from the End Points section of the Unit Rationale</p>	<p>We have five senses: sight, hearing, touch (feeling), taste, smell.</p> <p>Our eyes use light that enters the eye to enable us to see. Light does not come out of the eye.</p> <p>Parts of the eye and what their purpose is.</p>	<p>We have four seasons; spring, summer, autumn and winter</p> <p>Our weather is warmer during the spring and summer and cooler during the autumn and winter</p> <p>Our days of sunlight are longest in the</p>	<p>Objects around us are made from types of materials.</p> <p>Some everyday materials that objects are made from include wood, plastic, glass and metal.</p> <p>Each material can be used to make many different</p>	<p>People are causing pollution that is damaging the earth</p> <p>A natural resource is something that is found in nature that people can use</p> <p>A manufactured resource is something people</p>	<p>Plants need the right temperature, light and water to grow</p> <p>Most plants grow from seeds. If seeds do not get the right conditions, they may not grow into healthy plants.</p> <p>The roots of a plant act as an anchor, fixing the plant into the</p>	<p>Common animal types: bird, fish, amphibian, reptile and mammal.</p> <p>Scientists group animals according to their features.</p> <p>Amphibians are cold-blooded animals that live in water and on</p>

	<p>Sounds travel through our ears to send messages to our brain.</p> <p>Our senses help us to understand the world around us.</p> <p>Our senses send messages to our brains. Some people have problems with their senses</p>	<p>summer and shortest in the winter</p> <p>Data is information that we can represent using graphs</p> <p>There are different types of cloud and that clouds can indicate the weather we are about to experience</p> <p>Recognise weather symbols used in weather forecasting and explain the importance of accurate forecasts</p> <p>Scientists that study the weather are called meteorologists</p> <p>Some weather can be dangerous, for</p>	<p>things, for example plastic can be made into cups, plates, toys, chairs.</p> <p>Properties of materials are things we can measure, see or feel.</p> <p>Materials have different properties that make them useful for different tasks.</p> <p>Some materials will be better suited to certain purposes than others.</p> <p>Certain materials are attracted to magnets.</p> <p>We cannot see the force of magnetism.</p>	<p>have created to use</p> <p>Some natural resources cannot be easily replaced (non-renewable)</p> <p>Some natural resources can be easily replaced (renewable)</p> <p>Logging (cutting down trees) causes damage to the environment</p> <p>Pollution occurs when an environment is damaged by waste</p> <p>We can reduce the amount of pollution we create</p> <p>When something is reused, it is recycled</p> <p>We recycle items to reduce the amount of waste</p>	<p>ground. They also absorb water from the soil.</p> <p>The stem of a plant grows above the ground. The leaves and flowers grow from it.</p> <p>A plant's leaves absorb sunlight and turn it into energy that the plant uses to grow.</p> <p>Plants spread their seeds in order to make new plants</p> <p>When plants make seeds to make new plants, we call this reproducing</p> <p>Evergreen trees keep their leaves all year round. Deciduous trees drop their leaves during autumn time and grow</p>	<p>land. They lay eggs underwater.</p> <p>Mammals are warm-blooded animals that give birth to live young.</p> <p>Animals can be grouped on what they eat: herbivores, carnivores and omnivores.</p> <p>Pets have needs that humans fulfil.</p> <p>Fish have gills to help them breathe, fins to help them swim and scales to protect their bodies.</p>
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		example, hurricanes			fresh leaves in spring We eat different parts of plants including roots, stem, leaves and sometimes the flowers Some plants are dangerous to eat and could make us ill We need a variety of fruit and vegetables in our diet	
<p>Tier 2 vocabulary</p> <p>These should be taken from the Vocabulary section of any Session plans that include one, but only the Tier 2 should be used.</p>	<ul style="list-style-type: none"> • eye • iris • eyelid • eyelash • pupil • vision • reflection • ear • eardrum • deaf • hearing aid • vibration/vibrate • sound • wave touch • taste • smell • skin • tongue • taste buds • nose • scent • sweet • salt • bitter • sour Helen Keller • deaf • blind • illness • speak • read • write • 	<ul style="list-style-type: none"> season • seasonal • spring • summer • autumn • winter • wind • rain • sun • snow • axis • orbit • tilt • rain gauge • wind vane • thermometer • tools • measure • observe • record • precipitation • meteorologist • graph • measure • information • record • data • rainfall • accurate 	<ul style="list-style-type: none"> • everyday • material • wood • plastic • glass • metal • rock soft/hard • dark/bright • transparent/ opaque • rough/smooth • waterproof/ absorbent • thick/thin • bendy/stiff • shiny/dull • properties • purpose • select • material • 	<ul style="list-style-type: none"> care • Earth • world • resources • natural • logging • flooding • pollution • natural • manufactures • resources • renewable • non-renewable • fossil fuels • logging • deforestation • construction • extinction • erosion • flooding • recycle • grazing • biodiversity • 	<ul style="list-style-type: none"> plants • temperature • light • grow • water • germinate • seeds • healthy • botanist • roots • anchor • absorb • stem • leaves • flower • reproduce • disperse • survive • gravity • pepper pot • wind • seed • evergreen • deciduous • autumn • spring • annual • oak • fir 	<ul style="list-style-type: none"> Birds: blackbird, seagull, pigeon • Fish: salmon, tuna, mackerel, goldfish • Amphibians: frog, toad, salamander, newt • Reptiles: crocodile, turtle, alligator, snake • Mammals: mouse, lion, dog, deer, human • Invertebrates: worm, jellyfish, spider, lobster

	sensory impairment	Clouds: • cirrus (curl) • stratus (layers) • cumulus (pile) • cloud • droplet • float • dark • fluffy • storm • forecast • predict • future • scientist • meteorologist • prepare • extreme • danger/ dangerous • flood • hurricane	properties • suited • use • magnet • attract • repel • force • invisible • magnetism • plan • investigate • predict • record • conclusion	pollution • contamination • chemicals • air • water • land • rubbish • waste • fumes • landfill • conservation • recycle • materials • old • new • purpose	• roots • stem • leaves • flower • poisonous • nutrients • edible	sorting • grouping • features • legs • wings • fur • tail • underwater • air • amphibian • mammal • teeth (incisors, canine, molars) • carnivore • herbivore • omnivore • diet • suitable • pets • domestic • wild • food • space • shelter • medicine • water • care • responsibility Common pets: dog, cat, fish, rabbit, guinea pig, hamster • scientific • describe • Fish: gills, fins, scales • Birds: beaks, wings, claws, feathers
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Year 2

	The Human Body	Astronomy	Materials and Matter	Electricity	Plants	Living things and Their Environments
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<p>Knowledge Goals</p> <p>These should be taken from the End Points section of the Unit Rationale</p>	<p>Animals need water, food and air to survive.</p> <p>Our skeleton is made up of bones. Our muscles help us to move.</p> <p>Digestion means breaking down the food we eat. Our bodies take things (nutrients) we need out of the food we eat.</p> <p>The heart is a muscle inside the body. The heart pumps blood around the body. Blood circulates (goes around and around) the body.</p> <p>Germs can make us unwell. We take care of our bodies through exercising, eating a healthy diet, keeping clean and resting.</p>	<p>The Sun is a star at the centre of our solar system. There are eight planets in our solar system: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.</p> <p>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.</p> <p>Night and day 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.</p>	<p>Everyday materials include wood, metal, plastic, glass, brick, rock, paper and cardboard.</p> <p>Every material has its own properties – these can include being hard, soft, opaque, shiny, bendy.</p> <p>Materials are used for a purpose depending on their properties.</p> <p>Inventors need to think about the best materials to use for their inventions.</p> <p>Scientists use a microscope to look closely at very small things. Sometimes, materials look very different when we look at</p>	<p>Identify things that use electricity</p> <p>A battery is a store of electrical energy. Electricity is energy that we store and use to make things work. Electricity can be dangerous.</p> <p>An electrical circuit is a loop that allows electricity to travel around it. An electrical circuit must have wires and a battery.</p> <p>If a circuit is broken, electricity will not be able to flow around it. Materials that allow electricity to pass through them are conductors.</p> <p>Materials that do not allow electricity to pass</p>	<p>Know there are many different types of plants</p> <p>Seeds and bulbs grow into mature plants. A seed can grow into a flowering plant. When a seed germinates, it changes from a seed to a seedling. Some plants create bulbs that live underground, and their leaves grow up through the soil.</p> <p>Plants need light and water to grow. Plants often grow well in the Spring when the temperatures get warmer and there is often rain.</p> <p>Some plants (crops) are grown for food. Crops are harvested, packaged and transported for</p>	<p>Things can be living, dead or never been alive.</p> <p>Living things move, grow, need air and reproduce. Dead things were once alive but are no longer alive.</p> <p>A habitat is the name given to a place where animals or plants live.</p> <p>Rainforests are hot and moist. Deserts are dry and hot or cold.</p> <p>Some animals live in underground habitats and are adapted to living underground.</p> <p>A food chain describe 'who eats what' within a habitat. A food chain can consist of producers,</p>
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		<p>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.</p> <p>Astronomers have studied the stars for many years, learning from each other and making new discoveries.</p> <p>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</p>	<p>using a microscope.</p> <p>Everything around us is made from tiny building blocks we cannot see called particles. Solids have a definite shape.</p> <p>The shape of some solids can be changed by squashing, bending, twisting and stretching.</p> <p>The particles in a solid are tightly packed together and have a strong bond. Liquids can be poured. The shape of a liquid depends on the container it is being held in.</p> <p>Water can be a solid and can also be a liquid.</p>	<p>through them are insulators. Many, but not all, metals conduct electricity</p>	<p>people to buy and eat</p>	<p>consumers and predators.</p>
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		sent a rover to Mars to look for signs of life long ago.				
<p>Tier 2 vocabulary</p> <p>These should be taken from the Vocabulary section of any Session plans that include one, but only the Tier 2 should be used.</p>	<ul style="list-style-type: none"> • survive • scarce • offspring • drought • pollution • skeleton bones • skull • spine • rib • finger bone • hip bone • toe bone • kneecap • muscle • organs • protect • joint • digestion • stomach • oesophagus • small intestine • large intestine • mouth • tongue • chew • blood • energy • waste • process • nutrition • circulate • circulation • blood cells • heart • lungs • veins • arteries • oxygen • pump • germs • hygiene/ hygienic • exercise • balanced diet • nutrition • healthy 	<ul style="list-style-type: none"> • planet • Mercury • Venus • Earth • Mars • Jupiter • Saturn • Uranus • Neptune • Pluto (dwarf planet) • solar system • spherical • orbit • sun • rotate • day • night • axis • seasons • moon • waxing • waning • new moon • crescent • spherical • constellation • star • pattern • The Great Bear • Plough • Orion • Perseverance • robot • mission • space exploration • astronaut • rover 	<ul style="list-style-type: none"> • materials • properties • purpose • soft • hard • shiny • dull • opaque • transparent • strong • flimsy • engineer • inventor • scientists • magnify • microscope • particles • solid • liquid • shape • particles • squash • bend • twist • stretch • matter • solid • liquid • shape • container • pour • bonds • particles 	<ul style="list-style-type: none"> • electricity • energy • appliance • mains • battery • store • useful • dangerous • safety • caution • danger • electric shock • frayed • plug socket • wire • circuit • electricity • flow • battery • bulb • buzzer • current • conduct • insulate • pass through • plastic • wood • wire • rubber 	<ul style="list-style-type: none"> • ash tree • aspen tree • silver birch • oak tree • sweet chestnut tree • daisy • bramble • ivy • cow parsley • seed • bulb • germinate • sprouting • tulip • onion • daffodil • comparative test • cress • observe • record • predict • crops • pests • harvest • package • transport 	<ul style="list-style-type: none"> • alive • dead • inanimate • breathe • move • reproduce • deciduous • evergreen • habitat • microhabitat • animals: beetle, fox, squirrel, owl, badger, robin, hedgehog, camel, scorpion, cobra, lion, rattlesnake, ostrich • plants: fern, moss, oak tree, cactus, tumbleweed • rainforest • tropical • desert • Sahara Desert • Gobi Desert • Antarctica • camel • cactus • survive • adapt • underground • badger • fox • mole • worm • adapt • damp • tunnel • burrow • food • energy •

	<ul style="list-style-type: none"> • rest • bacteria • wash • medicine • injection • vaccine 					<ul style="list-style-type: none"> producer • consumer • predator • food chain
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Year 3

	Rocks	Cycles in Nature	Forces and Magnets	The Human Body	Plants	Light
<p>Knowledge Goals</p> <p>These should be taken from the End Points section of the Unit Rationale</p>	<p>Rocks have different names and can be sorted into groups according to their properties</p> <p>There are three main groups of rock called sedimentary, igneous and metamorphic.</p> <p>Sedimentary rocks are formed by layers of sediment under the sea.</p> <p>Metamorphic rocks are formed under immense heat and pressure. Igneous rocks are formed by volcanoes</p>	<p>The natural environment changes as the seasons change.</p> <p>We have four seasons: spring, summer, autumn and winter.</p> <p>We have seasons because the Earth is titled as it makes its journey around the sun.</p> <p>Plants can change through the seasons with different life cycle stages for each season.</p> <p>Plants grow, live and reproduce.</p>	<p>A force is a push or a pull. Gravity is a force that makes objects fall to the ground.</p> <p>The effect of a force is to make something move, or change speed, direction or shape.</p> <p>We can change the amount of force we use when we push and pull things.</p> <p>Friction is the force between two surfaces. Rough surfaces create greater friction. Smooth</p>	<p>Muscles can be voluntary or involuntary. Muscles enable our body to move. A human has an endoskeleton that supports and protects their body. A joint is place where bones join connected by ligaments.</p> <p>The brain is at the centre of the nervous system, sending messages around the body. Animals, including humans, get</p>	<p>Flowering plants all have roots, a stem or trunk, leaves and flowers, but do not all look the same</p> <p>A botanist is a scientist who studies plants</p> <p>Plants need air, light, water, nutrients from soil and room to grow</p> <p>Plants need differing amounts of things in order to thrive</p> <p>Water moves from the roots of a plant upwards</p>	<p>Light enables us to see things. Darkness it the absence of light.</p> <p>The sun is an important source of light for life on earth</p> <p>Light travels in straight lines</p> <p>Transparent material allows light to pass through it.</p> <p>Opaque material blocks light from passing through it.</p> <p>Mirrors reflect light. Mirrors of</p>

<p>Rocks can have small air spaces in them allowing water to pass through them</p> <p>If a rock allows water to pass through, it is called permeable rock</p> <p>If a rock doesn't allow water to pass through, it is called impermeable rock</p> <p>Fossils are formed when rock forms around things that once lived Fossils are rare and take thousands of years to form</p> <p>Scientists who study fossils are called palaeontologists</p> <p>Soil is made from rocks and organic matter. Organic</p>	<p>Flowering plants produce pollen. When fertilised, pollen can join with the ovule to grow into a seed and then eventually a new plant.</p> <p>Some animals migrate when the seasons change.</p> <p>The life cycle of a frog.</p>	<p>surfaces create less friction.</p> <p>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.</p> <p>A lodestone is a naturally occurring rock that has magnetic properties. A magnet has two opposite poles: the north and south pole.</p> <p>A magnetic field is the space around a magnet where the magnetic force can be felt.</p> <p>Larger magnets are often, but not always, the strongest.</p>	<p>nutrition from what they eat.</p> <p>A balanced diet means eating the right amounts of each food group.</p> <p>The digestive system is made up of many parts that each have a role.</p>	<p>via the stem Plants absorb water from the soil to help them live and grow</p> <p>Plants with larger root systems can take more water from the soil</p> <p>Pollination is needed for flowering plants to reproduce</p> <p>Flowering plants can only produce seeds if pollen is transferred from the anther to the stigma</p> <p>Insects are essential for pollination</p> <p>Plants spread their seeds in different ways (wind, animals, gravity)</p>	<p>different shapes reflect light differently.</p> <p>A shadow is created when an object blocks the path of light.</p> <p>The sun appears to move across the sky as our planet revolves on its axis.</p> <p>Shadows change in size and shape throughout the day</p>
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	matter is made from the decaying remains of living things		Magnetic strength can be weakened over time.			
<p>Tier 2 vocabulary</p> <p>These should be taken from the Vocabulary section of any Session plans that include one, but only the Tier 2 should be used.</p>	<ul style="list-style-type: none"> rock • mineral • hard • soft • smooth • crumbly • observation • geologist • sediment • layers • sedimentary • metamorphic • pressure • earth's crust • igneous • volcano • magma • lava • permeable • impermeable • fossil • fossilised • palaeontologist • buried • sediment • soil • decay • organic matter • sandy • chalky • clay 	<ul style="list-style-type: none"> spring • summer • autumn • winter • cycle • seasons • Earth • orbit • axis • sun • tilt • planet • Northern Hemisphere • sprout • roots • deciduous • evergreen • nutrients • branches • sap • energy • ripen, • mature • decay • dormant (from the French word dormir meaning to sleep) • root • stem/trunk • leaves • flower • pollen • anther • ovule • reproduce • germination • bulb • seed • fruit • shoot • seed dispersal • reproduce • hibernate • migrate/ migration • south/north • seasonal • 	<ul style="list-style-type: none"> force • push • pull • contact force • gravity • magnetism • force • friction • heat • reduce • increase • magnetism • magnet • metal • iron • lodestone • north • south • attract • repel • push • pull • pole • magnetic field • magnetic force • magnetism • strength • strong • weak 	<ul style="list-style-type: none"> voluntary • involuntary bicep • intestine • heart • control contract • relax • endoskeleton • femur • stirrup • skull • cranium • ligaments • joint • spinal column • ribs scapula • pelvis • cerebrum • cerebellum • medulla nerves • cerebral cortex • spinal cord • nervous system • nutrition • nutrients • vitamins • minerals • balanced diet • digest • process • break down • nutrition • saliva • oesophagus • stomach • small intestine • large intestine • rectum • anus • digestive juices • salivary glands 	<ul style="list-style-type: none"> botanist • function • feature • Agnes Arber • Joseph Banks • thrive • wilt • hydrangea • sunflower • cactus (cacti) • absorb • roots • stem • transport • pollen • pollination • pollinator • reproduce • seed • anther • stigma • seed formation • germination • pollination • disperse • gravity • dandelion • sycamore • acorns • poppies 	<ul style="list-style-type: none"> light • darkness • absence • source • natural • artificial • retina • protect • transparent • opaque • transmit • reflect • absorb • translucent • plane • concave • convex • reflect • reflection • shadow • predict • record • observe • investigate • measure • conclude

		<ul style="list-style-type: none"> tadpoles • frogspawn • reproduce • mature • metamorphosis 				
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Year 4

	The Human Body	Sound	Electricity	Classification of Plants and Animals	States of Matter and the Water Cycle	Ecology
<p>Knowledge Goals</p> <p>These should be taken from the End Points section of the Unit Rationale</p>	<p>All living things are made up of cells.</p> <p>Our body requires nutrients to keep healthy.</p> <p>Nutrients are found in the food we eat.</p> <p>There are four types of teeth: incisors, canines, pre-molars and molars. Each tooth type has a function.</p> <p>The function of body parts in the digestive system.</p>	<p>Sound is caused by a back and forth movement called vibration</p> <p>Sound waves move out from a vibrating object</p> <p>Sound can travel through different types of matter (solid, liquid, gas)</p> <p>Sound is fainter the further from the source it is</p> <p>Pitch is how high or low a sound is and relates to the speed of vibrations</p>	<p>Electricity can be very dangerous. 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.</p> <p>An electrical circuit is a loop that allows electricity to travel around it.</p> <p>An electrical circuit must have wires and a battery. If a circuit</p>	<p>A vertebrate is an animal with a backbone.</p> <p>An invertebrate is an animal without a backbone. Scientists sort living things using a process called classification.</p> <p>Fish are cold-blooded vertebrates that live in water and have gills.</p> <p>Amphibians are cold-blooded vertebrates that live both in water and on land.</p>	<p>There are three main states of matter: solids, liquids and gases.</p> <p>Water exists in all these states of matter in nature. Water can change into each state in both directions – we call this the Water Cycle.</p> <p>Water evaporates from all water sources (e.g. puddles, lakes, oceans).</p> <p>When water evaporates, it becomes water vapour.</p>	<p>There are seven life processes which living things have in common</p> <p>A habitat is the natural environment or home of an animal, plant or other organism</p> <p>Living things depend on each other within their habitat.</p> <p>A producer makes their own food using sunlight, water and nutrients</p>

	<p>A balanced diet keeps us healthy. Essential vitamins and minerals are needed in our body</p>	<p>Volume is how loud or quite a sound is and relates to the strength of the vibrations</p> <p>Louder sounds are made by bigger vibrations Quieter sounds are made by smaller vibrations Faster vibrations make higher-pitched sounds Slower vibrations make lower-pitched sounds</p> <p>We hear through soundwaves entering the ear, travelling through it and the messages sent to the brain</p>	<p>is broken, electricity will not be able to flow around it.</p> <p>A switch opens and closes a circuit. Opening a circuit prevents electricity from flowing.</p> <p>Thomas Edison invented the first lightbulb suitable to use in homes. Lewis Latimer invented a lightbulb that could last for a long time.</p> <p>Materials that allow electricity to pass through them are conductors.</p> <p>Materials that do not allow electricity to pass through them are insulators. Many (but not all) metals conduct electricity.</p>	<p>Reptiles are cold-blooded vertebrates with scaly skin.</p> <p>Birds are warm-blooded vertebrates with feathers that can fly.</p> <p>Mammals are hairy, warm-blooded vertebrates that breathe air.</p> <p>Insects are invertebrates with six legs and three body parts.</p> <p>Molluscs are invertebrates with a soft body, and some have shells. Arachnids are invertebrates with eight legs and two body parts.</p> <p>Plants are classified into two main groups: flowering and non-flowering.</p>	<p>The amount of water in the air is called humidity.</p> <p>Condensation is when water vapour turns back into liquid. High in the sky, the air is cooler and turns vapour back into water droplets.</p> <p>There is always water vapour in the air and the temperature changes its appearance. Clouds are formed of millions of water droplets and their shape, size and colour can tell us what weather will be like.</p> <p>When water droplets get large enough, often in dark cumulonimbus or nimbostratus clouds, they</p>	<p>A consumer eats other living things to gain their energy</p> <p>A decomposer breaks down the remains of dead living things into smaller pieces which leaves nutrients in the soil</p> <p>An ecosystem is the interaction of organisms in their environment</p> <p>Ecosystems can be delicately balanced so if one organism is added or removed it can have a negative impact on other organisms</p> <p>Pollution is any substance that is introduced to an environment that can damage or affect quality of life</p>
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				Non-flowering plants grow from spores instead of seeds.	precipitate and fall as rain, sleet, hail or snow. Precipitation returns water to the surface of the earth as part of the water cycle.	Understand the human impact on their local area
<p>Tier 2 vocabulary</p> <p>These should be taken from the Vocabulary section of any Session plans that include one, but only the Tier 2 should be used.</p>	<ul style="list-style-type: none"> • cell • organs • tissue • system nutrition • food • groups • microscope • incisor • canine premolar • molar omnivore • enamel salivary glands • taste buds • oesophagus • stomach • small intestine • large intestine • appendix • involuntary • muscle • anus chyme • vitamin minerals • iron • calcium • magnesium • zinc 	<ul style="list-style-type: none"> • vibration • soundwaves • matter • gases • liquids • solids • sound • sound barrier • speed of sound • Concorde • medium • supersonic • volume • loud • quiet • pitch • high • low • vocal cord • voice box • vibrate • vibrations • pitch • larynx • cartilage • vibration • ear canal • ear drum • ear bones • hammer • anvil • stirrup • cochlea • auditory nerves 	<ul style="list-style-type: none"> • useful • dangerous • safety • caution • danger • electric shock • frayed • plug socket • wire • circuit • electricity • electrician • flow • battery • wire • bulb • cell • buzzer • switch • switch • component • conductor • Filament • Thomas Edison • Lewis Latimer • conduct • conductor • insulate • insulator • pass through • plastic • wood • wire • rubber 	<ul style="list-style-type: none"> • living things • classification • classify • sorting • vertebrates • invertebrates • backbone • internal skeleton • cold-blooded • warm-blooded • gills • amphibians lungs • scales • metamorphosis reptiles • birds mammals • scales feathers • features • arachnid • • mollusc insects • abdomen thorax • backbone • botanist • non-flowering • flowering • seeds pollen • flowers reproduce • photosynthesis 	<ul style="list-style-type: none"> • solid • liquid • gas • matter • water • particles • steam • water vapour • humidity • evaporate • liquid • gas • condenses • vapour • droplets • precipitation • condensation • gravity • stratus • cumulus • cirrus • cumulonimbus • nimbostratus • rain • snow • hail • sleet • collection • groundwater • reservoir • water source 	<ul style="list-style-type: none"> • living thing • habitat • microhabitat • polar • rainforest • desert • producer • consumer • decomposer • cycle • living thing • energy • organisms • predator • prey • ecosystem • organism • web • living things • exotic • native • pollution • environment • plastic • man made • emissions • smog • filter • chemicals

				fern • moss • fungi • algae		
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Year 5

	Materials	Astronomy	Meteorology	The Human Body	Living Things	Forces
<p>Knowledge Goals</p> <p>These should be taken from the End Points section of the Unit Rationale</p>	<p>Materials can be grouped according to their properties.</p> <p>A property is something that describes a material. Some properties are visible; others can be found by testing.</p> <p>Thermal conductivity means heat can be transferred through a material.</p> <p>Materials are selected for uses that suit their properties. A solution is a mixture of a solid in a liquid.</p>	<p>• Astronomers believe the universe started with the Big Bang 14 billion years ago and that the universe is still expanding today</p> <p>Galaxies are groups of stars held together by gravity. Our galaxy is the Milky Way and our nearest neighbour is Andromeda galaxy.</p> <p>Gravity is the force which pulls all objects towards each other. Although all objects attract all others by the force, gravity, it is</p>	<p>Meteorology is the study of the weather.</p> <p>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.</p> <p>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.</p> <p>Since the harmful chemicals were banned, the hole</p>	<p>Recognise the first stages of human growth: gestation, birth and infancy.</p> <p>Humans have a gestation period of nine months.</p> <p>Human body experiences changes as it goes through puberty.</p> <p>Hormones released into the bloodstream cause physical, mental and emotional changes.</p> <p>Physical and mental changes happen to the body from</p>	<p>Recognise how plants and animals in our local area change throughout the year</p> <p>Plants and animals are interconnected within an ecosystem</p> <p>A mammal is born and grows into a mature adult</p> <p>Most amphibians hatch eggs underwater, before beginning a process of metamorphosis</p> <p>Metamorphosis is a significant change in an</p>	<p>A force is either a push or pull</p> <p>A force can cause an object to increase speed, decrease speed, change direction or change shape</p> <p>Gravity is a force that pulls objects towards the centre of the earth</p> <p>Friction occurs when two objects move against each other</p> <p>Air resistance is a kind of friction that slows down objects moving through the air</p>

<p>Dissolving is a process where one substance becomes incorporated with another to form a solution.</p> <p>A solvent is a substance that can dissolve other substances.</p> <p>Some substances are soluble; some are not. There are methods for separating mixtures: sieves, filters, magnetism, evaporation. All changes are either reversible or irreversible.</p>	<p>too weak to notice unless one object (like the Earth) is huge</p> <p>The Earth's gravity holds us to the Earth's surface; the Sun's gravity holds the Earth in orbit around it.</p> <p>The Sun is at the centre of our solar system. Our solar system contains 8 planets, 4 terrestrial planets and 4 Jovian planets.</p> <p>There are trillions of smaller rocks called asteroids, as well as dwarf planets like Pluto and Ceres</p> <p>The moon is the Earth's natural satellite The moon is a planet, it does not make its own light</p>	<p>in the ozone layer has been repairing.</p> <p>Our climate is called a maritime climate, because it is largely influenced by the sea.</p> <p>The polar maritime and the tropical maritime air masses bring wetter weather from the sea.</p> <p>The polar continental and the tropical continental air masses bring drier weather from land.</p> <p>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</p>	<p>adulthood to old age.</p> <p>All living things follow a life cycle of birth, growth, reproduction and death.</p>	<p>animal as it grows into an adult</p> <p>All animals are born, grow and mature, but in very different ways</p> <p>Know that flowering plants need pollen to reproduce</p> <p>Most large plants reproduce by combining a male and female gamete to make a fertilised egg that grows into an embryo</p> <p>The embryo is protected inside a seed</p> <p>Know there are many different jobs in the world of science</p> <p>Know that David Attenborough and Jane Goodall have dedicated</p>	<p>Water resistance is a kind of friction that slows down objects moving through water</p> <p>Upthrust is the force that can keep objects afloat</p> <p>Changing the shape of an object affects the forces that act upon them</p> <p>Increasing the surface area of something increases the amount of air resistance acting upon it</p> <p>In a fair test, specific variables are controlled Simple machines can allow a smaller force to have a great effect</p>
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		<p>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</p> <p>Neil Armstrong and Buzz Aldrin were the first humans to land on the moon</p> <p>Our home supercluster is called Laniakea and contains over 100,000 galaxies</p>	<p>line with blue triangles.</p> <p>When electrical charge builds up and moves through the atmosphere, it creates a flash of light and sound.</p> <p>Light travels faster than sound, so we often see lightning before we hear thunder.</p>		<p>their lives to studying the natural world and communicating their findings</p>	<p>A lever uses a long pole and a pivot point to increase a force</p> <p>Pulleys use a rope running over a pulley wheel to increase a force</p> <p>Gears use cogs with teeth to increase the force</p>
<p>Tier 2 vocabulary</p> <p>These should be taken from the Vocabulary section of any Session plans that include one, but only the Tier 2 should be used.</p>	<p>property material transparent/transparency opaque shiny, dull conductor, conductivity insulator, insulation hard/hardness soluble insoluble strong flexible thermal conductor insulator fair control</p>	<p>• astronomy • theorise • The Big Bang • universe • matter • galaxy • space • light year • gravity • force • mass • matter • black hole • orbit • solar system • Mercury • Venus • Earth • Mars • Jupiter • Saturn • Uranus • Neptune • Pluto • Ceres • terrestrial • Jovian</p>	<p>• meteorology • atmosphere • troposphere • stratosphere • mesosphere • thermosphere • exosphere • ozone • ozone layer • depletion • stratosphere • ultraviolet (UV) radiation • Montreal Protocol chlorofluorocarbons (CFCs) • air</p>	<p>growth gestation puberty old age conception offspring embryo adolescence hormones puberty reproduction menstruation ageing lifespan metabolism wean growth stage life expectancy life cycle</p>	<p>• cycle • birch • growth • reproduction • death • interconnection • mammal • amphibians • metamorphosis • mature • hibernation • incubate • larvae • life cycle • gamete • fertilisation • embryo • seed •</p>	<p>• force • push • pull • increase • decrease • gravity • friction • air resistance • water resistance • streamline • parachute • upthrust • Float • buoyancy • surface area • air resistance • gravity • force • time • speed • scientific enquiry</p>

	temperature thermometer stopwatch mixture dissolve, dissolving solution solvent solute solubility substance mixture dissolve separate sieve filter magnet solution evaporate reversible irreversible change reaction	<ul style="list-style-type: none"> • satellite • celestial • the Moon • waning • waxing • crescent • gibbous • Neil Armstrong • Buzz Aldrin • Milky Way • Proxima Centauri • Andromeda • galaxy • cluster • supercluster • Laniakea 	mass • maritime climate • arctic maritime • polar continental • polar maritime • returning polar maritime • tropical continental • tropical maritime • anemometer • air mass • synoptic chart • warm front • cold front • boundary • cumulonimbus • ice crystals • electrical charge • thunder • lightning		germinate • sepals • stamens • anther • pistil • ovary • pollination • pollen • naturalist • primate • biography	<ul style="list-style-type: none"> • fair test • dependent variable • independent variable • control variable • record • results • data • water resistance • lever • pulley • gear • fulcrum • pivot
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Year 6

	The Human Body	Classification of Living Things	Light	Electricity	Reproduction	Evolution
Knowledge Goals These should be taken from the End Points section of the Unit Rationale	The heart pumps blood around the body. The left atrium and left ventricle carry oxygenated blood which is pumped around the body.	Living things are classified into five main kingdoms. Members of each kingdom share features unique to that group.	Light enables us to see by entering our eyes Light travels in straight lines Some light sources are natural, and	Electricity can flow from one place to another - this is called electrical current We can control the flow of electricity in a circuit	Asexual reproduction does not require a male and female and doesn't alter genetic information. Asexual reproduction is	Fossils are the remains of organisms. A small percentage of life on earth is preserved as a fossil, most

	<p>The right atrium and right ventricle carry deoxygenated blood which is pumped out to the lungs.</p> <p>All cells in our body need oxygen. Arteries carry oxygenated blood from the heart to cells. Veins carry deoxygenated blood from the cells back to the heart.</p> <p>Heart rate increases when you exercise as cells use more oxygen.</p> <p>Drugs and poor health can affect how well the heart works.</p>	<p>The five kingdoms are plants, animals, fungus, protist and prokaryote.</p> <p>Cells are tiny building blocks that make up all living things. There are two main types of cell: animal and plant.</p> <p>Taxonomy is a way of grouping organisms.</p> <p>Organisms are divided into kingdoms and then further divided into smaller groups.</p> <p>Organisms are divided into kingdoms, phylum, class, order, family, genus, species. Vertebrates are classified into five groups: fish, amphibians,</p>	<p>some are artificial</p> <p>The iris helps the pupil to open and close</p> <p>Inside the retina, light rays become electrical signals which are sent to the brain</p> <p>Shadows are always the same shape as the object that made it</p> <p>The size of shadows can change but the outline shape stays the same as the object</p> <p>Light from the sun is made up of the colours of the rainbow</p> <p>When light travels through a prism, the glass slows it down and changes its course</p>	<p>Circuit components need electricity to work</p> <p>Circuit components turn electrical energy into different energy forms</p> <p>Voltage is the pressure from a battery that pushes electricity around a circuit</p> <p>The voltage of a battery or the number of batteries can change the brightness/volume of components</p> <p>Switches control the flow of electricity in a circuit</p> <p>A switch creates a circuit complete or incomplete</p> <p>Making a gap in a circuit prevents</p>	<p>when an organism simply copies itself.</p> <p>Some plants and some simple animals reproduce asexually.</p> <p>Most flowering plants reproduce by combining a male and female gamete (pollen and ovule) to make a fertilised egg that grows into an embryo.</p> <p>The embryo or baby plant is protected inside a seed.</p> <p>Most flowering plants clothe their seeds with fruit. Fruit protect and keep seeds moist. Fruits help with seed dispersal.</p> <p>Animals can have male cells (sperm</p>	<p>organisms decompose.</p> <p>Fossils provide evidence for evolution.</p> <p>Inheritance is passing on characteristics from a parent to their offspring.</p> <p>There are differences in characteristics within an individual species, known as variation.</p> <p>Evolution is the change in inherited traits.</p> <p>Animals and plants that adapt well to an environment have more chance of surviving.</p> <p>Adaptation plays an important part in evolution as</p>
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		<p>reptiles, birds and mammals.</p> <p>Invertebrates are classified into groups, which include insects, arachnids and molluscs.</p>	<p>Different colours are slowed down different amounts when going through a prism</p> <p>A periscope uses reflects an image out of sight using light and mirrors</p>	<p>electricity from flowing</p>	<p>produced in testes) or female cells (eggs produced by ovaries).</p> <p>When an egg is fertilised by sperm it is called a zygote. The zygote develops into an embryo and then a foetus.</p> <p>When a foetus can live outside the mother, it is born.</p> <p>Gestation is the period of time that a living thing develops before it is born. Different animals have different gestation periods.</p> <p>Different species of animal have different ways of looking after their young.</p>	<p>species change over time.</p> <p>Charles Darwin spent years observing, comparing and analysing many specimens of plants and animals.</p> <p>Animals and plants that adapt well to an environment have more chance of surviving, this is called natural selection.</p> <p>Alfred Wallace explored the Amazon, collecting species of beetles, butterflies and birds.</p> <p>He created an imaginary line, known as the Wallace Line.</p>
Tier 2 vocabulary	• atrium (atria) • ventricle(s) valves	classification • taxon • taxonomy	• illumination • artificial • source	• electricity • circuit • current •	• reproduce • asexual • cell	• prehistoric • sedimentary rock

<p>These should be taken from the Vocabulary section of any Session plans that include one, but only the Tier 2 should be used.</p>	<ul style="list-style-type: none"> • aorta • pulmonary circuit • systemic circuit • blood vessels • arteries • veins • capillaries • nutrients • diffusion • waste products • blood pressure • heart rate • pulse • oxygen diet • exercise • drugs • alcohol • fair test • investigation predictions • variables • independent • dependent • control • affect result conclusion components •• red blood cells • white blood cells • haemoglobin • platelets • plasma 	<ul style="list-style-type: none"> organism • plants • animals • protist • fungi • bacteria prokaryotes • unicellular • multicellular cell plant • animal cell membrane • • cytoplasm • nucleus • vacuole • mitochondria • cell wall • chloroplast • chlorophyll • taxonomy • kingdom phylum (phyla) • class order • family genus (genera) • species • vertebrates • fish amphibians • reptiles • birds mammals • cold-blooded • warm-blooded • offspring vertebrate • invertebrate • arachnid • mollusc insect • cnidarian • arthropod • annelid 	<ul style="list-style-type: none"> • darkness • optic nerve • cornea • iris • pupil • lens • muscles • retina • brain • hypothesis • shadow • measure • record • prism • refract/refraction • white light • rainbow • periscope • reflect • mirror • 45° angle 	<ul style="list-style-type: none"> electrical current • components • energy • insulator • conductor • series circuit • short circuit • volts • voltage • cell • battery • data logger • Electrical Engineer • switch • complete circuit • incomplete circuit • kill switch • design • problem solve • components • purpose 	<ul style="list-style-type: none"> division • cloning/clone • regeneration • gamete • fertilisation • embryo • seed • germinate • sepals • stamens • anther • pistil • ovary • pollination • pollen • dispersal • symbiotic • exocarp • mesocarp • endocarp • sexual reproduction • sperm • ovary • fertilisation • zygote • embryo • foetus • development • birth • reproduction • life cycle • zoologist 	<ul style="list-style-type: none"> • fossil • organism • palaeontologist • Mary Anning • offspring • inheritance • environmental • variation • mutation • DNA • adapt • adaptation • biomes • habitat • evolution • adapt • adaptation • biomes • species • habitat • evolution • natural selection • species • evolution • anthropology • naturalist • extinct • Placental mammal • marsupial mammals
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