Science Curriculum

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Animals including humans – About humans 	Seasonal Changes (On-going throughout year) 	Plants (On-going throughout year) 	Animals including humans – About animals 	Greatwood Grow project	Exploring everyday materials 
Year 2	Animals Including humans – Diet and Health 	Uses of everyday materials 	Animals Including humans – Growth 	Living things and their habitats 	Greatwood Grow project	Plants 
Year 3	Forces and Magnets 	Plants 	Animals including humans 	Greatwood Grow project	Rocks 	Light 
Year 4	Animals including humans 	States of Matter 	Electricity 	Sounds 	Living things and their habitats 	Greatwood Grow project
Year 5	Earth and space 	Forces 	Properties and changes of materials 	Greatwood Grow project	Animals including humans 	Living things and their habitats 
Year 6	Electricity 	Light 	Living things and their habitats 	Animals including humans 	Evolution 	Greatwood Grow project

Year 1

	Autumn 1 Animals including humans – About humans 	Autumn 2 Seasonal Changes (On-going throughout year) 	Spring 1 Plants (On-going throughout year) 
Prior Learning	**Understanding of the World - EYFS**	**Understanding of the World - EYFS**	**Understanding of the World - EYFS**
Key Enquiry Skills	- Identify, name, draw and label the basic parts of the human body. - Say which part of the body is associated with each sense. -Observing closely -Identifying and classifying -Performing simple tests **What are the names for the parts of my body?** **How does my height change over the year?**	-Observe and describe changes across the four seasons. -Observe and describe weather associated with the seasons and how day length varies. -Observing closely -Using observations to suggest answers to ideas - **How does the Greatwood Tree change over the year?** **In which month does it rain the most?**	-Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. -Identify and describe the basic structure of a variety of common flowering plants including trees. -Observing closely -Using observations to suggest answers to ideas **What are the most common British plants and where can I find them?**
Key Learning	Children will learn the names of the basic parts of the body and what these parts do. Humans have key parts in common but these vary from person to person e.g. hair colour. Humans (and other animals) find out about the world using their senses. Humans have 5 senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body. Humans are not animals.	Children will observe and talk about changes in the weather and seasons. They will note that the weather changes with the seasons and this causes many other changes e.g. seed and plant growth and types of clothes worn by people. In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again.	Children will know that plants have common parts but that these vary between the different plants. There are lots of plants growing locally that have specific names. These can be identified by looking at the key characteristics of the plant. Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring.
Key Vocabulary	Head, body, eyes, ears, mouth, tongue, teeth, nose, leg, neck, arms, elbow, knee, face, organs, torso, senses, touch, feel, see, sight, smell, taste, hear, baby, food, grow, healthy, exercise, cleanliness, rest.	Weather, Cloud, cloudy, sun, sunny, rain, rainy, wind, windy, snow, snowy, hail, sleet, ice, icy, blizzard, temperature, thunderstorm, lightning, droplet, sky, day, night, sunset, sunrise, season, winter, spring, summer, autumn, change, shelter	Plants, leaf, flower, root, stem, petal, berry, fruit, blossom, seed, bud, stalk, tree, trunk, bark, branch, leaves, soil, water, light, crop, deciduous, evergreen. Names of plants and trees in the local area.

Year 1 continued

	Spring 2 Animals including humans – About animals 	Summer 1 Greatwood Grow project	Summer 2 Everyday materials 
Prior Learning	**Understanding of the World - EYFS**		**Understanding of the World - EYFS**
Key Enquiry Skills	-Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. -Identify and name a variety of common animals that are carnivores, herbivores and omnivores. -Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). -Identifying and classifying -Use observations and ideas to suggest answers to questions. -observing closely, using simple equipment. **How can we sort different animals?**	**How does our outdoor area change over the year?**	-Distinguish between an object and the material from which it is made? -Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. -Describe the simple physical properties of a variety of everyday materials. -Compare and group together a variety of everyday materials on the basis of their simple physical properties. -Identifying and classifying -Performing simple tests -Observing closely, using simple equipment. -Use observations and ideas to suggest answers to questions. **Which materials will float and sink?** **Which materials are the most absorbent?**
Key Learning	Children will learn about 5 different groups of animals – fish, amphibians, reptiles, birds and mammals and be able to name some from each group. Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scale, feathers and hair. These key features can be used to identify them. Animals eat certain things – some animals eat other animals, some eat plants, some eat both plants and animals.		Children will learn that all objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal and wooden spoons. Materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties. Materials are chosen for specific tasks based upon their properties e.g. waterproof fabric is used for umbrellas.
Key Vocabulary	Animal, mammal, fish, amphibian, reptile, bird, pet, food, water, shelter, air, energy, offspring, new-born, care, carnivore, herbivore, omnivore, predator, identify, head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves. A range of names of animals experienced first-hand from each group.		Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through, float, sink, transparent, opaque, clear,

Year 2

	Autumn 1 Animals including humans – Diet and Health	Autumn 2 Everyday Materials	Spring 1 Animals including humans - Growth
			
Prior Learning	**Animals including humans – Year 1**	**Everyday Materials – Year 1**	**Animals including humans – Year 1**
Key Enquiry Skills	-Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). -Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. -Ask simple questions -Perform simple tests and record results -Grouping and classifying -Gather and record data **What food do you need in a healthy diet and why?** **How much food and drink do I have over a week?**	-Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. -Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. -Performing simple tests -Grouping and classifying -Use their observations and ideas to suggest answers to questions. **Which shapes make the strongest paper bridge?**	-Notice that animals, including humans, have offspring which grow into adults. -Be introduced to the processes of reproduction and growth in animals (focus on helping pupils recognise growth in animals, not to understand how reproduction occurs). -Ask simple questions -Use scientific language and diagrams -Gather and record data -Make careful observations and suggest answers to questions. **Which offspring belongs to which animal?**
Key Learning	Children will learn that all animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and disease.	Children will learn that all objects are made of one or more materials, chosen because they have suitable properties for the task. E.g. a water bottle is made of plastic because it is transparent allowing you to see the drink and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. E.g. clay.	Children will learn that animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles.
Key Vocabulary	exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)	Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, nonreflective, flexible, rigid Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly),

Year 2 continued

	Spring 2 Living things and their habitats 	Summer 1 Greatwood Grow Project	Summer 2 Plants 
Prior Learning	**Plants – Year 1** **Animals including humans – Year 1** **Seasonal changes – Year 1**		**Plants – Year 1**
Key Enquiry Skills	-Explore and compare the differences between things that are living, dead and things that have never been alive. -Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. -Identify and name a variety of plants and animals in their habitats, including micro-habitats. -Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	**How does our garden change over the half term?**	-Observe and describe how seeds and bulbs grow into mature plants. - Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. -Gather and record data -Perform simple tests -Observe closely using simple equipment -Present information **Do bigger seeds grow into bigger plants?** **Do cress seeds grow quicker inside or out?**
Key Learning	Children will learn that all objects are either living, dead or have never been alive. An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (ignore that plastics are made from fossil fuels). Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.		Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.
Key Vocabulary	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed Names of local habitats e.g. pond, woodland etc. Names of micro-habitats e.g. under logs, in bushes etc		As for Year 1, Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud plus light, shade, sun, warm, cool, water, grow, healthy

Year 3

	Autumn 1 Forces and Magnets 	Autumn 2 Plants 	Spring 1 Animals including humans - 
Prior Learning	**Uses of everyday materials – Year 2**	**Plants – Year 1** **Plants – Year 2**	**Animals including humans – Year 1** **Animals including humans – Year 2**
Key Enquiry Skills	-Compare how things move on different surfaces. -Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance -Observe how magnets attract or repel each other and attract some materials and not others -Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials -Describe magnets as having 2 poles -Predict whether 2 magnets will attract or repel each other, depending on which poles are facing -Ask relevant questions -Gather, record and present data -Set up simple practical enquiries, comparative and fair tests -Make systematic and careful observations and take accurate measurements -Use results to draw simple conclusions. **Does the shape and size of a magnet affect how strong it is?**	-Identify and describe the functions of different parts of flowering plants: roots; stem/trunk; leaves and flowers. -Explore the requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow) and how they vary from plant to plant. -Investigate the way in which water is transported into plants. -Name, locate, describe functions of main parts of plants – including those involved in transporting water and nutrients. -Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. -Observe closely. Present information in a labelled diagram. -Use scientific language to answer questions -Perform simple practical enquiries. -Gather and record data -Give oral and written explanations **How does the length of the stem affect how long it takes for food colouring to reach the petals?**	- -Identify that humans and some other animals have skeletons and muscles for support, protection and movement. -Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food – they get nutrition from what they eat. -Gather, record and present data in a variety of ways. -Use scientific knowledge and language -Use observations and ideas to suggest answers to questions -Use results to draw simple conclusions, make predictions and suggest improvements. **How does the skull circumference of a girl compare with a boy?**
Key Learning	Children will learn that a force is a push or a pull. When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes. A magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are brought together they will pull together – attract. For some forces to act, there must be contact. Some forces can act at a distance e.g. magnetism	Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. The roots absorb water and nutrients from the soil and anchor the plant in place. The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal. The leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to reproduce. Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed indifferent ways. Different plants require different conditions for germination and growth.	Humans, and some other animals, have skeletons and muscles which help them move and provide protection and support.
Key Vocabulary	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints.

Year 3 continued

	Spring 2 Greatwood Grow Project	Summer 1 Rocks	Summer 2 Light
Prior learning		**Everyday materials – Year 1** **Uses of everyday materials – Year 2**	**Seasonal changes – Year 1 Everyday materials – Year 1**
Key Enquiry Skills	**Which plants will grow best in our garden at this time of year?** **How does our garden change over the half term?**	-Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. -Describe in simple terms how fossils are formed when things that have lived are trapped within rock. -Recognise that soils are made from rocks and organic matter. -Set up simple practical enquiries, comparative and fair testing. -Perform an investigative test. -Gather, record, classify and present data in a variety of ways. -Use relevant scientific language to discuss and communicate ideas. **Can you use an identification key to identify rocks?**	-Recognise that they need light in order to see things and that dark is the absence of light. -Notice that light is reflected from surfaces. -Recognise that light from the sin can be dangerous and that there are ways to protect their eyes. -Recognise that shadows are formed when the light from light source is blocked by an opaque object. -Find patterns in the way that the size of shadows change. -Ask relevant questions and use different types of enquiry to answer them. - Set up simple practical enquiries, comparative and fair testing -Collect data and identify trends. -Record findings using drawings and labelled diagrams. **How does the sun make light?** **What happens to coloured paper when it is left in the sun?**
Key Learning		Rock is a naturally occurring material. There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rock can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Rocks can be different shapes and sizes (stones, pebbles, boulders). Soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil. Some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the sea bed, became covered and squashed by other material and over time, the dissolving plant and animal matter is replaced by minerals from the water.	We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective. The light from the sun can damage our eyes and therefore we should not look directly at it and can protect our eyes by wearing sunglasses or sunhats in bright light. Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadows depends on the position of the source, object and surface.
Key Vocabulary		Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous.

Year 4

	Autumn 1 Animals including humans	Autumn 2 States of Matter	Spring 1 Electricity
			
Prior Learning	**Animals including humans – Year 1, 2 and 3**	**Everyday Materials – Year 1** **Uses of Everyday Materials – Year 2**	**Understanding of the world -EYFS**
Key Enquiry Skills	-Describe the simple functions of the basic parts of the digestive system in humans. -Identify the different types of teeth in humans and their simple functions. -Construct and interpret a variety of food chains, identifying, producers, predators and prey. -Use simple scientific language, drawings and labelled diagrams. -Set up practical enquiries, comparative and fair tests -Make decisions about what observations to make. -Identify differences, similarities or changes related to simple scientific ideas and processes. -Use scientific evidence to answer questions or to support findings. **What are the names of the organs involved in the digestive system?** **Which drinks are bad for your teeth?**	-Compare and group materials together, according to whether they are solids, liquids or gases. -Observe that some materials change state when they are heated or cooled and measure or research the temperature at which this happens in degrees Celsius. -Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. -Ask relevant questions. -Set up and work safely with, simple practical enquiries, comparative and fair testing. -Make systematic and care observations. -Take accurate measurements using standard and units. **Does sea water evaporate faster than fresh water?**	-Identify common appliances that run on electricity. -Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. -Identify whether or not a lamp will light in a series circuit, based on whether or not the lamp is part of a complete loop with a battery. -Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. -Recognise some common conductors and insulators and associate metals with being good conductors. -Ask relevant questions and perform simple tests to answer them. -Use scientific equipment safely. -Present information in written and diagrammatic forms. **Which room has the most electrical sockets in a house?**
Key Learning	Food enters the body through the mouth. Digestion starts when the teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball. The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added. The food passes in to the small intestine, here nutrients are removed from the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet. Humans have four types of teeth: incisors for cutting, canines for tearing and molars and premolars for grinding (chewing). Living things can be classified as producers, predators and prey according to their place in the food chain.	A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume.. Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0oC. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100oC. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling. Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.	Many household devices and appliances run on electricity. Some plug into the mains and others run on batteries. An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off. Metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite. Water, if not completely pure, also conducts electricity.
Key Vocabulary	Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain.	Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle	Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol.

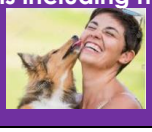
Year 4 continued

	Spring 2 Sound	Summer 1 Living things and their habitats	Summer 2 Greatwood Grow Project
			
Prior Learning	**Animals including humans – Year 1**	**Plants – Year 1** **Animals including humans – Year 1** **Living things and their habitats – Year 2**	
Key Enquiry Skills	-Identify how sounds are made, associating some of them with something vibrating. -Recognise that vibrations from sounds travel through a medium to the ear. -Find patterns between the pitch of a sound and features of the sound that produced it. -Find patterns between the volume of a sound and the strength of the vibrations that produced it. -Recognise that sounds get fainter as the distance for the sound source increases. -Use knowledge and understanding to describe and explain observations and phenomena. -Use observations to answer questions. - Conduct a fair test **How does the volume of a drum change as you move further away?**	-Recognise that living things can be grouped in a variety of ways -Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. -Recognise that environments can change and that this can sometimes pose dangers to living things. - Explain how environmental changes may have an impact on living things. **Can we identify all the animals we find in our local area using a classification key?**	**Which plants will grow best in our allotment at this time of year?** **How does our allotment change over the half term?**
Key Learning	A sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but cannot travel through a vacuum. The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound. The loudness (volume) of the sound depends on the strength (size) of the vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively. Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.	Living things live in a habitat which provides an environment to which they are suited (Year 2 learning). These environments may change naturally e.g. through flooding, fire, earthquakes etc. Humans also cause the environment to change. This can be in a good way (i.e. positive human impact, such as setting up nature reserves) or in a bad way (i.e. negative human impact, such as littering). These environments also change with the seasons; different living things can be found in a habitat at different times of the year.	
Key Vocabulary	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation.	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate.	

Year 5

	Autumn 1 Earth and Space	Autumn 2 Forces	Spring 1 Properties and Changes of Materials
			
Prior Learning	Seasonal changes – Year 1	Forces and magnets – Year 3	Uses of everyday materials – Year 2 Forces and magnets- Year 3 States of matter – Year 4
Key Enquiry Skills	-Describe the movement of the Earth and other planets, relative to the Sun in the solar system. -Describe the movement of the Moon relative to the Earth. -Describe the Sun, Earth and Moon as approximately spherical bodies. -Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. -Record data using scientific diagrams and labels. -Use test results to make predictions to set up further comparative and fair tests. -Take accurate measurements using a range of scientific equipment. **Can you identify all the phases in the cycle of the moon?**	-Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the earth and the falling object. -Identify the effects of air resistance and friction that act between moving surfaces. -Recognise that some mechanisms, including levers pulleys and gears allow a smaller force to have a greater effect. -Record data using scientific diagrams and labels. -Take accurate repeat measurements using a range of scientific equipment. -Use test results to make predictions to set up further comparative and fair tests. -Report and present findings using a range of presentations. **How does the surface area of a parachute affect the time it takes to fall to the ground?** **Which shoe has the best grip?**	-Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity ad response to magnets. - Identify and describe materials that will dissolve in liquid to form a solution and describe how to recover a substance from a solution. - Use knowledge of solids, liquids and gases to decide (describe how to) how mixtures (and solutions) might be separated, including through filtering, sieving and evaporating. -Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Justify use based on properties. - Demonstrate that dissolving, mixing and changes of state are reversible changes. - Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. -Identify, with reasons, whether changes in materials are reversible or not. **What are microplastics and why are they harming the planet?**
Key Learning	The Sun is a star. It is at the centre of our solar system. There are 8 planets (can choose to name them, but not essential). These travel around the Sun in fixed orbits. Earth takes 365¼ days to complete its orbit around the Sun. The Earth rotates (spins) on its axis every 24 hours. As Earth rotates half faces the Sun (day) and half is facing away from the Sun (night). As the Earth rotates, the Sun appears to move across the sky. The Moon orbits the Earth. It takes about 28 days to complete its orbit. The Sun, Earth and Moon are approximately spherical.	A force causes an object to start moving, stop moving, speed up, slow down or change direction. Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall. Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water, or the air and water may be moving over a stationary object. A mechanism is a device that allows a small force to be increased to a larger force. The pay back is that it requires a greater movement. The small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.	Materials have different uses depending on their properties and state (liquid, solid, gas). Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets. Some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment. Mixtures can be separated by filtering, sieving and evaporation. Some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible.
Key Vocabulary	Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material

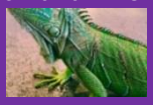
Year 5 continued

	Spring 2 Greatwood Grow Project	Summer 1 Animals including humans	Summer 2 Living things and their habitats
			
Prior Learning		**Animals including humans – year 2**	**Animals including humans – Year 1** **Animals including humans – Year 2** **Plants – Year 3**
Key Enquiry Skills	**How does our allotment change over the term?**	-Describe the changes as humans develop to old age. -Present information in a series of drawings. -Report and present on findings from enquiries, including conclusions, in oral and written form. **Can you identify all the stages in the human life cycle?**	-Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. -Describe the life processes of reproduction in some plants and animals. -Report and present on findings from enquiries, including conclusions, in oral and written form. -Plan different types of scientific enquiries to answer questions, including controlling variables where necessary. **Is there a relationship between a mammal's size and its gestational period?**
Key Learning		When babies are young, they grow rapidly. They are very dependent on their parents. As they develop, they learn many skills. At puberty, a child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce. This needs to be taught alongside PSHE.	As part of their life cycle, plants and animals reproduce. Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis. Plants reproduce both sexually and asexually. Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. Gardeners may force plants to reproduce asexually by taking cuttings. Sexual reproduction occurs through pollination, usually involving wind or insects.
Key Vocabulary		Refer to PSHE scheme – vocab below taken from Jigsaw Self, self-image, body image, self-esteem, perception, characteristics, aspects, affirmation, puberty, menstruation, periods, sanitary towels/pads, tampons, ovaries, vagina, oestrogen, vulva, womb/uterus, sperm, semen, testicles/testes, erection, ejaculation, wet dream, larynx, facial hair, growth spurt, hormones, teenager, milestone, responsibilities, change, hope, manage, cope, opportunities, emotions, fear, excitement, anxious	Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings

Year 6

	Autumn 1 Electricity 	Autumn 2 Light 	Spring 1 Living Things and their Habitats 
Prior Learning	**Electricity – Year 4**	**Light – Year 3** **Properties and changes of materials- Year 5**	**Living things and their habitats – Year 4** **Living things and their habitats – Year 5**
Key Enquiry Skills	-Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. -Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. -Use recognised symbols when representing a simple circuit in a diagram. -Plan and carry out simple and comparative fair tests, including recognising and controlling variable where necessary. -Report findings from enquiries, including conclusions, in oral and written form. -Take accurate and repeat measurements using scientific equipment. -Use secondary sources to identify evidence that has been used to support or refute ideas or arguments. **Which make of battery lasts the longest?** **Does the temperature of a lightbulb go up the longer it is on?**	-Recognise that light appears to travel in straight lines. -Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. -Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. -Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. -Make and record observations. - Predict the results of an enquiry. -Take accurate measurements, record data and identify trends.	-Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. -Give reasons for classifying plants and animals based on specific characteristics. -Use a classification key. -Use test results to make predictions to set up further comparative and fair tests. -Record data using diagrams. -Report on findings including oral and written explanations and displays of results. Research and present your findings. **What do different types of microorganisms do? Are they always harmful?** **How would you make a classification key for invertebrates/vertebrates?**
Key Learning	Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. If you use a battery with a higher voltage, the same thing happens. Adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well. You can use recognised circuit symbols to draw simple circuit diagrams.	Light appears to travel in straight lines, and we see objects when light from them goes into our eyes. The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen. Objects that block light (are not fully transparent) will cause shadows. Because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object.	Living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other livings things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot. Animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics. Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms. Plants can be divided broadly into two main groups: flowering plants; and non-flowering plants.
Key Vocabulary	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage	As for Year 3 - Light, plus straight lines, light rays	Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering

Year 6 continued

	Spring 2 Animals including Humans	Summer 1 Evolution and Inheritance	Summer 2 Greatwood Grow Project
			
Prior Learning	**Animals including humans – Year 2** **Animals including humans – Year 4**	**Living things and their habitats – Year 2, 4 and 5** **Animals including humans – Year 2** **Plants and Rocks– Year 3**	
Key Enquiry Skills	-Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. - Describe the ways in which nutrients and water are transported within animals, including humans. -Use scientific language and illustrations to communicate and justify your ideas. -Report on findings from enquiries, including oral and written explanations and displays of work. Plan different types of enquiries to answer questions. -Take measurements with accuracy and precision. -Identify scientific evidence that has been used to support or refute ideas or arguments. -Record data and results of increasing complexity using diagrams and graphs **How does the length of time we exercise for affect our heart rate?**	-Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. - Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. -Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. -Identify scientific evidence that has been used to support or refute ideas or arguments. **Is there a pattern between the size and shape of a bird's beak and the food it will eat?**	**How does our garden change over the half term?**
Key Learning	The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body. Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products. Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body. Diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well out heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g. lack of vitamins.	All living things have offspring of the same kind, as features in the offspring are inherited from the parents. Due to sexual reproduction, the offspring are not identical to their parents and vary from each other. Plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes rapidly, some variations of a species may not suit the new environment and will die. If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics on to their young. Over time, these inherited characteristics become more dominant within the population. Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. Fossils give us evidence of what lived on the Earth millions of year ago and provide evidence to support the theory of evolution. More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics.	
Key Vocabulary	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle	Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils	