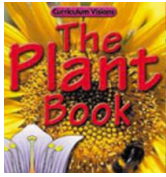








Science Long Term Plan Cycle B 2021 - 22



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer2
Y1	<p>Animals <u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows and can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals e.g. cat, robin, adder, frog, salmon. Knows and can identify and name a variety of common animals that are carnivores, herbivores and omnivores. Can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> 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, inc. pets) <p><u>Vocabulary</u></p> <p>Fish, amphibian, reptile, bird, mammal Common names of fish, amphibians, reptiles, birds, mammals including pets and those found in the local environment</p> <ul style="list-style-type: none"> Common structure of animals and humans including: head, face, ears, hair, eyes, nose, mouth, teeth, cheek, chin, neck, body, arms, hands, fingers, paws, fins, wings, legs, feet, toes, tail, skin, scales, fur, feathers Herbivore, carnivore, omnivore See, look, hear, listen, touch, feel, taste, smell 		<p>Plants <u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows and can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Knows and can identify and describe the basic structure of a variety of common flowering plants, including trees. <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> 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 <p><u>Vocabulary</u></p> <p>Roots, stem, leaves, flower, trunk, branches, light, oxygen, water, growth, minerals, seed, bulb, observation, diagram.</p> <p>Evergreen, deciduous, germinate, reproduce, producer, mature</p> <div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: center; margin-top: 10px;">  </div>	<p>Humans <u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows and can identify and name a variety of common animals that are carnivores, herbivores and omnivores. Can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <p><u>Vocabulary</u></p> <p>Body parts, Internal, Organs, 5 senses, Investigate, Texture, Function, Animal, Human, Mammal, Growth , Adapt, Classify, Mammal</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;">   </div>	<p>Everyday materials <u>Key knowledge</u></p> <ul style="list-style-type: none"> Distinguish between an object and the material from which it is made Can 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 Know how the properties of a material can make it useful for a range of different purposes (for example, plastic is waterproof so it can be used to coat fabric for clothing but can also be used for outdoor play equipment) Knows why and how the properties of materials make them particularly useful for specific purposes (for example, stone is a hard, heavy and durable material so is useful for construction of buildings). Knows that different materials can share the same properties (for example glass and plastic can both be transparent). <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> 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 	<p>Animals <u>Key knowledge</u></p> <ul style="list-style-type: none"> A minibeast's home is called a habitat. A habitat is where an animal lives. It can be as big as a forest or as small as a leaf. Know that a food chain is how a living thing gets its food. Know that prey are animals which are hunted and killed by other animals. <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> 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 <p><u>Vocabulary</u></p> <p>Carnivore Herbivore- Omnivore- an animal that eats other animals and plants. Exoskeleton- a hard covering on the outside of an insect's body. Invertebrates – an animal that doesn't have a spine or backbone. Minibeast, lifecycle, metamorphosis, caterpillar, tadpole, insect, habitat, wings, horns, antennae, legs, shell, chrysalis, cocoon</p>





- 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.

Vocabulary


Identify, materials, wood, plastic, glass, metal, rock, brick, paper, cardboard, uses, used, properties, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy, absorbent, not absorbent, waterproof, not waterproof, transparent, opaque.


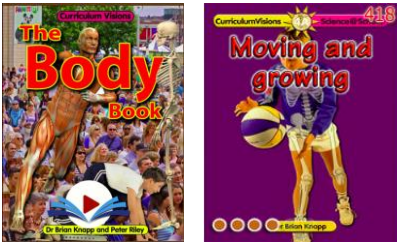
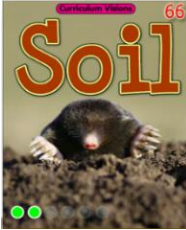


Names of common objects made from these materials e.g. door, building block, window, pencil sharpener, teddy etc.



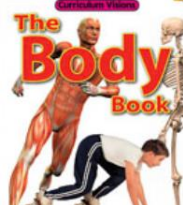
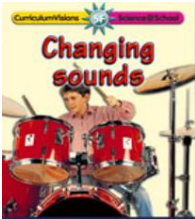

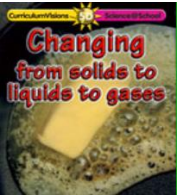
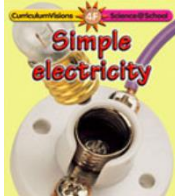


<p>Additional Units</p>	<p>Seasonal changes Autumn Seasonal changes <u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows when each of the four seasons occurs Knows what the features of autumn are and what happens to trees in this season Knows that days are longer in summer (sunshine hours) than in winter Observe changes across the four seasons Knows about and can describe weather in different seasons over a year. Knows and can describe the features of different seasons and how they change through the year <p><u>Key Skills</u></p> <ul style="list-style-type: none"> observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies. <p><u>Vocabulary</u> Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark</p> 	<p>Seasonal changes Winter Seasonal changes <u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows when each of the four seasons occurs Knows what the features of autumn are and what happens to trees in this season Knows that days are longer in summer (sunshine hours) than in winter Observe changes across the four seasons Knows about and can describe weather in different seasons over a year. Knows and can describe the features of different seasons and how they change through the year <p><u>Key Skills</u></p> <ul style="list-style-type: none"> observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies. <p><u>Vocabulary</u> Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark</p> 	<p>Seasonal changes Spring Seasonal changes <u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows when each of the four seasons occurs Knows what the features of autumn are and what happens to trees in this season Knows that days are longer in summer (sunshine hours) than in winter Observe changes across the four seasons Knows about and can describe weather in different seasons over a year. Knows and can describe the features of different seasons and how they change through the year <p><u>Key Skills</u></p> <ul style="list-style-type: none"> observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies. <p><u>Vocabulary</u> Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark</p> 		<p>Seasonal changes Summer Seasonal changes <u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows when each of the four seasons occurs Knows what the features of autumn are and what happens to trees in this season Knows that days are longer in summer (sunshine hours) than in winter Observe changes across the four seasons Knows about and can describe weather in different seasons over a year. Knows and can describe the features of different seasons and how they change through the year <p><u>Key Skills</u></p> <ul style="list-style-type: none"> observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies. <p><u>Vocabulary</u> Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark</p> 	
<p>Y1 (KS1) working scientifically</p>	<p>Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>NC POS: <u>Key Skills</u></p> <p>Year 1</p> <ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment 					

	<ul style="list-style-type: none"> performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions. 			
Year 2	<p>Animals including humans</p> <p><u>Key knowledge</u></p> <ul style="list-style-type: none"> Can describe how animals including humans have offspring which grow into adults, using the appropriate names for the stages Knows that to survive animals need sunlight, water, air, food and a suitable habitat (including shelter for protection from predators and the environment) Knows and can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and make the different sources of food. Knows that exercise is important to humans and can explain why. Knows the different food groups and the benefits of each as part of a healthy, balanced diet Knows which food groups common foods belong to. Knows about general hygiene and its importance and can state examples of hygienic practice. <p>NC POS:</p> <p><u>Key Skills</u></p> <ul style="list-style-type: none"> notice that animals, including humans, have offspring which grow into adults 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 <p><u>Vocabulary</u></p> <p>Reproduce, offspring, grow, adults (fish, amphibian, reptile, bird, mammal, humans)</p> <p>Survival, water, food, air, shelter</p> <p>Exercise, fit, healthy, food, fruit, vegetables, meat, fish, eggs, nuts,</p>	<p>Living things and their habitats</p> <p><u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows and can explain the differences between things that are living, dead, and things that have never been alive Knows that most living things live in habitats to which they are suited Knows and can describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other Knows and can name a variety of plants and animals in their habitats, including micro-habitats <p>NC POS:</p> <p><u>Key Skills</u></p> <ul style="list-style-type: none"> 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 microhabitats 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 <p><u>Vocabulary</u></p> <p>Living, dead, non-living, habitat, micro habitat, food chain, field, hedgerow, pond, woodland, seashore, ocean, rainforest, Arctic, desert, air, food, water, shelter, heat, warmth, sun</p>	<p>Plants</p> <p><u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows that plants may grow from either seeds or bulbs. Knows that seeds and bulbs can germinate and then grow into seedlings and then continue to grow into mature plants. Knows that mature plants may have flowers which then develop into seeds, berries and fruits etc. Knows that seeds and bulbs need to be planted at particular times of the year and will germinate and grow at different rates. Knows that some plants are better suited to growing in full sun and some grow better in partial and full shade. Knows that plants need water, light and a suitable temperature to grow and stay healthy <p>NC POS:</p> <p><u>Key Skills</u></p> <ul style="list-style-type: none"> 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 <p><u>Vocabulary</u></p> <p>Roots, crown, deciduous, evergreen, blossom, bulb trunk, stem, woodland, habitat, oxygen, seeds, grow, healthy, water, light, temperature, soil, nutrients, leaves, flowers, blossom, petals, fruit, trunk, branches,</p> <ul style="list-style-type: none"> Names of plants in their local environment for example grass, clover, daisy, buttercup, dandelion, oak, holly, daffodil, tulip etc. and plants we grow to eat such as lettuce, tomatoes, cucumber, radish, herb etc. 	<p>Use of every day materials</p> <p><u>Key knowledge</u></p> <ul style="list-style-type: none"> Knows and can explain why some materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard are particularly suited to specific purposes Knows how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching Knows the difference between materials that are transparent, translucent and opaque. <p>NC POS:</p> <p><u>Key Skills</u></p> <ul style="list-style-type: none"> 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 <p><u>Vocabulary</u></p> <p>Wood, plastic, glass, metal, water, rock, brick, paper, card, rubber, fur, fleece, cotton, wool, polyester, cotton wool</p> <ul style="list-style-type: none"> Words to describe why certain materials are suitable for particular uses e.g. soft, hard, rough, smooth, stretchy, stiff, shiny, dull, flexible, waterproof, absorbent, opaque, transparent, translucent <ul style="list-style-type: none"> Squash, bend, twist, stretch



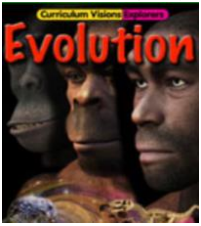

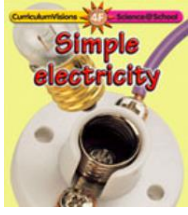
	<p>pulses, beans, milk, cheese, bread, pasta, rice, butter, vegetable oil, olive oil</p> <p>Common structure of animals and humans including: head, face, ears, hair, eyes, nose, mouth, teeth, cheek, chin, neck, body, arms, hands, fingers, paws, fins, wings, legs, feet, toes, tail, skin, scales, fur, feathers</p> <p>Herbivore, carnivore, omnivore</p>				
<p>Y 2 (KS1) working scientifically</p>	<p>Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>NC POS: Key Skills</p> <p>Year 2</p> <ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions. 				
<p>Year 3</p>	<p>Forces and magnets Key knowledge</p> <ul style="list-style-type: none"> Knows that friction affects the way that things move on different surfaces Knows that some forces need contact between two objects, but magnetic forces can act at a distance Knows that magnets attract or repel each other and attract some materials and not others Knows and can describe magnets as having two poles Knows whether two magnets will attract or repel each other, depending on which poles are facing. <p>NC POS: Key Skills</p> <ul style="list-style-type: none"> 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 	<p>Animals, including humans Key knowledge</p> <ul style="list-style-type: none"> Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients that are needed by the body to stay healthy – carbohydrates including sugars, protein, vitamins, minerals, fibre, fat, sugars, water. <ul style="list-style-type: none"> A piece of food will often provide a range of nutrients. Humans and some other animals have skeletons and muscles which help them move and provide protection and support <p>NC POS: Key Skills</p> <ul style="list-style-type: none"> 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 Identify that humans and some other animals have skeletons and muscles for support, protection and movement <p>Vocabulary</p> <p>Nutrition, skeleton, muscles, diet joint, pelvis, cartilage, rib cage, tendon, spine, humans, food, fish, amphibian, reptile, bird, mammal skull, (backbone), support,</p> 	<p>Rocks Key knowledge</p> <ul style="list-style-type: none"> Rock is a naturally occurring material. There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks can be hard or soft. They have different sizes of grain or crystal. Rocks can be different shapes and sizes (stones, pebbles, boulders) and some absorb water. Knows, in simple terms, how fossils are formed when things that have lived are trapped within rock. Knows that soils are made from rocks and organic matter. <p>NC POS: Key Skills</p> <ul style="list-style-type: none"> 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 	<p>Plants Key knowledge</p> <ul style="list-style-type: none"> Knows and can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Knows 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. Knows through investigation, the ways in which water is transported within plants Knows the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <p>NC POS: Key Skills</p> <ul style="list-style-type: none"> 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 	<p>Light Key knowledge</p> <ul style="list-style-type: none"> Knows that light is needed to see things and that dark is the absence of light Knows that light is reflected from surfaces knows that light from the sun can be dangerous and that there are ways to protect the eyes knows that shadow are formed when the light from a light source is blocked by an opaque object. Knows and can explain some of the reasons why the size of shadows changes. Knows how the shadows of transparent, opaque and translucent materials vary. <p>NC POS: Key Skills</p> <ul style="list-style-type: none"> 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 sun can be dangerous and that there are ways to protect their eyes

	<p>attracted to a magnet, and identify some magnetic materials</p> <ul style="list-style-type: none"> Describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing <p>Vocabulary</p> <p>Force, push, pull, poles, north pole, south pole, attract, repel, motion, Types of magnet: bar, ring, button, horseshoe</p> <p>Magnetic field</p> 		<ul style="list-style-type: none"> Recognise that soils are made from rocks and organic matter <p>Vocabulary</p> <p>Fossil, soil, crystals, sedimentary metamorphic, igneous, magnetic pole, organic matter, attract and repel, rocks, granite, limestone, sandstone, fossil, soil, sandy, peat, decay, compost, soft, hard, rough, smooth, stiff, shiny, dull, waterproof, absorbent, opaque, transparent, translucent, texture</p> 	<ul style="list-style-type: none"> investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal <p>Vocabulary</p> <p>Leaves, flowers, blossom, petals, fruit, roots, bulb, seed, trunk, branches, stem, stigma, style, anther, air, light, water, nutrients, soil, transport, seed, seedling, bulb, compost, decay, die, fruit, moisture, ovary, ovule, pollen, pollination, seed formation, dispersal, reproduce</p> 	<ul style="list-style-type: none"> recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change <p>Vocabulary</p> <p>Reflection, shadows, light source, opaque, refraction, periscope see, eyes, light, dark, absence, sun, dangerous, lamp, flame, torch, light bulb, day, night, dark, dim, sunrise, sunset, dusk, reflect, reflection, reflected, shadows, size, shape, pattern nocturnal, orbits, convex, concave</p> 
<p>Y3 Working scientifically</p>	<p>Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>NC POS: Key Skills Year 3</p> <ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings. 				
<p>Y4</p>	<p>Living things and their habitats Key knowledge</p> <ul style="list-style-type: none"> Knows that living things can be grouped in a variety of ways. Knows and can name living things in a range of habitats. Knows and can relate the key 	<p>Animals (including humans) Key knowledge</p> <ul style="list-style-type: none"> Knows the basic parts of the digestive system in humans. Knows and can identify the different types of teeth in humans and their simple 	<p>Sound Key knowledge</p> <ul style="list-style-type: none"> Knows how sounds are made, associating some of them with vibrating. Knows how sound travels from a source to our ears. Knows the correlation between pitch and the object. Knows the correlation between the volume of a sound and the 	<p>States of matter Key knowledge</p> <ul style="list-style-type: none"> Knows how to distinguish between a solid, liquid and gas. Knows that some materials change state when they are heated or 	<p>Electricity Key knowledge</p> <ul style="list-style-type: none"> Can identify and name appliances that require electricity to function Knows the basic parts of a circuit, including cells, wires, bulbs, switches and buzzers Knows that for an appliance to

	<p>adaptational features of an organism to the known features of its habitat.</p> <ul style="list-style-type: none"> Knows and can give examples of how an environment may change both naturally and due to human impact. <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> 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. <p><u>Vocabulary</u> Classify, classification, animal, vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, snails, slugs, worms, spiders, insects, flowering plants, non-flowering plants, ferns, mosses, fungi, environment, habitat, micro habitat, adaption, human impact, ecological, ecosystem, nature reserves, parks, ponds, pollution, litter, deforestation, field, hedgerow, pond, woodland, seashore, ocean, rainforest, Arctic, desert, nest, burrow, air, food, water, shelter, heat, warmth, sun, camouflage</p> 	<p>functions. Knows which organisms are producers, predators and prey and apply to the construction and interpretation of food chains.</p> <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> 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. <p><u>Vocabulary</u> digestion, mouth, teeth, tongue, saliva, oesophagus, stomach, gastric juices, enzyme, small intestine, bile, pancreatic juice, large intestine, rectum, incisors, cut, slice, canines, grip, pierce, premolars, molars, crush, grind, dental, dentist, disclosing tablets, food chain, producers, predators, prey, herbivore, carnivore, omnivore</p>  	<p>strength of the vibrations that produced it.</p> <ul style="list-style-type: none"> Know that sounds get fainter as the distance from the sound source increases. <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> 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 object 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 from the sound source increases. <p><u>Vocabulary</u> Sound, sources, vibrating, medium, ear, eardrum, instruments, pitch, high, low, volume, loudness, loud, soft, quiet, insulation, sound proof, distance, fainter</p> 	<p>cooled.</p> <ul style="list-style-type: none"> Knows the temperatures at which ice, water and water vapour change state. Knows the part played by evaporation and condensation in the water cycle. <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> 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 (°C) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. <p><u>Vocabulary</u> Solids, liquids, gases, change state, melt, freeze, heated, cooled, temperature, Celsius, chocolate, butter, ice, water, steam, water vapour, water cycle, evaporation, condensation, rate, precipitation, rain, rain fall, snow, sleet</p>  	<p>work within a circuit, it has to be part of a complete loop with a battery.</p> <ul style="list-style-type: none"> Knows that a switch in a circuit is a temporary break in an otherwise 'complete circuit'. All metals conduct electricity but some, such as aluminium and titanium, are relatively poor conductors. Knows the recognised symbols used to represent components of a circuit and uses these to represent a circuit pictorially. <p>NC POS: <u>Key Skills</u></p> <ul style="list-style-type: none"> 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 simple 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. <p><u>Vocabulary</u> Electrical appliances, mains, battery, television, computer, tablet, mobile phone, light, lamp, cooker, microwave, toaster, radio, component, bulb, buzzer, battery, cell, wire, motor, switch, open, closes, circuit, series, complete loop, bright, brightness, current, electrical insulator, plastic, fabric, electrical conductor, metals, water</p> 
Year 4 working scientifically	<p>Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>NC POS:</p>				

	<p>Key Skills</p> <p>Year 4</p> <ul style="list-style-type: none"> • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings. 				
Y5	<p>Every day materials</p> <p>Key knowledge</p> <ul style="list-style-type: none"> • 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. <p>NC POS:</p> <p>Key Skills</p> <ul style="list-style-type: none"> • compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating 	<p>Animals (including humans)</p> <p>Key knowledge</p> <ul style="list-style-type: none"> • Know the changes as humans develop <p>NC POS:</p> <p>Key Skills</p> <ul style="list-style-type: none"> • describe the changes as humans develop to old age. <p>Vocabulary</p> <p>Carnivore herbivore omnivore food chains producer consumer Predator prey teeth molar canine incisor rip grind chew digestion stomach digestive system</p>	<p>Earth and Space</p> <p>Key knowledge</p> <ul style="list-style-type: none"> • 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 (here it is 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. <p>NC POS:</p> <p>Key Skills</p> <ul style="list-style-type: none"> • 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. <p>Vocabulary</p> <p>Orbit, solar system, astronomical, planet, rotation</p>	<p>Forces</p> <p>Key knowledge</p> <ul style="list-style-type: none"> • Knows that unsupported objects fall to Earth because of the force of gravity acting between the earth and the falling object • Knows and can identify the effects of air resistance, water resistance and friction, that act between moving surfaces • Knows that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <p>NC POS:</p> <p>Key Skills</p> <ul style="list-style-type: none"> • 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, water 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. <p>Vocabulary</p> <p>Gravity air resistance water resistance friction surface force effect move accelerate decelerate stop change direction brake mechanism pulley gear spring theory of gravitation Galileo Galilei Isaac Newton</p>	<p>Key knowledge</p> <ul style="list-style-type: none"> • Knows and can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • Knows and can describe the life processes of reproduction in some plants (including the pollination process) and animals • Knows that bulbs, tubers, runners and plantlets are examples of plant reproduction involving only one parent <p>NC POS:</p> <p>Key Skills</p> <ul style="list-style-type: none"> • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • describe the life process of reproduction in some plants and animals <p>Vocabulary</p> <p>Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate Endangered species environmental dangers</p>

	<ul style="list-style-type: none"> give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 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. <p>Vocabulary properties hardness solubility transparency electrical conductor thermal conductor response to magnets dissolve solution separate separating solids liquids gases evaporating reversible changes dissolving mixing evaporation filtering sieving melting irreversible new material burning rusting magnetism electricity chemists Spencer Silver Ruth Benerito quantitative measurements conductivity insulation chemical</p> <p>Living things and their habitats</p>		<p>spherical, crescent moon, gibbous moon, eclipse ,lunar</p>		
<p>Year 5 working scientifically</p>	<p>Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>Key Skills NC POS: Year 5 (UKS2):</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments. 				
<p>Wycoller Year 6</p>	<p>Living things and their habitats Key knowledge</p> <ul style="list-style-type: none"> Plants can be divided broadly into two main groups – flowering plants and non-flowering plants. Living things can be formally grouped according to characteristics. Animals can be divided into two main groups – vertebrates and invertebrates. Each group has common characteristics. <p>Key Skills</p>	<p>Animals (including humans) Key knowledge</p> <ul style="list-style-type: none"> Can 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 the body functions Knows and can describe the way in which nutrients and water are transported 	<p>Evolution and inheritance Key knowledge</p> <ul style="list-style-type: none"> All living things have offspring of the same kind. The offspring are not identical to their parents and vary. Plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes rapidly some variations may not suit the new environment and will die. If it changes slowly, animals and plants with variations that are best suited survive and reproduce. Over a very long period of time these characteristics may be so different that a new species is created. This is evolution. Fossils give us evidence of what lived on the Earth millions of years ago scientists such as Darwin and Wallace observed how living things adapt to different environments 	<p>Light Key knowledge</p> <ul style="list-style-type: none"> Light appears to travel in straight lines Knows and can explain that objects are seen because they give out or reflect light into the eye Knows and can 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. Knows and can explain, with 	<p>Electricity Key knowledge</p> <ul style="list-style-type: none"> Know that the brightness of a bulb, or the volume of a buzzer, correlates with the voltage of cells used in the circuit. Knows and can give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Knows the effect of adding more components to a circuit with one cell and the effect of adding multiple cells

	<p>NC POS:</p> <ul style="list-style-type: none"> 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. <p>Vocabulary micro-organisms plants animal classification classify animals invertebrates insects spiders snails worms vertebrates fish amphibians reptiles birds mammals scientists Carl Linnaeus</p> 	<p>within animals, including humans</p> <p>Key Skills NC POS:</p> <ul style="list-style-type: none"> 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. <p>Vocabulary double circulation circulatory System blood vessel heart pump vein capillary artery lungs oxygen carbon dioxide gaseous exchange respiration exercise pulse rate heart chambers heart valves stethoscope blood group muscle skeleton smoking,</p> 	<p>Key Skills NC POS:</p> <ul style="list-style-type: none"> 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. <p>Vocabulary evolution adapted characteristic common ancestor diverge evolutionary tree extinction fossils generation habitat mutations natural selection offspring palaeontologist population penta-dactyl limb variation</p> 	<p>reference to how light travels, why shadows have the same shape as the objects that cast them</p> <p>Key Skills NC POS:</p> <ul style="list-style-type: none"> 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. <p>Vocabulary opaque translucent transparent shadow pupil iris lens eyelid reflection refraction convex concave kaleidoscope Periscope Rainbow Prism</p> 	<ul style="list-style-type: none"> Knows and can use the recognised symbols to represent a simple circuit in a diagram <p>Key Skills NC POS:</p> <ul style="list-style-type: none"> 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. <p>Vocabulary source cell battery switch bulb motor buzzer series parallel circuit crocodile clips wire complete circuit symbol circuit diagram fuse wire bright dim filament electromagnet conductor insulator plug mains electricity</p> 
Y6 (UKS2 working scientifically)	<p>Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <p>NC POS: Key Skills Year 6 (UKS2):</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments. 				
Anything Else:					