



Science Curriculum Cycle B

AUTUMN	KS1		LKS2		UKS2		
1	<p>Living things and their habitats</p>	<p>National Curriculum objectives:</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>Key Learning</p> <p>All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (this is a simplification but appropriate for year 2 children). An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). Animals and plants live in a habitat to which they are suited which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect what plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.</p> <p>Key vocabulary:</p>	<p>Can find a range of items outside that are living, dead and never lived</p> <p>Can name a range of animals and plants that live in a habitat and micro-habitats that they have studied</p> <p>Can talk about how the features of these animals and plants make them suitable to the habitat</p> <p>Can talk about what the animals eat in a habitat and how the plants provide shelter for them</p> <p>Can construct a food chain that starts with a plant and has the arrows pointing in the correct direction</p> <p>Can sort into living, dead and never lived</p> <p>Can give key features that mean the animal or plant is suited to its micro-habitat</p> <p>Using a food chain can explain what animals eat</p> <p>Can explain in simple terms why an animal or plant is suited to a habitat e.g. the caterpillar cannot live under the soil like a worm as it needs fresh leaves to eat; the seaweed we found on the beach cannot live in our pond because it is not salty</p>	<p>Electricity</p> <p>National Curriculum Objectives</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>Key Learning</p> <p>Many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries. An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit the component will not work. A switch can be added to the circuit to turn the component on and off.</p> <p>Metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity</p> <p>Key Vocabulary</p> <p>Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol</p> <p>N.B. Children in year 4 do not need to use standard symbols as this is taught in year 6</p> <p>Applying (including enquiries)</p> <p>Construct a range of circuits</p>	<p>Electricity</p> <p>Can name the components in a circuit</p> <p>Can make electric circuits</p> <p>Can control a circuit using a switch</p> <p>Can name some metals that are conductors</p> <p>Can name materials that are insulators</p> <p>Can communicate structures of circuits using drawings which show how the components are connected</p> <p>Use classification evidence to identify that metals are good conductors and non-metals are insulators</p> <p>Can incorporate a switch into a circuit to turn it on and off</p> <p>Can connect a range of different switches identifying the parts that are insulators and conductors</p> <p>Can add a circuit with a switch to a DT project and can demonstrate how it works</p> <p>Can give reasons for choice of materials for making different parts of a switch</p> <p>Can describe how their switch works</p>	<p>Electricity</p> <p>National Curriculum Objectives</p> <ul style="list-style-type: none"> associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram <p>Key Learning</p> <p>Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. If you use a battery with a higher voltage, the same thing happens. Adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well.</p> <p>You can use recognised circuit symbols to draw simple circuit diagrams.</p> <p>Key Vocabulary</p> <p>Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage</p> <p>NB Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words cells and batteries are now used interchangeably</p> <p>Applying (including enquiries)</p> <p>Explain how a circuit operates to achieve particular operations, such as control the light for a torch with different brightnesses or make a motor go faster or slower</p> <p>Make circuits to solve particular problems such as a quiet and a loud burglar alarm</p> <p>Carry out fair tests exploring changes in circuits</p>	<p>Can make electric circuits and demonstrate how variation in the working of particular components, such as the brightness of bulbs can be changed by increasing or decreasing the number of cells or using cells of different voltages</p> <p>Can draw circuit diagrams of a range of simple series circuits using recognised symbols</p> <p>Can incorporate a switch into a circuit to turn it on and off</p> <p>Can change cells and components in a circuit to achieve a specific effect</p> <p>Can communicate structures of circuits using circuit diagrams with recognised symbols</p> <p>Can devise ways to measure brightness of bulbs, speed of motors, volume of a buzzer during a fair test</p> <p>Can predict results and answer questions by drawing on evidence gathered</p>



Science Curriculum Cycle B

	<p>Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland etc., names of micro-habitats e.g. under logs, in bushes etc.</p> <p>Applying (including enquiries) Explore the outside environment regularly to find objects that are living, dead and have never lived Classify objects found in the local environment Observe animals and plants carefully, drawing and labelling diagrams Create simple food chains for a familiar local habitat from first hand observation and research Create simple food chains from information given e.g. in picture books (Gruffalo etc.)</p>		<p>Explore which materials can be used instead of wires to make a circuit Classify the materials that were suitable/not suitable for wires Explore how to connect a range of different switches and investigate how they function in different ways Choose switches to add to circuits to solve particular problems such as a pressure switch for a burglar alarm Apply their knowledge of conductors and insulators to design and make different types of switch Make circuits that can be controlled as part of a D&T project</p> <p>N.B. Children should be given one component at a time to add to circuits.</p>		<p>Make circuits that can be controlled as part of a D&T project</p>			
2	KS1	LKS2	UKS2					
Uses of everyday materials	<p>National Curriculum Objectives</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>Key Learning All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by</p>	<p>Can name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use Can label a picture or diagram of an object made from different materials For a given object can identify what properties a suitable material needs to have Whilst changing the shape of an object can describe the action used Can use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot Can recognise that a material may come in different forms which have different properties Can sort materials using a range of properties Can explain using the key properties why a material is suitable or not suitable for a purpose Can begin to choose an appropriate method for</p>	Forces and Magnets	<p>National Curriculum objectives</p> <ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which poles are facing <p>Key Learning A force is a push or a pull. When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes. A magnet attracts magnetic material. Iron and nickel and other materials containing these e.g. stainless steel, are magnetic. The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles e.g. two north poles, are brought together</p>	<p>Can give examples of forces in everyday life Can give examples of objects moving differently on different surfaces Can name a range of types of magnets and show how the poles attract and repel Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets Can use their results to describe how objects move on different surfaces Can use their results to make predictions for further tests e.g. it will spin for longer on this surface than that, but not as long as it spun on that surface Can use classification evidence to identify that some metals but not all are magnetic Through their exploration they can show how like poles repel and unlike poles attract and name unmarked poles Can use test data to rank magnets</p>	Forces and magnets	<p>National Curriculum Objectives</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>Key Learning A force causes an object to start moving, stop moving, speed up, slow down or change direction. Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall. Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water or the air and water may be moving over a stationary object. A mechanism is a device that allows a small force to be increased to a larger force. The</p>	<p>Can demonstrate the effect of gravity acting on an unsupported object Can give examples of friction, water resistance and air resistance Can give examples of when it is beneficial to have high or low friction, water resistance and air resistance Can demonstrate how pulleys, levers and gears work Can explain the results of their investigations in terms of the force, showing a good understanding that as the object tries to move through the water or air or across the surface, the particles in the water, air or on the surface slow it down Can demonstrate clearly the effects of using levers, pulleys and gears</p>



Science Curriculum Cycle B

	<p>squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness.</p> <p>Key vocabulary Names of materials – increased range from year 1 Properties of materials - as for year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing. Bend/bending, stretch/stretching</p> <p>Applying (including enquiries) Classify materials Make suggestions about alternative materials for a purpose that are both suitable and unsuitable Test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for Elastigirl's costume, test materials for waterproofness to select the most appropriate for a rain hat</p>	<p>testing a material for a particular property Can use their test evidence to select appropriate material for a purpose e.g. Which material is the best for a rain hat?</p>	<p>they will push away from each other – repel. If two unlike poles e.g. a north and south, are brought together they will pull together – attract. For some forces to act there must be contact e.g. a hand opening a door, the wind pushing the trees. Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts.</p> <p>Key vocabulary: Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole</p> <p>Applying (including enquiries) Carry out investigations to explore how objects move on different surfaces e.g. spinning tops/coins, rolling balls/cars, clockwork toys, soles of shoes etc. Explore what materials are attracted to a magnet Classify materials according to whether they are magnetic Explore the way that magnets behave in relation to each other Use a marked magnet to find the unmarked poles on other types of magnets Explore how magnets work at a distance e.g. through the table, in water, jumping paper clip up off the table Devise an investigation to test the strength of magnets</p>		<p>pay back is that it requires a greater movement. The small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.</p> <p>Key vocabulary Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears</p> <p>Applying (including enquiries) Investigate the effect of friction in a range of contexts e.g. trainers, bath mats, mats for a helter-skelter Investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water, pulling shapes e.g. boats along the surface of water Investigate the effects of air resistance in a range of contexts e.g. parachutes, spinners, sails on boats Explore how levers, pulleys and gears work Make a product that involves a lever, pulley or gear Create a timer that uses gravity to move a ball Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation</p>
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	KS1	LKS2	UKS2
Spring			
1	<p>Animals (Year 1 objectives)</p> <p>National Curriculum Objectives</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>Key Learning Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair.</p>	<p>Rocks and soils</p> <p>National Curriculum Objectives</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 recognise that soils are made from rocks and organic matter. <p>Key Learning 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. They may absorb</p>	<p>Earth and space</p> <p>National Curriculum Objectives</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>Key Learning</p>



Science Curriculum Cycle B

	<p>These key features can be used to identify them.</p> <p>Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.</p> <p>Key vocabulary Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves Names of animals experienced first-hand from each vertebrate group N.B. The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics.</p> <p>The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals not just meat.</p> <p>Applying (including enquiries) Make first hand close observations of animals from each of the groups Compare two animals from the same or different group Classify animals using a range of features Identify animals by matching them to named images Classify animals according to what they eat</p>	<p>Can sort and group animals using similarities and differences Can use simple charts etc. to identify unknown animals Can create a drawing of an imaginary animal labelling its key features Can use secondary resources to find out what animals eat, including talking to experts e.g. pet owners, zoo keepers etc.</p>	<p>water. Rocks can be different shapes and sizes (stones, pebbles, boulders). Soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock piece and the amount of organic matter affect the property of the soil.</p> <p>Some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.</p> <p>Key vocabulary: Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</p> <p>Applying (including enquiries) Observe rocks closely Classify rocks in a range of ways based on their appearance Devise a test to investigate the hardness of a range of rocks Devise a test to investigate how much water different rocks absorb Observe how rocks change over time e.g. gravestones or old building Research using secondary sources how fossils are formed Observe soils closely Classify soils in a range of ways based on their appearance Devise a test to investigate the water retention of soils Observe how soil can be separated through sedimentation Research the work of Mary Anning</p>	<p>Walk to Runswick Bay</p> <p>Can devise tests to explore the properties of rocks and use data to rank the rocks Can link rocks changing over time with their properties e.g. soft rocks get worn away more easily Can present in different ways their understanding of how fossils are formed e.g. in role play, comic strip, chronological report, stop-go animation etc. Can identify plant/animal matter and rocks in samples of soil Can devise a test to explore the water retention of soils</p>	<p>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> <p>Key vocabulary Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune) spherical, solar system, rotates, star, orbit, planets</p> <p>Applying (including enquiries) Use secondary sources to help create a model e.g. role play or using balls, to show the movement of the Earth around the Sun and the Moon around the Earth. Use secondary sources to help make a model to show why day and night occur Make first-hand observations of how shadows caused by the Sun change through the day Make a sundial Research time zones Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel</p>	<p>Can use the model to explain how the Earth moves in relation to the Sun and the moon moves in relation to the Earth Can demonstrate and explain verbally how day and night occur Can explain evidence gathered about the position of shadows in term of the movement of the Earth. Can show this using a model Can explain how a sundial works Can explain verbally using a model why we have time zones Can describe the arguments and evidence used by scientists in the past</p>	
	KS1		LKS2		UKS2		
2	<p>Animals including humans (Y2 objectives)</p> <p>National Curriculum Objectives</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>Can describe how animals including humans have offspring which grow into adults, using the appropriate names for the stages Can state the basic needs of animals, including humans, for survival. Can state the importance for humans of exercise, eating the right amounts of different types of food and hygiene.</p>	<p>Animals including humans (y3 objectives)</p> <p>National Curriculum Objectives</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>Key Learning</p>	<p>Can name the nutrients found in food</p> <p>Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients</p> <p>Can name some bones that make up their</p>	<p>Animals including humans (year 5 objectives)</p>	<p>National Curriculum Objectives</p> <ul style="list-style-type: none"> describe the changes as humans develop to old age. <p>Key Learning</p> <p>When babies are young they grow rapidly. They are very dependent on their parents. As they develop they learn many skills. At puberty, a child's body changes and develops primary and secondary sexual</p>	<p>Can explain the changes that takes place in boys and girls during puberty Can explain how a baby changes physically as it grows and also what it is able to do</p>



Science Curriculum Cycle B

	<p>Key Learning Animals including humans have offspring which grow into adults. In humans and some animals these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. All animals including humans have basic needs of feeding, drinking and breathing that must be satisfied in order to survive, and to grow into healthy adults they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses.</p> <p>Key vocabulary: Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)</p> <p>Applying (including enquiries) Ask people questions and use secondary sources to find out about the life cycles of some pond animals Observe animals growing over a period of time e.g. chicks, caterpillars, a baby (caterpillars released as butterflies) Ask questions of a parent about how they look after their baby Ask pet owners questions about how they look after their pet parent visitors Explore the effect of exercise on their bodies Classify food in a range of ways, including using the Eatwell guide Investigate washing hands, using glitter gel</p>	<p>Can name foods in each section of the Eatwell guide</p> <p>Can describe, including using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child</p> <p>Can measure/observe how animals, including humans, grow. Show what they know about looking after a baby/animal by creating a parenting/pet owners' guide Derek Explain how development and health might be affected by differing conditions and needs being met/not met.</p>	<p>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. A piece of food will often provide a range of nutrients.</p> <p>Humans and some other animals have skeletons and muscles which help them move and provide protection and support</p> <p>Key vocabulary: Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints</p> <p>Applying (including enquiries) Classify food in a range of ways Use food labels to explore the nutritional content of a range of food items Use secondary sources to find out they types of food that contain the different nutrients Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? Plan a daily diet contain a good balance of nutrients Explore the nutrients contained in fast food Use secondary sources to research the parts and functions of the skeleton Investigate pattern seeking questions such as</p> <ul style="list-style-type: none"> • Can people with longer legs run faster? • Can people with bigger hands catch a ball better? <p>Compare, contrast and classify skeletons of different animals</p>	<p>skeleton giving examples that support, help them move or provide protection</p> <p>Can describe how muscles and joints help them to move</p> <p>Can classify food into those that are high or low in particular nutrients Can answer their questions about nutrients in food based on their gathered evidence Can talk about the nutrient content of their daily plan Use their data to look for patterns (or lack of) when answering their enquiry question Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons</p>	<p>characteristics. This enables the adult to reproduce.</p> <p>This needs to be taught alongside PSHE Useful guidance can be obtained at: http://www.ase.org.uk/news/aseviews/teaching-about-puberty/ http://www.ase.org.uk/documents/2016-joint-statement-on-reproduction/</p> <p>Key vocabulary Puberty: the vocabulary to describe sexual characteristics</p> <p>Applying (including enquiries) This unit is taught through direct instruction due to its sensitive nature</p>	
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Science Curriculum Cycle B

SUMMER	KS1		LKS2		UKS2	
1	<p>Plants (Year 1 objectives)</p> <p>National Curriculum Objectives</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>Key Learning Growing locally there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Plants have common parts but they vary between the different types of plants. Some trees keep their leaves all year whilst other trees drop their leaves during autumn and grow them again during spring.</p> <p>Key vocabulary Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area (complete names for your school grounds) Names of garden and wild flowering plants in the local area Complete</p> <p>Applying (including enquiries) Make close observations of leaves, seeds, flowers etc. Compare two leaves, seeds, flowers etc. Classify leaves, seeds, flowers etc. using a range of characteristics Identify plants by matching them to named images Make observations of how plants change over a period of time When further afield, spot plants that are the same as those in the local area studied regularly,</p>	<p>Can name trees and other plants that they see regularly Can describe some of the key features of these trees and plants e.g. the shape of the leaves, the colour of the flower/blossom Can point out trees which lost their leaves and those that kept them the whole year Can point to and name the parts of a plant, recognising that they are not always the same e.g. leaves and stems may not be green Can sort and group parts of plants using similarities and differences Can use simple charts etc. to identify plants Can collect information on features that change during the year Can use photographs to talk about how plants change over time</p>	<p>Plants</p> <p>National Curriculum Objectives</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 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>Key Learning Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. The roots absorb water and nutrients from the soil and anchor the plant in place. The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal. The leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to reproduce. Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways. Different plants require different conditions for germination and growth</p> <p>Key vocabulary Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal</p> <p>Applying (including enquiries) Observe what happens to plants over time when the leaves or roots are removed Observe the effect of putting cut white carnations or celery in coloured water Investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space Spot flowers, seeds, berries and fruits outside throughout the year (nature walks) Observe flowers carefully to identify the pollen Observe flowers being visited by pollinators e.g. bees and butterflies in the summer Observe seeds being blown from the trees e.g. sycamore seeds Research different types of seed dispersal Classify seeds in a range of ways including by how they are dispersed</p>	<p>Can explain the function of the parts of a flowering plant Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination Can give different methods of pollination and seed dispersal, including examples Can explain observations made during investigations Can look at the features of seeds to decide on their method of dispersal Can draw and label a diagram of their created flowering plant to show its parts, their role and the method of pollination and seed dispersal</p>	<p>Living things and their habitats (y6 objectives)</p> <p>National Curriculum Objectives</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 microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics <p>Key Learning Living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other living things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot. Animals can be divided into two main groups – those that have backbones (vertebrates) and those that do not (invertebrates). Vertebrates can be divided into five small groups – fish, amphibians, reptiles, birds and mammals. Each group has common characteristics. Invertebrates can be divided into a number of groups including insects, spiders, snails and worms. Plants can be divided broadly into two main groups – flowering plants and non-flowering plants.</p> <p>Key vocabulary: Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering plants.</p> <p>Applying (including enquiries) Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important Use first hand observation to identify characteristics shared by the animals in a group (use range of insects or arachnids found on school site)</p>	<p>Can give examples of animals in the five vertebrate groups and some of the invertebrate groups Can give the key characteristics of the five vertebrate groups and some invertebrate groups Can compare the characteristics of animals in different groups Can give examples of flowering and non-flowering plants Can use classification materials to identify unknown plants and animals Can create classification keys for plants and animals Can give a number of characteristics that explain why an animal belongs to a particular group</p>



Science Curriculum Cycle B

	describing the key features that helped them		Create a new species of flowering plant		Use secondary sources to research the characteristics of animals that belong to a group Use information about the characteristics of an unknown animal or plant to assign it to a group Classify plants and animals presenting this in a range of ways – Venn diagrams, Carroll diagrams and keys Create an imaginary animal which has features from one or more groups
KS1			LKS2		UKS2
2	<p>Seasonal changes (Summer)</p> <p>National Curriculum Objectives</p> <ul style="list-style-type: none"> observe changes across the four seasons observe and describe weather associated with Summer and how day length varies. <p>Key Learning In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. The weather also changes with the seasons. In the UK, it is usually colder and rainier in Winter and hotter and dryer in the Summer. The change in weather causes many other changes; some examples are numbers of minibeasts found outside, seed and plant growth, leaves on trees and type of clothes worn by people.</p> <p>Key vocabulary Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn), sun, sunrise, sunset, day length</p> <p>Applying (including enquiries)</p>	<p>Can name the four seasons and identify when in the year they occur. Can describe weather in different seasons over a year. Can describe days as being longer (in time) in the summer and shorter in the winter. Can describe other features that change through the year</p> <p>Use their evidence gathered to describe the general types of weather and changes in day length over the seasons. Use their evidence to describe some other features of their surroundings, themselves, animals, plants that change over the seasons Demonstrate their knowledge in different ways e.g. making a weather forecast video, writing seasonal poetry, creating seasonal artwork</p>	<p>Spare half term to catch up.</p> <p>Check progress against Applying (including enquiries) objectives and plan investigations to meet gaps.</p>	<p>Spare half term to catch up.</p> <p>Check progress against Applying (including enquiries) objectives and plan investigations to meet gaps.</p>	



Science Curriculum Cycle B

	<p>Collect information about the weather regularly throughout the year Present this information in table and charts to compare the weather across the seasons Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans Present this information in different ways to compare the seasons Gather data about day length regularly throughout the year and present this to compare the seasons</p> <p>Children will observe the frequency of animals/minibeasts in our outdoor areas (pond, moorland, forest, river) at different points in the season. This data can be shared within COGL.</p> <p>Through our Garden School curriculum, children will learn that different vegetables are planted at different times of the year.</p>							
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