

<b>Science</b>  <b>Year 1</b>	<b>Unit title and key questions</b>	<b>Ongoing Thematic units across the year linked with topics:</b> <ul style="list-style-type: none"> <li>• Changes in weather, changes in themselves, changes to plants and habitats           <ul style="list-style-type: none"> <li>• Animals including humans               <ul style="list-style-type: none"> <li>• Everyday materials                   <ul style="list-style-type: none"> <li>• Plants</li> </ul> </li> </ul> </li> </ul> </li> </ul>		
	<b>Key learning by the end of the unit</b>  <b>Links to NC:</b>	<b>Seasonal changes:</b> <ul style="list-style-type: none"> <li>• observe changes across the four seasons</li> <li>• observe and describe weather associated with the seasons and how day length varies</li> </ul> <b>Animals including humans:</b> <ul style="list-style-type: none"> <li>• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> </ul>	<b>Everyday materials:</b> <ul style="list-style-type: none"> <li>• distinguish between an object and the material from which it is made</li> <li>• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>• describe the simple physical properties of a variety of everyday materials</li> <li>• compare and group together a variety of everyday materials on the basis of their simple physical properties</li> </ul>	<b>Plants:</b> <ul style="list-style-type: none"> <li>• identify and describe the basic structure of a variety of common flowering plants, including trees</li> <li>• identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> </ul>
	<b>Key vocabulary</b>	seasons, autumn, winter, spring, summer, evidence, similar, different, group, compare, change, names of the months of the year, temperature, hot, warm, cold, cool, freezing, frosty, wet, dry, sunny, cloudy, showery, stormy, windy, breeze, gale, rainy, sunny, snow, shower, drizzle, puddle, breeze, gale, thunder, lightning, sleet, fog, mist, hat, gloves, mittens, scarf, muffler, ear muffs, boots, coat, umbrella, wellies, kite, windmill, sunglasses, thick, thin, woolly, furry, warm, waterproof  fish, amphibian, reptile, bird, mammal, tail, paws, legs, feet, nose, ears, eyes, feather, fur, scales, fins, fish, tail, gills, scales, eyes, mouth, bill, beak, head, eye, legs, claws, wings, feather, down quill, webbed feet, legs, smooth skin, big eyes and mouth, nose, scaly skin, claws, tongue, teeth, jump, hop, leap, climb, clamber, swing, pad, pace, prowl, pounce, spring, flap, fly, flutter, flop, splash, splosh, dive, swim, slither, slide,	materials, wood, wooden, plastic, metal, glass, water, rock, brick, paper, writing, wrapping, shiny, drawing, display, greaseproof, wallpaper, sand paper, fabric, wool, nylon, silk, fleece fibre, properties, hard, soft, fluffy, rough, smooth, shiny, dull, light, heavy, transparent (see-through), opaque (can't see-through), translucent (see something through), harder, lighter, rougher, stretch, stretchy, elastic, stiff, bend, bendy, not bendy, press, squash, twist, shape, waterproof, absorb, absorbent, soak up, mop up; frozen, freeze, melt, glass, marble, pebble	plant (verb and noun), leaf, leaves, bud, twig, branch, tree, roots, stem, shoot, bud, flower, leaf, rough, smooth, shiny, glossy, wrinkled, blossom, petals, stem, stalk, small, little, big, large, single, lots, deciduous, evergreen, plug plant, soil, compost, manure, dig, prepare, water, watering, vegetable, fruit

		night, nocturnal, senses, sight, smell, sonar, food, feeding, roost, sett, burrow, tunnel, nest, carnivore, herbivore, omnivore		
<b>Science</b>  <b>Year 2</b>	<b>Unit title and key questions</b>	<b>Animals including humans –</b>	<b>Use of everyday materials</b>	<b>1. Living things in their habitats:</b>  <b>2. Plants</b>
	<b>Key learning by the end of the unit</b>  <b>Links to NC:</b>	<ul style="list-style-type: none"> <li>Learn about different ways to keep healthy.</li> <li>Consider the importance of eating a range of different types of food.</li> <li>Learn about the importance of exercise and hygiene.</li> <li>Identifying and classifying food, using tables, and Venn and Carroll diagrams.</li> <li>Make observations and collect data while carrying out exercises, and use their observations and ideas to suggest answers to questions.</li> <li>Consider the basic needs of humans for survival (food, water, air), the need for warmth and shelter, and additional needs for health and wellbeing.</li> <li>Identify simple differences between living and non-living things, and the sequence of the human life cycle, considering how they have changed since birth.</li> <li>Changes that happen as a human baby grows and develop into and through adulthood.</li> <li>Compare different stages of human life e.g. growth, changes in physical appearance, movement, feeding and diet, self-care, the move from dependency to independence and parenthood.</li> </ul>	<ul style="list-style-type: none"> <li>Build on learning from Year 1 about different materials and their properties.</li> <li>Understand that one type of object can be made from different materials and that one material can be used for a number of different objects.</li> <li>Understand the simple physical properties of materials and consider how these properties make materials useful for particular purposes.</li> <li>Test a range of different materials for different purposes.</li> <li>Classify materials, carry out comparative tests for different properties and use the results of their tests to suggest suitable choices for a particular purpose.</li> <li>Understand different ways of changing the shapes of objects made from different materials.</li> <li>Identify materials that can be changed by the actions of squashing, bending, twisting and stretching.</li> <li>Discover that some materials have different properties according to how they are shaped and what they are made into.</li> <li>Learn that pushes and pulls can cause movement or a change in shape.</li> <li>They carry out identifying and classifying enquiries and comparative</li> </ul>	<b>1. Living things in their habitats:</b> <ul style="list-style-type: none"> <li>Discover different habitats, how the living things are suited to the habitat and the interactions between the living organisms within a habitat.</li> <li>Explore the habitat by identifying things that are living, once-lived and never-lived.</li> <li>Construct food chains that show how living things depend on each other.</li> <li>Consider how living things are suited to a particular habitat</li> <li>Use their observations and gather evidence to suggest answers to questions.</li> <li>Observe animals in their habitats and notice how they change through the year. Build up simple food chains.</li> <li>Learn about animal life cycles by observing how an animal changes over time and by going out to look for baby animals.</li> <li>make careful observations over time, using simple equipment and recording observations in a range of different ways, and use data to suggest answers to questions.</li> </ul>



		<ul style="list-style-type: none"> <li>Find out information from secondary sources, observing changes over time, identifying and classifying, and noticing patterns.</li> </ul>	<p>tests. Record using photographs, labelled drawings, Venn diagrams, tables and bar charts.</p> <ul style="list-style-type: none"> <li>They have opportunities to measure using non-standard or standard measures and to compare their findings.</li> </ul>	<p><b>2. Plants:</b></p> <ul style="list-style-type: none"> <li>Introduce growing plants from bulbs and from seeds, learning the sequence of germination, and comparing and contrasting the requirements of germinating seeds</li> <li>with those of mature plants to maintain healthy growth.</li> <li>Revisit in more detail the requirements of plants for life and growth, and learn about the functions of plant parts and the life cycle of a flowering plant, including seed production.</li> <li>learn more about a plants' need for a</li> <li>suitable temperature and to observe plants growing to maturity.</li> <li>Draw conclusions from observations.</li> <li>Observe change over time and conduct comparative tests.</li> <li>Use labelled drawings and photographs</li> <li>Use existing knowledge and observations to make predictions at the start and during</li> <li>investigations.</li> <li>Collect and present numerical data.</li> <li>Compare close observations and interpret the changes that children see.</li> </ul>
	<b>Key vocabulary</b>	<p>food, sort, classify, healthy diet, dairy, fruits, vegetables, meat, fat, sugar, bread, potatoes, cereals, exercise, physical activity, hot, sweaty, heart beating, pulse, tired, aching, muscles, clean, hygiene, hygienic, wash, baby, need, want, living, alive, essential, food, milk, water, drink, eat, air, breathe, shelter, warmth, survival, depend, child, toddler, compare, change, differences, dependent, independent, move, care, learn, appearance, life cycle, life story, stages, pregnancy, birth, teenager, adult, parent, elderly person, grow</p>	<p>material, wood, property, metal, plastic, glass, rock, brick, paper, cardboard, fabric, smooth, rough, soft, hard, bendy, squashy, stiff, rigid, shiny, dull, see through, cold, warm, breaks, fold, crease, waterproof, absorb, absorbent, wet, lenses, light, block, transparent, opaque, translucent, strength, weak, tear, stretchy, frame, flexible, twist, squash, stretch, bending, twisting, stretching, push, pull, roll, pinch, press, smooth, rigid, stretchy, elastic, properties, suitable, stretchiness, weight,</p>	<p>habitat, alive, living, once-lived, dead, never-lived, plants, animals, decay, rocks, soil, air, water, food chain, plants, animals, herbivores, carnivores, omnivores, direction, source of food, suited, habitat, features</p> <p>seeds, plant, bulb, grow, water, answer, bean, soil, light, dark, water, germinate, suitable, radicle, root, shoot, leaves, change, height, measure, seedling, mature plant, wilting, healthy, unhealthy, warmth, care, die, alive, food store</p>

<b>Science</b>  <b>Year 3</b>	<b>Unit title and key questions</b>	<b>1. Rocks</b>  <b>2. Light</b>	<b>Animals, including humans</b>	<b>1. Plants</b>  <b>2. Forces and magnets</b>
	<b>Key learning by the end of the unit</b>  <b>Links to NC:</b>	<b>1. Rocks:</b> <ul style="list-style-type: none"> <li>• Establish core knowledge and understanding of rocks, their relationship to soils and how fossils have formed over time.</li> <li>• Identify and name rocks, describing and comparing their observable properties and sorting them.</li> <li>• Identify ways in which rocks are used and suggest why the properties of certain rocks make them suitable for particular purposes.</li> <li>• Consider how rocks are affected by weathering over time.</li> <li>• Carry out tests to establish the hardness and permeability of different kinds of rocks.</li> <li>• Explore a variety of soils, making the link between soils of different types and the rocks from which they are partly made.</li> <li>• Learn about what happens to cause rocks to break down and become soil particles and about the organic matter that is an essential part of a healthy soil.</li> <li>• Test a variety of soils to discover whether soils of different types let water through at the same rate.</li> <li>• Make comparisons and draw conclusions based on their observations.</li> <li>• Discover what a fossil is and how they came to be formed from animal and plant remains.</li> </ul>	<ul style="list-style-type: none"> <li>• Build on knowledge of the human body developed in Key Stage 1.</li> <li>• Revisit the importance of eating the right amounts of different types of food, but will</li> <li>• extend this knowledge to understand that the food we eat provides us with the nutrition that our bodies require to remain healthy.</li> <li>• Learn about the range of nutrients that humans need to consume in the correct amounts and the role that these nutrients play in keeping our bodies healthy.</li> <li>• Learn that humans and some other animals have skeletons and muscles for support, protection and movement.</li> <li>• Ask and answer questions about the human body and diet through classifying, pattern-seeking investigations and by carrying out research using secondary sources.</li> <li>• Provide opportunities to gather data and record and present these in a range of ways.</li> </ul>	<b>1. Plants:</b> <ul style="list-style-type: none"> <li>• Build on experiences of identifying and growing plants in Key Stage 1.</li> <li>• Revise the names of the main parts of a plant (root, stem/trunk, leaf and flower) introduced in Year 1, learning their functions and how these relate to their appearance and structure.</li> <li>• Learn about the absorption and transport of water and nutrients and the role of the leaf in making food for the plant.</li> <li>• Learn about the parts of the flower, their roles in plant reproduction and the stages of the life cycle of a flowering plant, building on observations of growth of seeds and bulbs in Year 2.</li> <li>• Ask and answer questions about plants through classifying, observing over time, conducting fair test investigations and using secondary sources.</li> <li>• Provide opportunities to make and record detailed observations using labelled and annotated diagrams.</li> </ul> <b>2. Forces and Magnets:</b> <ul style="list-style-type: none"> <li>• Explore how forces can make objects start to move, speed up, slow down or change direction. Compare how things move on different surfaces.</li> <li>• Learn that some forces need contact between two objects, but that magnetic forces can act at a distance.</li> </ul>



		<ul style="list-style-type: none"> <li>Learn the names of a variety of common fossils, and about the stages of the fossilisation process.</li> <li>Find out about where and how fossils can be found and safely collected.</li> </ul> <p><b>2. Light:</b></p> <ul style="list-style-type: none"> <li>Learn about how we see objects, the ways in which different objects reflect different amounts of light and how these ideas can be applied to staying safe at night.</li> <li>Explore what causes a shadow, as well as how the shape and size of a shadow can be affected by its position.</li> <li>They will learn how exposure to sunlight can cause harm, and about ways by which they can protect themselves.</li> <li>Carry out some investigations to test materials such as sunglasses and materials to reduce/block out light.</li> <li>Understand that there needs to be light for us to see, that some things give out light and others reflect it, and that there are factors which affect the size and shape of shadows.</li> <li>Ask and answer their own questions about light and shadow as well as investigate how some materials block more light than others. They will do this through sorting objects according to how much light they block, as well as through simple shadow investigations.</li> <li>Develop the idea of explaining judgements, for example why they have used a certain material for a 'safe at night' piece of clothing or a pair of sunglasses, based on data from their experiments.</li> </ul>		<ul style="list-style-type: none"> <li>Identify that magnets attract some materials and not others and that these are known as magnetic materials.</li> <li>Learn that some metals, but not all, are magnetic and that all non-metals are non-magnetic.</li> <li>Learn that magnets have two poles and that two magnets will attract or repel each other, depending on which poles are facing.</li> <li>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet.</li> <li>Carry out comparative and fair tests to investigate the strength of magnets and how objects move on different surfaces.</li> <li>Make predictions as to whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul>
--	--	--	--	---

	<b>Key vocabulary</b>	sandstone, granite, chalk, limestone, marble, pumice, rough, smooth, hard, soft, rock, stone, pebble, texture, particle, crystal, granule, properties, soil, clay, sandy, loam, peat, organic material, weather, weathering, frost, beach, cliff, trilobite, starfish, sea urchin, ammonite, fossil, fossilise, remains	stay alive, survive, food, balanced diet, nutrition, nutrients, fruit and vegetables, carbohydrates, protein, roughage, fibre, sugar, fat, dairy, skeleton, bones, protect, support, move, muscles, joints, ribs, heart, skull, brain, backbone, spine, spinal column, vertebrate, footprint, trail, vitamins, minerals, question, classify, investigation, survey, measure, pattern, evidence, draw conclusions	plant, roots, stem, trunk, leaf/leaves, flower, leaflet, stalk, veins, surface, edge, lobes, tip, food, root hair, nutrients, anchor, support, seed, germination, seedling, growth, mature plant, flowering, pollination, seed formation, bud, petal, sepal, carpel, stamen, pollen, reproduce, nectar, seed, fruit, dispersal, animal, wind, water, self-dispersal, explosion, sprinkling, competition, air, light, stigma, style, ovary, anther, filament, observe, question, investigation, fair test, change, measure, predict, prediction, explanation, observations, draw conclusions
		light, dark, shadow, mirror, bright, dim, reflect, eye, opaque, transparent, translucent, ultraviolet, ray, beam, absorb, luminous, non-luminous, infrared, question, investigation, fair test, change, measure, predict, prediction, explain, explanation, observations, draw conclusions		push, pull, twist, force, air, turns, fast, slow, slows down, material, surface, magnet, attracts, magnetic material, magnetism, acts at a distance, non-magnetic material, metal, non-metal, strength, north pole, south pole, repel, question, investigation, fair test, change, measure, predict, prediction, explanation, observations, draw conclusions
<b>Science Year 4</b>	<b>Unit title and key questions</b>	<ol style="list-style-type: none"> <li><b>Electricity</b></li> <li><b>Sound</b></li> </ol>	<b>States of matter</b>	<ol style="list-style-type: none"> <li><b>Animals including humans</b></li> <li><b>Living things and their habitats</b></li> </ol>
	<b>Key learning by the end of the unit</b> <b>Links to NC:</b>	<ol style="list-style-type: none"> <li><b>Electricity:</b> <ul style="list-style-type: none"> <li>Identify electrical appliances, distinguishing between those which are powered by mains and battery (including those with integral rechargeable batteries) and recognising that electricity can be used to produce light, sound, heat and movement.</li> <li>Explore the production of light, sound and movement by making simple series circuits with cells, wires, bulbs, buzzers and motors, learning the names of the components. They will work mostly with single components.</li> <li>Describe the flow of electricity round a circuit and give reasons why some</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>Learn the characteristic properties of solids, liquids and gases, first through physically exploring typical materials and then by classifying examples, such as powders and very viscous liquids, which are harder to classify.</li> <li>Learn about changes of state and begin to understand freezing and boiling points as identifying characteristics of a material.</li> <li>Learn the names of some common gases.</li> <li>Explore the expansion of liquids and gases when they are heated, using this to make a simple thermometer and explain how it works.</li> </ul>	<ol style="list-style-type: none"> <li><b>Animals including humans:</b> <ul style="list-style-type: none"> <li>Build on knowledge of the human body developed in Key Stage 1 and Year 3.</li> <li>Learn about the human digestive system. They will be introduced to the main body parts associated with the digestive system; the mouth, tongue, teeth, oesophagus, stomach, intestines, rectum and anus.</li> <li>Learn that the role of the digestive system is to break down the food we eat so that the nutrients, energy and other requirements we derive from it can be used in the rest of the body.</li> <li>Learn about how food can be broken down through mechanical and chemical processes.</li> </ul> </li> </ol>



		<p>circuits do not work. Learn to control circuits with switches.</p> <ul style="list-style-type: none"> <li>• Test materials, classify them as electrical conductors or insulators and recognise that metals are good electrical conductors and plastics are good electrical insulators.</li> <li>• Apply knowledge when making switches and electrical boards.</li> <li>• Learn the safe use of electrical components and the dangers of mains electricity.</li> <li>• Make observations and describe how circuits work using scientific language.</li> <li>• Communicate ideas using labelled and annotated drawings. Drawings</li> <li>• Plan and carry out a classifying enquiry, recording findings using tables, Venn and Carroll diagrams and recognise that generalisations cannot be made from small amounts of evidence.</li> </ul> <p><b>2. Sound:</b></p> <ul style="list-style-type: none"> <li>• Build on understanding of hearing.</li> <li>• Develop vocabulary for describing sounds and identify different sound sources.</li> <li>• Learn that sounds are made by something vibrating and that these vibrations travel through a medium to the ear so that we hear them.</li> <li>• Learn that sounds get fainter as the distance from the sound source increases.</li> <li>• Explore ways to change the pitch and volume of sounds.</li> <li>• Observe patterns between the volume of a sound and the strength of the vibrations that produced it.</li> </ul>	<ul style="list-style-type: none"> <li>• Learn about the water cycle, modelling it in different ways and further develop understanding of changes of state.</li> <li>• Make careful observations and explain what they show.</li> <li>• Observe and measure changes over time, first-hand and using secondary sources.</li> <li>• Classify materials and record their sorting using Venn diagrams.</li> <li>• Plan and carry out fair tests, learning to identify and control variables and drawing up tables to record data.</li> <li>• Identify patterns in the data and use these to answer investigation questions and to make further predictions.</li> <li>• Use thermometers and data loggers, applying mathematical knowledge of the measurement of temperature in degrees Celsius and learning to interpret a line graph of temperature and time.</li> </ul>	<ul style="list-style-type: none"> <li>• Learn in more detail about the roles of the different types of teeth in breaking food down, and how to care for their teeth.</li> <li>• Learn about milk teeth and permanent teeth.</li> <li>• Investigate questions around toothpastes.</li> <li>• Explore what animals eat and how this information can be used to build food chains.</li> <li>• Explore how the teeth of animals are adapted to the type of food that they eat.</li> <li>• Ask and answer questions about teeth, digestion and food chains by carrying out research using secondary sources.</li> <li>• Group and classify teeth by their function and relate this to diet.</li> <li>• Carry out comparative and fair tests on different types of toothpaste and record and present data in a range of ways.</li> </ul> <p><b>2. Living things in their habitats:</b></p> <ul style="list-style-type: none"> <li>• Develop the understanding gained in the Year 3 rocks module, using them to identify animals from a range of habitats.</li> <li>• Build on work in Year 3 around the functions of different parts of flowering plants, their requirements for life and their life cycle.</li> <li>• Construct keys, learning to ask yes/no questions about characteristic differences between the animals.</li> <li>• Learn about pond and seashore animals and common land invertebrates through images and first-hand experience.</li> </ul>
--	--	--	---	--



		<ul style="list-style-type: none"><li>• Explore the pitch of a sound and ways in which it can be changed.</li><li>• Investigate how to make and change sounds in a range of different ways.</li><li>• Set up simple comparative and fair tests, take measurements, including using data loggers, and report findings.</li></ul>		<ul style="list-style-type: none"><li>• Classify animals, learning to identify characteristics of the main vertebrate groups and some of the common invertebrate groups.</li><li>• Make detailed observations and learn which features are useful for identification and classification.</li><li>• Present information in labelled diagrams, lists, sorting diagrams and keys, and interpret information presented in a key.</li><li>• Learn that different criteria can be used to classify plants depending on the time of year.</li><li>• Make careful observations of leaves, bark, buds, tree shape and flowers.</li><li>• Classify the plants and will record this information using keys.</li><li>• Learn about some of the positive and negative ways that humans change the environment, locally and globally, with a particular focus on how this affects other living things. This will be related to developing understanding of food chains and what happens if food chains are broken by habitat disruption or the removal of a species from an ecosystem.</li><li>• Consider both habitats (where something lives) and ecosystems (the inter-relationships between organisms and their interaction with the habitat/environment).</li><li>• Introduce some global issues by researching the impact of deforestation, ocean pollution (oil spill) and global warming on ecosystems.</li></ul>
--	--	---	--	---



	<b>Key vocabulary</b>	<p>electricity, electrical, mains, plugged in, battery, power, rechargeable, solar, wind up, sound, light, heat, movement, cell, wire, bulb, bulb holder, buzzer, motor, component, circuit, complete circuit, short circuit, flow, break, make, metal, connect, disconnect, terminal, positive, negative, switch, press switch, toggle switch, tilt switch, pendulum switch, property, electrical conductor, electrical insulator, electron, filament, sets, Venn diagram, Carroll diagram, table, conclusion, evidence, annotate</p>	<p>solid, liquid, hard, soft, pour, flow, pile, pool, surface, horizontal, runny, viscous, sticky, grain, powder, ice, water, temperature, cool, cooling, warm, warming, hot, degree Celsius, melt, melting, freeze, freezing, solidify, solidifying, heating, states of matter, change of state, melting point, freezing point, process, gas, air, carbon dioxide, helium, oxygen, bubbles, empty, particle, weight, compress, squash, shape, volume, dry, evaporate, evaporation, water vapour, boil, boiling, boiling point, steam, thermometer, data logger, sensor, droplets, condense, condensation, water, droplets, cycle, model, snow, expand, scale, calibrate, heat sensitive, sensor, observe, measure, fair test, variable, collect, present, interpret, data, axis, scale, interval, control, keep the same, evidence, annotate, accuracy, describe, explain, evaluate, reliable, repeatable</p>	<p>mouth, oesophagus, stomach, small intestine, large intestine, rectum, anus, digestive system, digestion, carbohydrate, fat, sugar, protein, roughage, dairy, fruit, vegetables, vitamins, minerals, balanced diet, healthy, mechanical process, chemical process, absorb, nutrients, water, saliva, chemicals, enzyme, teeth, canine, incisor, premolar, molar, jaw, cutting, tearing, grinding, dental hygiene, decay, dentist, brushing, toothpaste, floss, mouthwash, food, plants, animals, food chain, food web, producer, consumer, predator, prey, herbivore, omnivore, carnivore</p>
		<p>sound, loud, quiet, high, low, repeating, continuous, strike, blow, shake, pluck, vibration, vibrate, solid, gas, volume, strength of vibrations, sound source, fainter, distance, pitch, particles, question, investigation, fair test, change, measure, predict, prediction, explanation, observations, draw conclusions</p>		<p>features, sequence, key, distinguish, similarities, differences, vertebrate, fish, amphibian, reptile, bird, mammal, backbone, hair, scales, feathers, eggs, wings, beak, lungs, gills, cold blooded, warm blooded, suckle, head, thorax, abdomen, wing, segment, antennae, insects, arachnids (spiders), crustaceans, myriapods, molluscs, worms, stalk, simple and compound leaves, leaf edge, leaf shape, leaf arrangement, deciduous, evergreen, bud, twig, tree shape, leaf skeleton, vein pattern, seed, flower, blossom, petal, environment, impact, positive, negative, litter, pollution, waste, biodiversity, habitat, derelict, graffiti, traffic, destroy, create, location, food chain, producer, consumer, human impact, global issue, destruction, deforestation, rainforest, climate, climate change, zoo, endangered, breed, wild, natural, predator, prey, conservation,</p>
<b>Science Year 5</b>	<b>Unit title and key questions</b>	<b>Properties and the changes of materials</b>	<ol style="list-style-type: none"> <li><b>Living things and their habitats (plants)</b></li> <li><b>Animals including humans (change)</b></li> </ol>	<ol style="list-style-type: none"> <li><b>Earth and space</b></li> <li><b>Forces</b></li> </ol>
	<b>Key learning by the end of the unit</b> <b>Links to NC:</b>	<ul style="list-style-type: none"> <li>Identify, compare and classify a variety of materials according to both their properties and their uses.</li> <li>Explore familiar materials in a wide range of contexts and begin to recognise that a single material name,</li> </ul>	<ol style="list-style-type: none"> <li><b>Living things and their habitats (plants):</b> <ul style="list-style-type: none"> <li>Learn about reproduction in some types of plants and animals.</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li><b>Earth and space:</b> <ul style="list-style-type: none"> <li>Develop knowledge of the Earth's (and other planets') place in the solar system, and their relationships with</li> </ul> </li> </ol>

		<p>like 'metal' or 'plastic' can describe a considerable number of different materials that may display very different properties, but which still have features in common. Describe, explain and communicate understanding of materials, succinctly and in ways appropriate to a science context.</p> <ul style="list-style-type: none"> <li>Plan and carry out different enquiry types to answer questions, including their own, about materials and their uses.</li> <li>Sort, compare, group and classify materials, and develop their abilities to plan and carry out comparative and fair tests, controlling variables, as appropriate.</li> <li>Build on earlier learning that began in Key Stage 1 and then continued in Year 4, comparing and grouping materials according to whether they are solids, liquids or gases, and learning about changes of state that take place when materials are heated or cooled.</li> <li>Explore familiar objects in detail and find out about accidental scientific discoveries, such as the 'non-sticky' glue developed by Spencer Silver and used in 'Post it' notes, and how properties of 'super absorbent powders' can make them useful in everyday life. Describe, explain and communicate their understanding of materials, succinctly and in ways appropriate to a science context.</li> <li>Learn that certain solids dissolve while others do not, and how these dissolved solids might be retrieved from a mixture.</li> <li>Explore how the rate at which solids dissolve can vary, investigating variables that might make a difference.</li> </ul>	<ul style="list-style-type: none"> <li>Extend their knowledge from Year 3 of the function of the different parts of flowering plants.</li> <li>Learn that plants can reproduce in other ways, through asexual reproduction.</li> <li>Research specific mammals, birds, insects and amphibians and how they reproduce.</li> <li>Carry out first-hand observation of flowering and other plants, and also use secondary sources of information.</li> <li>Group and classify living things according to similarities in reproduction processes.</li> <li>Report and present findings from enquiries in a variety of ways.</li> <li>Build on earlier work from Key Stage 1 and from Year 3, where they learned about the life cycles of plants.</li> <li>Learn about the life cycles of some familiar (and some less familiar) mammals, amphibians, insects and birds.</li> <li>Compare and contrast different life cycles, identifying common features as well as explaining key differences. Carry out investigations to answer a variety of science questions, with increasing independence.</li> <li>Report and present findings from enquiries in a variety of ways, both orally and in written forms, drawing conclusions, identifying causal relationships and explaining thinking.</li> </ul> <p><b>2. Animals Including humans (change):</b></p> <ul style="list-style-type: none"> <li>Learn about reproduction in humans.</li> </ul>	<p>other bodies in space, in particular with the Sun.</p> <ul style="list-style-type: none"> <li>Draws on previous knowledge of the use of the calendar to calculate the duration of events (Year 4 Mathematics) and solve problems involving units of time (Year 5 Mathematics).</li> <li>Learn how the Earth's orbit determines the length of a year and why we have leap years. Key Stage 1 observations of the Sun's movement across the sky and Year 3 work on shadows provide a sound basis for investigating how the Earth's rotation causes night and day, and is responsible for the apparent movement of the Sun across the sky, and its changing height in the sky.</li> <li>Learn how the Earth's rotation and tilt affect the direction and length of shadows, and how to use shadows for telling the time.</li> <li>Learn about time differences around the world and investigate time differences using resources including the internet.</li> <li>Understand how time was standardised around the world, about the need for scientists to choose a starting point in the continuous process of cycles of sunrise and sunset, and investigate longitude.</li> <li>Introduce the International Date Line and the Greenwich Meridian.</li> <li>Extend awareness of seasonal changes through the year, which is developed during Key Stage 1, to understand that it is the Earth's tilt on its axis that causes the seasons. This draws on learning about the Sun and shadows to develop an understanding</li> </ul>
--	--	--	---	--



		<p>Apply knowledge of separating mixtures in solving a number of real word-based enquiries.</p>	<ul style="list-style-type: none"><li>• Understand the key stages of the human life cycle.</li><li>• Describe some of the key changes that occur throughout different stages of the life cycle.</li><li>• Compare the human life cycle to other mammals.</li><li>• Present findings in various ways such as graphs and posters.</li></ul>	<p>of the role of latitude in day length and seasons.</p> <ul style="list-style-type: none"><li>• Use models for exploring and demonstrating ideas, first-hand observation made at night either in their gardens or local area, or from visits to local observatories, secondary sources of information (mainly web-based) to answer scientific questions increasingly independently, and diagrams, charts and graphs for recording data.</li><li>• Report and present findings in different ways, including booklets, oral presentations and annotated diagrams, draw conclusions, identify causal relationships and explain their thinking.</li></ul> <p><b>2. Forces:</b></p> <ul style="list-style-type: none"><li>• Develop an understanding of how forces including gravitational attraction and drag forces – friction, air resistance, water resistance, and upthrust in water – affect movement.</li><li>• Learn how mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect, and use this knowledge in different investigations.</li><li>• Plan and carry out fair test and pattern-seeking investigations, observe carefully, record accurate measurements, and construct different mechanisms.</li><li>• Look at scientific ideas from the past and carry out an activity to find evidence to support or refute famous scientists' ideas.</li></ul>
--	--	---	---	---

				<ul style="list-style-type: none"> <li>• Make predictions as a result of carrying out simple activities and plan new investigations.</li> <li>• Develop graphing skills as well as communication and presentation skills.</li> </ul>
	<b>Key vocabulary</b>	<p>properties, material, solid, liquid, gas, compare, contrast, group, organise, criteria, hardness, soluble, insoluble, transparent, transparency, opaque, hardness, strength, rigidity, flexibility, elastic, elasticity, ductile, electrical conductor/insulator, thermal conductor/insulator, magnetic, non-magnetic, attract, repel, viscosity, viscous, thick, thicker, types of plastic – polyester, nylon, polythene, PVC, polystyrene acrylic – recycle, reuse, biodegradable, environmentally friendly, building, construction, structure, organic, natural, manufactured, man-made, weathering, decay, decompose, break down, brittle, fragile, metal, wood, ceramic, concrete, compare, contrast, group, organise, criteria, strong, strength, weakness, durability, wear, tear, stretch, flexible, flexibility, hardness, light, heavy, durable, durability, waterproof, washable, stain resistant, saddle, weight, mass, criteria, ovenproof, heat, temperature, room temperature, thermal conductor, thermal insulator, insulate, insulation, viscosity, viscous, sticky, stickiness, tackiness, adhesive, glue, saturated, powder, particle, polymer, volume, quantity</p>	<p>reproduction, reproduce, flower, organ, carpel, stamen, pollen, seeds, seed head, berry, fruit, pollinator, pollination, fertilisation, reproduction, reproduce, propagate, stem, leaf and root cuttings, runners, tubers, bulbs, rhizomes, gender, male, female, sex, sexual, asexual, life cycle, birth, growth, metamorphosis, aging, death, animal, mammal, amphibian, insect, bird,</p>	<p>Aldebaran, Arctic, Antarctic, British Summer Time, Earth, Greenwich Meridian, International Date Line, Jupiter, Mars, Mercury, Milky Way, Moon, North Pole, Saturn, South Pole, Sun, Neptune, Universe, Uranus, Venus, asteroid, autumn, axis, compass, crescent, dawn, degrees, dusk, equator, equinox, fixed stars, Full Moon, galaxy, gibbous, hemisphere, horizon, illuminate, leap year, longitude, lunar month, meridian, nebula, New Moon, northern orbit, planet, reflect, rotate, rotation, solar system, solstice, southern, spin, spring, star, summer, sunrise, sunset, telescope, temperature, tilt, time zone, waning, waxing, winter, year, change, compare, draw conclusions, explain, explanation, investigation, line graph, measure, model, observations, plan, predict, prediction, presentation, question, record, review, scientific diagram</p>
		<p>reproduction, reproduce, organ, fertilisation, reproduction, reproduce, gender, male, female, sex, sexual, asexual, mate, sperm, pregnant, give birth, young</p>	<p>air resistance, Aristotle, balanced, balanced forces, bevel gears, clockwork, cogs, compress, extend, effort, force arm, forces, force, friction, force arrow, fulcrum, gravity, Galileo, gear ratio, gears, gear trains, lever, lift, machine, mechanisms, movement, Newton, Newton meter, pinion, pivot, pulley, pull, push, rack, resistance, rotary motion, simple machines, speed, time, unbalanced force, upthrust, water resistance, weight arm, wheel</p>	
<b>Science Year 6</b>	<b>Unit title and key questions</b>	<ol style="list-style-type: none"> <li>1. Evolution and inheritance</li> <li>2. Light</li> </ol>	<b>Animals including humans (circulation)</b>	<ol style="list-style-type: none"> <li>1. Living things in their habitats</li> <li>2. Electricity</li> </ol>

<p><b>Key learning by the end of the unit</b></p> <p><b>Links to NC:</b></p>	<p><b>1. Evolution and inheritance:</b></p> <ul style="list-style-type: none"> <li>• Build on knowledge of living things and how they are adapted to particular environments.</li> <li>• Introduce the idea that variation in organisms can result in the species becoming better adapted to its environment and that the process of natural selection, over a long period of time, leads to evolution.</li> <li>• Learn about how inherited characteristics are passed on from parents to offspring and that environmental variables also affect how organisms look and behave.</li> <li>• Explore the process of selective breeding, through which humans can select particular characteristics in different plants and animals to meet specific requirements.</li> <li>• Explore how those individuals in a population that are best adapted to the environment are more likely to live long enough to reproduce and so maintain the population and the survival of the species.</li> <li>• Learn that it is a combination of inherited characteristics and the effect of environmental variables that ultimately mould the appearance and behaviour of living things through the process of natural selection.</li> <li>• Analyse fossil records, which show that organisms have changed over millions of years and that many have become extinct. Fossils provide evidence for natural selection and evolution.</li> <li>• Use knowledge of natural selection to explain the process of speciation, through which one or more populations</li> </ul>	<ul style="list-style-type: none"> <li>• Build on learning about the human body from Key Stage 1, understanding that humans and other animals need water, food and air in order to survive, and also during lower Key Stage 2, when investigating the muscular, skeletal and digestive systems.</li> <li>• Learn about the human circulatory system and how it enables human bodies to function.</li> <li>• Find out about the main parts of the circulatory system: the heart, blood vessels (arteries, veins and capillaries) and blood, and how these work together to deliver oxygen and nutrients to every part of the body.</li> <li>• Find out how the heart works, the main components of blood and the function of the different types of blood vessels.</li> <li>• Learn about how water is transported through the body and develop understanding of the importance of water to human health.</li> <li>• Use secondary sources of information with increasing independence in order to find answers to questions about the functions of different parts of the circulatory system that cannot be investigated first hand. This should involve using non-fiction books, web-based material and health education publications.</li> <li>• Report and present findings from enquiries in a variety of ways, both orally and in written forms including labelling diagrams, drawing conclusions, identifying causal relationships and explaining thinking.</li> <li>• learn about how to keep the body healthy and how a body might be damaged. The focus is on lifestyle</li> </ul>	<p><b>1. Living things in their habitats</b></p> <ul style="list-style-type: none"> <li>• Build on knowledge of living things from previous years and deepen understanding of why and how organisms are classified.</li> <li>• Explore the process of classification in some detail and how it differs from, but relates to, the identification of living things. The structure, function and purpose of classification systems will be explored with specific reference to living things.</li> <li>• Discover the types and characteristics of organisms that belong in each of the five kingdoms of living things (animals, plants, fungi, bacteria and Protista) and the major sub-groups the kingdoms include.</li> <li>• Learn about how Linnaeus developed the system for classifying all living things using their observable characteristics.</li> <li>• Introduce to the idea of how scientists use 'conventions' in order to ensure that everyone means the same thing when they refer to, for example, an organism by its scientific name.</li> <li>• Use observations and secondary source material to help classify living things, record plants and animals in the school environment and use evidence to support or refute ideas.</li> <li>• Use a range of approaches to present and communicate findings to others.</li> </ul> <p><b>2. Electricity:</b></p>

		<p>of the same species can become separated and change over time to become different species.</p> <ul style="list-style-type: none"> <li>Carry out investigations to measure the variation between individual organisms of the same species, model the process of dog breeding by selecting parents that have the desired characteristics for producing useful offspring, and design an animal to suit a specific environment.</li> <li>Take measurements to record variation in plants and animals; use scientific models to describe complex processes such as selective breeding and natural selection.</li> </ul> <p><b>2. Light:</b></p> <ul style="list-style-type: none"> <li>Build on the work in Year 3 on light sources, how light enables us to see by reflecting from objects and how different objects reflect different amounts of light and shadows.</li> <li>Develop a more detailed understanding of mirrors and the reflections that they form.</li> <li>Introduce ray diagrams that can be used to represent the behaviour of light.</li> <li>Use diagrams, together with the fact that light travels in straight lines, to explain the formation of shadows and how their size and shape can be affected.</li> <li>Explore refraction in a number of contexts to see how light does not always appear to travel in straight lines.</li> <li>Investigate how white light is made up of many colours of light and how these can be split apart by a prism or in a</li> </ul>	<p>choices that humans make, including diet, exercise and drug use, and how these are informed by scientific evidence.</p> <ul style="list-style-type: none"> <li>Build on learning from Year 3 about the types of food that humans and other animals need in order to stay alive. Develop a deeper understanding of what constitutes a healthy diet, through exploring food groups and how the body uses them.</li> <li>Explore the effects of exercise on the body and develop understanding of the circulatory and respiratory systems.</li> <li>Investigate the effects of exercise on the pulse and its recovery rate.</li> <li>Find out about how drugs can help as well as cause harm.</li> </ul>	<ul style="list-style-type: none"> <li>Develop understanding of electrical circuits and build on the work in the Year 4 topic.</li> <li>Construct circuits with an increasing number of components and contrast the effects this has on the function of the components.</li> <li>Use the recognised electrical symbols to record circuits, particularly as the circuits become more complex.</li> <li>Research how electricity is generated both traditionally using coal and gas, and by renewable resources, and investigate how electricity is transmitted across the country.</li> <li>Apply knowledge to construct circuits for real life contexts, and then report on and present as scientists.</li> <li>Carry out illustrative practicals, describe circuits using scientific language and record them using the recognised symbols.</li> <li>Use secondary sources of information to answer questions about how mains electricity is generated.</li> </ul>
--	--	--	--	---



		<p>rainbow, as well as how the colours can be joined together to make white again.</p> <ul style="list-style-type: none"> <li>Engage in illustrative practical activities to explore these phenomena.</li> <li>Carry out a fair test investigation to measure the size of shadows compared to the relative positions of the light sources, the object making the shadow and the screen.</li> <li>Ask and propose answers to questions about shadow formation as well as exploring quantitatively the formation of shadows.</li> <li>Develop the idea of explaining and supporting the points with data and evidence.</li> </ul>		
	<p><b>Key vocabulary</b></p>	<p>population, variation, environment, inheritance, adaptation, selective breeding, generation, survival, natural selection, evolution, fossils, genes, genetics, DNA, extinct, extinction, speciation, question, investigation, fair test, change, measure, predict, prediction, explanation, observations, draw conclusions</p>	<p>aorta, artery, atrium, blood, blood vessel, body temperature, capillaries, carbon dioxide, cells, chamber, chest cavity, circulation, circulatory system, deoxygenated blood, digestive system, digestive tract, health, heart, heart valves, humans, hydration, lubricant, lungs, muscular system, nutrients, nutrition, oxygen, oxygenated blood, plasma, platelets, pump, red blood cell, skeletal, system, transport, valve, vein, vena cava, ventricle, vessel, waste, waste gases, white blood cells</p>	<p>identify, identification, classify, classification, division, family, genus, species, reason, common characteristics, distinguishing characteristics, leaves, shape, size, colour, backbone, wings, jointed legs, cased, transparent, antennae, shell, segments, explain, group, small, harmful, beneficial (helpful), colony, colonies, mould, multiply, historically, grouping, Aristotle, Carl Linnaeus, kingdom, botany, conventions</p>
		<p>light, dark, shadow, mirror, bright, dim, reflect, eye, opaque, transparent, translucent, ultra violet, ray, beam, refraction, periscope, spectrum, dispersion, inverted, medium, question, investigation, fair test, change, measure, predict, prediction, explanation, observations, draw conclusions</p>		<p>cell, battery, lamp, wire, buzzer, motor, circuit, current, filament, electrical insulator, electrical conductor, mains electricity, terminal, switch, toggle switch, push switch, slide switch, tilt switch, trembler switch, pressure switch, reed switch, series circuit, resistance, resistor, current, circuit diagram, recognised symbols, generate, generator, coal, gas, oil, fossil fuels, nuclear, biomass fired power stations, wind turbine, wave hub, tidal flow, hydro-electric, grid, pylon, transmission, transformer, solar panels</p>