

Science Long Term Plan

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
R	What are the seasons and how does our environment change?					
	Forces	Temperature	Animals	Plants/Growth	Plants/Flowers	Insects
1/2 A	Do all plants grow better in greenhouses?					
	Seasons – as year groups <u>4 Sessions</u>	Materials and their properties: Buildings <u>6 sessions</u>	Pushes, pulls and their effects (Winchester Trip) <u>7 Sessions</u>	Materials and their properties: Toys <u>6 Sessions</u>	Habitats: Plants <u>3 Sessions</u>	Plant reproduction <u>6 Sessions</u>
1/2 B	Steve the stick insect: letter to the children – Steve’s moving in! He wants to know who would be his friends and where he would live.					
	Seasons – as year groups <u>4 Sessions</u>	Habitats Animals <u>3 Sessions</u>	Animals: Simple animal life time lines <u>5 Sessions</u>	Growing plants <u>10 Sessions</u>	Materials and their properties: Clothes <u>6 Sessions</u>	Animals: How animals survive (Marwell Trip) <u>7 Sessions</u>
3/4 A	Pollinating Insects: How does seasonal change affect pollination?					
	Living Things <u>8 Sessions</u>	Rocks and Soils <u>4 Sessions</u>	Electrical circuits <u>6 Sessions</u>	Animals: Digestion <u>7 Sessions</u>	Magnets and their effects <u>6 Sessions</u>	How plants reproduce <u>7 Sessions</u>
3/4 B	Manage the Meadow: What is the best way, most optimum way to develop plants and insects in the meadow?					
	Animals; Skeletons and movement <u>6 Sessions</u>	Solids, liquids and gases <u>8 Sessions</u>	Light <u>6 Sessions</u>	How plants make their food <u>8 Sessions</u>	Solutions Mixtures and separating them <u>8 Sessions</u>	
5/6 A	Is all the life in the pond interdependent?					
	Controlling electrical circuits <u>8 Sessions</u>	Making new substances <u>8 Sessions</u>	Animals: Respiration <u>7 Sessions</u>		How sound is made, travels and can be changed <u>8 Sessions</u>	
5/6 B	Forces that oppose motion <u>8 Sessions</u>	Light and how we see. <u>6 Sessions</u>	Earth and space <u>8 Sessions</u>		<u>10 Sessions</u> Sexual and asexual reproduction Evolution and natural selection Life cycles	

Recommended Each Session: **KS1:** 1hr 15mins – 1hr 30mins **KS2:** 1hr 40mins – 1hr 50mins

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2 Rotation A	Do all plants grow better in greenhouses?					
	<p>Set up Longitudinal study Seasons (4 Sessions) There are four seasons, Spring, summer, autumn and winter ●Each season is about three months long ●In Spring, young animals like lambs and chicks are born, the flowers bloom and the weather starts to become warmer. ●In autumn, the leaves fall off the trees and the amount of time we have in the day becomes less. ●Winter has the shortest amount of time during the day and the weather is at its coldest. ●In summer the trees are full of green leaves and the weather is at its warmest. ●Animals and plants have adapted ways of surviving the changing seasons. ●These include hibernating, storing food, fattening up, migration, loss of leaves ●Trees can be either evergreen or deciduous. ●Evergreen trees keep their green leaves all year round. ●Deciduous trees lose their leaves every autumn.</p>	<p>Materials and their properties: Buildings (6 sessions) ●There are many different materials that have different observable properties. ●Materials that have similar properties are grouped into metals, rocks, fabrics, wood, plastic and ceramics (including glass). ●The properties of a material determine whether they are suitable for a purpose. ●Materials can be changed by physical force (twisting, bending, squashing and stretching).</p>	<p>Pushes and pulls (Winchester Trip) 7 sessions ●Objects can move (be in Motion) in various ways- roll, slide and bounce ●The pushing or pulling of an object can affect its motion. ●Pushing or pulling can do three things, slow down, speed up or change the direction of an object. ●The larger the push/pull the bigger the effect on motion ●Pushing and pulling objects can change their shape.</p>	<p>Materials and their properties: Toys (6 sessions) ●There are many different materials that have different observable properties. ●Materials that have similar properties are grouped into metals, rocks, fabrics, wood, plastic and ceramics (including glass). ●The properties of a material determine whether they are suitable for a purpose. ●Materials can be changed by physical force (twisting, bending, squashing and stretching).</p>	<p>Habitats (Plants) 4 Sessions ●Wild plants such as ferns, daisies, nettles and dandelions grow randomly. ●Garden plants such as roses, tulips, poppies, daffodils are planted intentionally. ●Plants have specific adaptations for survival. ●To survive they need to get water, light, and avoid being eaten</p>	<p>Making New Plants 6 sessions ●All flowering plants make seeds (reproduction) that can grow (germinate) into new plants ●Plants need water, light and a suitable temperature to grow and stay healthy ●Some plants die after it has produced its seed and sometimes the plant lives for many generations producing seeds each year</p>
	Conclude Longitudinal study					


	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2 Rotation B	Steve the stick insect: letter to the children – Steve’s moving in! He wants to know who would be his friends and where he would live.					
	<p>Set up Longitudinal study Seasons (4 Sessions) There are four seasons, Spring, summer, autumn and winter ●Each season is about three months long ●In Spring, young animals like lambs and chicks are born, the flowers bloom and the weather starts to become warmer. ●In autumn, the leaves fall off the trees and the amount of time we have in the day becomes less. ●Winter has the shortest amount of time during the day and the weather is at its coldest. ●In summer the trees are full of green leaves and the weather is at its warmest. ●Animals and plants have adapted ways of surviving the changing seasons. ●These include hibernating, storing food, fattening up, migration, loss of leaves ●Trees can be either evergreen or deciduous. ●Evergreen trees keep their green leaves all year round. ●Deciduous trees lose their leaves every autumn.</p>	<p>Habitats (Animals) (4 Sessions) ●There is variation in all living things ●Animals and plants live in a variety of different places called habitats ●Animals and plants have adapted to survive in different habitats</p>	<p>Animal life cycles 5 sessions</p> <ul style="list-style-type: none"> ●Things that are living, move, feed, grow, reproduce and use their senses ●Animals grow until they reach maturity and then don’t grow any larger ●Animals reproduce when they reach maturity (adulthood). ●All animals eventually, die ●Different animals live to different ages ●Different animals reach different sizes before they are able to reproduce ●Different animals reproduce at different ages ●Animals, including humans, have offspring which grow into adults ●Exercise, eating the right amounts of different types of food and hygiene are important to maintain good health and wellbeing <p>●Habitats are places where animals and plants live (from Year 1) ●Animals live in habitats in which they are suited. ●Different kinds of animals and plants depend on each other within habitat. ●Animals get their food from plants and other animals. This can be shown in a food chain. ●A food chain begins with a producer. This is often a green plant because plants can make their own food. ●A living thing that eats other plants is called a consumer.</p>	<p>Plants 8 sessions</p> <ul style="list-style-type: none"> ●A seed contains a miniature plant that can develop into a fully grown plant. ●A bulb has underground vertical shoots which already has modified leaves ●Seeds and bulbs need water to grow but most do not need light (germination) ●Seeds and bulbs have food stores inside them to help the plant start to grow. <p>●To survive plants, need to get water, light, and avoid being eaten</p> <p>●A seed produces roots to allow water to get into the plant. ●A seed produces shoots to produce leaves to collect the sunlight. ●A basic plant structure can include leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem.</p>	<p>Materials and their properties: Clothes (6 sessions)</p> <ul style="list-style-type: none"> ●There are many different materials that have different observable properties. ●Materials that have similar properties are grouped into metals, rocks, fabrics, wood, plastic and ceramics (including glass). ●The properties of a material determine whether they are suitable for a purpose. ●Materials can be changed by physical force (twisting, bending, squashing and stretching). 	<p>Animal survival (Marwell Trip) 7 sessions</p> <ul style="list-style-type: none"> ●Animals are groups of organisms that need to consume food to survive. ●Food provides energy and the building blocks of growth. ●There are many different groups of animals including fish, amphibians, reptiles, birds and mammals. They have different structures, and they eat different types of foods. ●The structure of a variety of common animals varies Mammals have hair/fur and give birth to live young, fish can breathe underwater using gills, birds have feathers, beaks and wings. Females lay eggs. Most birds can fly, reptiles are air breathing and have scaly skin and lays eggs, and amphibians have smooth slimy skin and live on land and in water. ●Some eat other animals (carnivores), and others only eat vegetables (herbivores), and some like to eat both plants and meat (omnivores) ●Common animals that are carnivores include lions, cats, sharks and snakes ●Common animals that are herbivores include cows, horses, sheep, elephants and deer ●Common animals that are omnivores include humans, bears, monkeys and seagulls <p>●Animals must move to get their food ●They will move in different ways to get their food ●Animals that eat other animals are called predators ●Animals that are eaten by other animals are called prey ●Animals feeding relationships can be illustrated in a food chain</p> <p>●The five sense organs are the eyes (for seeing), nose (for smelling), ears (for hearing), tongue (for tasting), and skin (for touching or feeling). ●Animals have senses to help them survive ●Animals have developed a range of ways to find prey or avoid being eaten</p>
	Conclude Longitudinal study					

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2 Rotation B	Steve the stick insect: letter to the children – Steve’s moving in! He wants to know who would be his friends and where he would live.					
	Set up Longitudinal study Seasons (4 Sessions)		Habitats (Animals) (4 Sessions)		Animal life cycles 5 sessions	
	spring	The season when young animals like lambs and chicks are born, the flowers bloom and the weather starts to become warmer	variation	The differences between living things or habitats.	maturity	Being fully grown or adult.
	summer	The season where the trees are full of green leaves and the weather is at its warmest.	habitat	The place in which an animal or plant lives.	reproduce	To produce another living thing of the same kind.
	autumn	The season when the leaves fall off the trees and the amount of time we have in the day becomes less.	adapted	Changes to an animal or plant to help it survive.	die	To stop living
	winter	The season which has the shortest amount of time during the day and the weather is at its coldest..	survive	To live in spite of danger or difficulty.	offspring	The child or young of a particular human, animal, or plant
	hibernating	When animals spend the winter in a type of long, deep sleep.	avoid	Keep away from something or try to stop something happening.	life cycle	The stages a living thing goes through during its life
	migration	The journey an animal takes to a new home.	wild plant	Plants that live or grow randomly and are not looked after by people.	food chain (from 'Animal survival' y1)	Describes the order in which living things depend on each other for food.
	evergreen	Trees that keep their green leaves all year round.	garden plant	Plants that are planted on purpose.	producer	Something that has the ability to make its own food, usually a plant.
	deciduous	Trees that lose their leaves every autumn			consumer	An organism that must get its energy from eating a plant or animal.
				Plants 8 sessions		
				seed	The small, hard part of a plant from which a new plant grows.	
				bulb	A root shaped like an onion that grows into a flower or plant.	
				leaves	Usually, flat green parts that grow from a plant stem.	
				germination	The growth of a seed into a young plant or seedling.	
				roots	The part of a plant that grows downward, holds the plant in place and takes in water from the soil.	
				shoots	A plant that comes up above the ground when it is just beginning to grow	
				Materials and their properties: Clothes (6 sessions)		
				Properties	How a material can be described.	
				Metal	A solid material that is hard and shiny.	
				Rock	A natural solid material made from minerals which make up the surface of the earth.	
				Fabric	Cloth or material that is woven or knitted.	
				Wood	Wood comes from the trunks and branches of trees.	
				Plastic	Plastic is a man-made material that can change its shape.	
				Ceramic	Ceramics are often made from clay.	
				Suitable	Right for the purpose.	
				Purpose	The reason why something is made done.	
				changed	Different from before	
				physical force	When objects touch making them move in some way	
				absorb	To soak up or take in liquid.	
				crumbly	Easily broken onto a lot of little pieces.	
				property	How a material can be described.	
				drag	Pull something along with difficulty.	
				suitable	Right for the purpose.	
				strongest	Objects or materials that are not easily broken.	
				flexible	Bends easily without breaking	
				Animal survival (Marwell Trip) 7 sessions		
				organisms	A living thing.	
				growth	An increase in size.	
				energy	The ability to do work or to make something move or change in some way.	
				fish	An animal that can breathe underwater using gills and has a tail and fins.	
				amphibians	Animals that have smooth slimy skin and live on land and in water.	
				mammals	Animals that have hair or fur, give birth to live young and feed their young with milk.	
				birds	An animal with feathers, beaks and wings. Females lay eggs. Most birds can fly.	
				reptiles	An animal that is air breathing, has scaly skin and lays eggs.	
				herbivore	An animal that only eats plants.	
				omnivore	An animal that eats both plants and meat.	
				carnivore	An animal that eats meat.	
				predator	An animal that hunts, kills and eats other animals.	
				prey	An animal that is hunted and killed by another for food.	
				food chain	Describes the order in which living things depend on each other for food.	
				senses	The ability to see, hear, smell, touch and taste.	
				Conclude Longitudinal study		

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3/4 Rotation A	Pollinating Insects: How does seasonal change affect pollination?					
	<p>Set up Longitudinal study</p> <p>Living things 8 Sessions</p> <ul style="list-style-type: none"> • Living things can be divided into groups based upon their characteristics • Classification keys help group, identify and name living things • Animals can be classified as vertebrates (having a spine) or invertebrates (lacking a spine) • In any habitat there are food chains and webs where nutrients are passed from one organism to another when it is eaten • If the population of one organism in the chain or web is affected, it has a knock-on effect to all the others <ul style="list-style-type: none"> • Mammals, amphibians, insects and birds have different life cycles • Lifecycles vary in time depending on the species of animal- it can be as short as just a few weeks for insects, to up to 200 years for sea urchins. Larger animals often have longer life cycles but not always. • All animal life cycles begin with growth and development followed by reproduction • Some animals undergo a complete metamorphosis as they grow. Metamorphosis is a process where animals undergo an abrupt and obvious change in the structure of their body and their behaviour. • Some animals are eusocial. This means they live in colonies (groups) with one animal or group producing young and the others working to care for them. <ul style="list-style-type: none"> • Environmental change affects different habitats differently • Human activity significantly affects the environment • Different organisms are affected differently by environmental change 	<p>Rocks and Soils</p> <p>4 Sessions</p> <ul style="list-style-type: none"> • A rock is a solid material made up of minerals forming part of the surface of the Earth • Rocks are exposed on the surface at cliffs, hills and mountains but are also under the surface. • Some rocks, called ores contain metals • Some rocks are made of grains squashed together and can contain the remains of long-dead organisms, called fossils. This type of rock is called sedimentary rock, an example would be limestone, sandstone or mudstone • Some rocks are made of crystals that are locked tightly together. These are called igneous and metamorphic rocks; an example of igneous rock is granite, and an example of metamorphic rock is slate <ul style="list-style-type: none"> • These three types of rocks all have different properties to each other, including porosity, hardness, reaction to chemicals • The properties of the rock depend on how the rock was formed, e.g. Some igneous rocks form from lava from volcanoes and cool very quickly leading to very small crystals <ul style="list-style-type: none"> • Soil is made up of small broken-down pieces of rock. • Soil contains a range of different size rock pieces, e.g., sand grains or stones. • Soil also contains humus (rotted plant material) • Soil made of very fine rock is called silt or clay. 	<p>Electrical circuits</p> <p>6 Sessions</p> <ul style="list-style-type: none"> • Lots of devices are powered by electricity • Electricity comes from a source • There are two main sources- batteries and mains <ul style="list-style-type: none"> • A battery pushes electricity to the device. • To be able to push electricity the battery must be connected to the device using wires • This is called a circuit <ul style="list-style-type: none"> • If there are more batteries added to a circuit this provides a bigger push on the electricity • This will make the device work harder e.g., brighter bulbs, faster spinning motor, louder buzzer <ul style="list-style-type: none"> • Some materials will allow electricity to flow through them- Conductors • Metals such as silver, gold and copper are good conductors. Water is also a conductor of electricity. • Other materials will not allow electricity to flow through them- Insulators • Plastic, wood, glass and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity. • A switch opens and closes a circuit 	<p>Animals: Digestion</p> <p>7 Sessions</p> <p>Animals need a variety of foods to help them grow and survive. The main food groups are:</p> <ul style="list-style-type: none"> • Meat, dairy and pulses provide protein for muscles. • Grains and root vegetables provide carbohydrates for energy. • Fat for insulation and energy. • Fruit and vegetables for minerals, vitamins and fibre. These are essential to keep our bodies working well and protect us from illnesses. <ul style="list-style-type: none"> • Different animals require different foods to survive. • Animals get their food from plants and other animals. This can be shown in a food chain. (From Year 2) • A food chain begins with a producer. This is often a green plant because plants can make their own food. (From Year 2) • A living thing that eats other plants is called a consumer. (From Year 2) • Humans require a balanced diet to remain healthy but healthy diets vary depending upon the type of activity that humans do. • Humans have 2 sets of teeth in their lifetimes • Humans have three main types of teeth- incisors, canines and molars. • Incisors help to bite off and chew pieces of food. • Canines are used for tearing and ripping food. • Molars help to crush and grind food. <p>The nutrients in food have to get to every part of the body. The blood transports them.</p> <p>The role of digestion is to get the nutrients in food to dissolve in the blood, if it doesn't dissolve it can't enter the blood and be transported.</p>	<p>Magnets and their effects</p> <p>6 Sessions</p> <ul style="list-style-type: none"> • Magnets exert attractive forces on some metals <ul style="list-style-type: none"> • Magnetic forces work through other materials including air, so magnets don't need to be touching to exert their force. It is called a non-contact force. <ul style="list-style-type: none"> • Each end of a magnet is called a pole, opposite poles are called north and south. • Magnets exert attractive forces on each other when the poles facing each other are north and south (opposites). • Magnets exert repulsive forces on each other when the poles facing each other are the same. <p>The strength of magnetic forces is affected by:</p> <ul style="list-style-type: none"> • The strength of the magnet. • The distance between the magnet and the object. • The material the object is made from. 	<p>How plants reproduce</p> <p>7 Sessions</p> <ul style="list-style-type: none"> • Flowering plants reproduce by the process of pollination • Pollination leads to the formation of a seed which can grow into a new plant • Flowering plants have evolved specific parts to carry out pollination and seed growth • Those parts are stamen where pollen is produced, stigma where pollen is collected, and the ovaries which contains the eggs that become a seed when the pollen travels down the stigma and meets the egg • Flowers have petals also are a range of colours, patterns, and smells to attract insects <ul style="list-style-type: none"> • Plants and flowers look different because they pollinate in different ways. • There are two types of pollination Insect and wind • Insect pollinated flowers are usually bright coloured and strong scents • Wind pollinated flowers have less colourful petals and much less scent <ul style="list-style-type: none"> • Plants have evolved many different ways to disperse their seeds • Seed dispersal increases the chances of seeds germinating and growing into a mature plant <ul style="list-style-type: none"> • A seed contains a miniature, undeveloped version of the plant • They contain a food store for the first stage of growth (until the plant can make its own food) • They are surrounded with a protective coat.
	Conclude Longitudinal study					



	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2			
Vocab	Living Things		Rocks and Soils				Making Electrical Circuits Work		Animals: Digestion		Magnets and their effects		Plant Reproduction	
	Classification	The grouping of animals, plants or fungi based upon their physical features	Rock (from 'Describing Materials' yr 1)	A natural solid material made from minerals which make up the surface of the earth.	Electricity	A form of energy that flows around a circuit	Meat	The flesh of an animal, usually a mammal or bird for eating	magnet	A piece of iron or other material that attracts other iron objects.	Pollination	The transfer of pollen from one plant to another		
	Classification key	a series of questions to identify animals or plants based upon their physical features	Crystal	A uniform material with a symmetrical shape	Batteries	A store of chemical energy	Dairy	Food that contains or is made from milk	force	A push or a pull action that changes the motion of an object	Seed (from yr 1 'Plants')	The small, hard part of a plant from which a new plant grows.		
	Vertebrates (from yr 3 'Animal skeletons and movement')	A group of animals that have an internal backbone, e.g. humans, elephants, dolphins	Mineral	A solid substance made up of a range of different elements, e.g. iron, oxygen, carbon.	Mains electricity	Electricity supplied to a building through wires	Protein	A nutrient found in food used for growth and repair of the body	attraction	The coming together of opposite poles	Stamen	The male part of the flower which contains the pollen		
	Invertebrates (from yr 3 'Animals, skeletons and movement')	A group of animals that do not have a backbone, e.g. Lobsters, woodlice, worms, beetle or snail	Ore	A rock that contains a metal that can be extracted.	Device	Any machine powered by electricity	Grains	A small hard seed harvested from crops, e.g. cereals, used to make food	repulsion	The moving away of like poles	Stigma	The female part of the flower that receives the pollen		
	Food chain (from yr 1 'Animal Survival')	Describes the order in which living things depend on each other for food.	Grains	Small pieces of broken-down rock that is moved and placed in a new location	Wires	A long thin piece of conducting metal that electricity can flow through	Root vegetable	An enlarged root of a plant that can be eaten, e.g. carrot, swede or beetroot	metal	A solid material that is hard and shiny, with good electrical and heat conductivity	Ovaries	A female part of the plant where the pollen much reach to create the seed		
	Nutrients (from yr 3 'Plant food production')	A substance that provides the essential material needed by the body to live	Fossil	The remains of animals or plants persevered in rock	Circuit	A connection of electrical devices, wires and a power supply	Carbohydrates	A nutrient in food that is used for energy in the body	non-contact force	A force that acts on an object without coming physically in contact with it.	Petals	The segments of a flower that are usually brightly coloured		
	Organism (from yr 1 'Animal Survival')	A living thing, e.g. animal, plant, fungi	Sedimentary	Rocks made of grains cemented together	Conductor	A material that will allow electricity to flow through it	Fat	A nutrient in food that is used for energy and insulation in the body	pole	The ends of a magnet. Either north or south.	Germination (from yr 1 'Plants')	The growth of a seed into a young plant or seedling		
	Mammal (from yr 1 'Animal Survival')	An organism that is warm blooded, have fur, feeds their young milk and give birth to live young	Igneous	Rocks made magma or lava from volcanoes or deep underground	Insulator	A material that will not allow electricity to flow through it	Insulation	To prevent heat lost from the body						
	Amphibian (from yr 1 'Animal Survival')	A cold-blooded animal that starts life living underwater with gills but as an adult, lives on land using lungs	Metamorphic	Rocks formed by the heating and crushing of existing rocks			Fruits	The sweet and fleshy part of a plant that contains seeds and eaten as food						
	Insect	A small animal that has six legs and often one or two pairs of wings	Porosity	How much empty space there is between grains or crystals			Minerals	A nutrient needed by the body to carry out functions of life, found in food						
	Bird (from yr 1 'Animal Survival')	A warm-blooded animal that has feathers, wings, and a beak.	Hardness	How resistant a rock is to damage			Vitamins	A nutrient needed in small amounts for the proper function of life						
	Environmental change	A change or disturbance of an environment- can be caused by natural or man-made reasons	Soil	A mixture of minerals and organic matter			Fibre	A component of food that isn't broken down by the body but used to help move food through the digestive system						
			Humus	Dead plant matter within soil			Healthy	In good physical/mental condition						
		Silt	Fine sand or clay material			Digestion	The breaking down food inside the body so nutrients can enter the blood							

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Year 3/4 Rotation B	Manage the Meadow: What is the best way, most optimum way to develop plants and insects in the meadow?													
	<p>Set up Longitudinal study</p> <p>Animals; Skeletons and movement 6 Sessions</p> <ul style="list-style-type: none"> •All vertebrates have internal skeletons that protect vital organs. •Invertebrates have exoskeletons that protect vital organs. •Skeletons support the weight of land animals. •Stronger bones can support a greater mass. •Bones are connected (but can move relative to each other) at joints. •Muscles connect to bones and move them when they contract. •Stronger bones can anchor stronger muscles. 	<p>Solids, liquids and gases 8 Sessions</p> <ul style="list-style-type: none"> •Materials can be divided into solids, liquids and gases. •Solids hold their shape unless forced to change. •Liquids flow easily but stay in their container because of gravity. The more viscous a liquid the less runny it is. •Gases move everywhere and are not held in containers by gravity. •Heating causes solids to melt into liquids and liquids to evaporate to gases. •Cooling causes gases to condense to liquids and liquids to freeze to solids. •Different substances change state at different temperatures but the temperatures at which given substances changes state is always the same. •The temperature at which a substance melts from a solid to a liquid is the same at which it freezes from a liquid to a solid. •The temperature at which a substance boils from a liquid to a gas is the same at which it condenses from a gas to a liquid. •Liquids evaporate slowly, even below their boiling temperatures. •The water cycle is the process by which water is continuously transferred between the surface of the earth and the atmosphere. •Liquid water evaporates into water vapor, condenses to form clouds, and precipitates back to earth in the form of rain and snow. 	<p>Light 6 Sessions</p> <ul style="list-style-type: none"> •There must be light for us to see. •Light comes from a source. •We need light to see things, even shiny things. •Light from the sun can be dangerous and that there are ways to protect their eyes •If an object is transparent light will go through it and we will be able to see through it. •If an object is opaque, it will block the light and no light will get through. This is what forms shadows. •The closer to the light source an object is, the bigger the shadow will be. This is because the object blocks more of the light. •The further away from the light source an object is, the smaller the shadow will be. This is because the object blocks less of the light. •If an object is perfectly reflective light will bounce back off it and we will see reflections of objects. •If the material is translucent, it will allow light through, but we won't be able to see through it. 	<p>How plants make their food 8 Sessions</p> <ul style="list-style-type: none"> •Plants do not eat food so have to make their own. •This food provides them with energy, and materials to grow •To make the food (sugar) plants need water from the ground, carbon dioxide from the air and light from the sun. <p>The water is taken up through the roots from the soil The carbon dioxide is taken in through the leaves</p> <ul style="list-style-type: none"> •As well as food, plants also make oxygen which is given out back into the air through the leaves  <p><small>Light hits the green leaves and turns water and carbon dioxide into sugar (energy) and oxygen. Oxygen gas comes out of the leaves and into the air. Water is drawn up the stem through the roots. Carbon dioxide gas comes in through the leaves. Water is drawn up the stem through the roots. Some water leaves water faster than others.</small></p>	<p>Solutions Mixtures and separating them 8 Sessions</p> <ul style="list-style-type: none"> •A substance is an object with the same properties throughout. •A mixture is when more than one substance is present in the same container •When a substance is added to a liquid the substance can disappear- this is called dissolving •A mixture of a substance that has dissolved in a liquid is called a solution •Not every substance can dissolve in water •Mixtures can be separated if the substances have different properties •This is because the substances in the mixture are still present and are unchanged •There are different techniques for separating mixtures <table border="1" data-bbox="1742 702 2116 1197"> <thead> <tr> <th>Separating technique</th> <th>Substance properties required to work</th> </tr> </thead> <tbody> <tr> <td>Filtration and sieving</td> <td>A substance that does not dissolve in a liquid Different sized substances</td> </tr> <tr> <td>Magnets</td> <td>Some magnetic materials some non-magnetic</td> </tr> <tr> <td>Evaporation</td> <td>A solid substance dissolved in water and the solid has a higher boiling point than water.</td> </tr> <tr> <td>Floating</td> <td>Some substances float, some substances sink</td> </tr> </tbody> </table>	Separating technique	Substance properties required to work	Filtration and sieving	A substance that does not dissolve in a liquid Different sized substances	Magnets	Some magnetic materials some non-magnetic	Evaporation	A solid substance dissolved in water and the solid has a higher boiling point than water.	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	Conclude Longitudinal study													

	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2			
	Set up Longitudinal study Animals; Skeletons and movement		Solids, liquids and gases				Light		How plants make their food		Solutions Mixtures and separating them			
Vocab	vertebrates	A group of animals that have a backbone, e.g., humans, elephants, dolphins	State	A distinct form in which matter can exist		Light Source	An object that emits light		Carbon dioxide	A colourless odourless gas found in the air (0.04%) made up of carbon and oxygen.		Substance	A type of matter with uniform properties	
	invertebrates	A group of animals that do not have a backbone, e.g., Lobsters, woodlice, worms	Solid	A substance or object stays the same shape whether it is in a container or not		Shiny	A smooth surface, usually very clean or polished.		Oxygen	A colourless and odourless gas found in the air (21%)		Mixture	A number of substances together but can be separated	
	skeleton	An internal or external framework of bone supporting/containing the body of an animal	Liquid	A substance that flows freely		Transparent	A material that allows light to pass through so objects behind can be clearly seen		Roots	An organ of a plant that provide anchorage and absorb water and nutrients from the soil		Dissolving	To become incorporated into a liquid	
	exoskeleton	A skeleton that is visible on the outside of the body	Gas	A substance that will expand to fill a container, with no fixed shape or volume		Opaque	A material that is not able to be seen through		Soil	A mixture of minerals and organic matter		Solution	The product of when a substance is dissolved into a liquid	
	vital organs	An organ that is essential for life	Gravity	A force that attracts a body towards the centre of the earth or other objects with mass		Reflective	A material that allows light rays to be bounced back off of it		Leaves	An organ of a plant that are green in colour and absorb carbon dioxide from the air as well as sunlight.				
	support	To hold up or bear the weight of an organism	Viscous	Having a thick sticky consistency between a solid and a liquid.		Translucent	A material allowing light to pass through but not so an object can be clearly seen.							
	mass	A quantity of matter measured in kg.	Heating	To raise the temperature										
	muscles	A band/bundle of fibrous tissue that can contract, producing movement.	Cooling	To lower the temperature										
	connect	To bring together or into contact so a link is established	Melting	When an object changes from a solid to a liquid										
	contract	Become shorter and tighter in order to effect movement of part of the body	Boiling	When an object changes from a liquid to a gas										
			Evaporate	The process of turning liquid into a gas										
			Freeze	When a liquid becomes a solid										
			Condense	When a gas becomes a liquid										

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5/6 Rotation A	Is all the life in the pond interdependent?					
	<p>Set up Longitudinal study</p> <p>Controlling electrical circuits 8 Sessions</p> <ul style="list-style-type: none"> ●Current is the flow of electricity around a circuit. ●The power supply in a circuit pushes the current round the circuit ●The voltage of the power supply is a measure of this push ●Voltage is measure in volts ●Batteries have a limited store of energy and when this is gone, they can no longer push the current <ul style="list-style-type: none"> ●Current is the flow of electricity through a conductor ●When current passes through a device it makes it work ●Increasing the voltage (the number of cells in the battery) increases the current. The larger the flow of current, the harder the device works <ul style="list-style-type: none"> ●All parts of a circuit offer resistance to electrical current including the wires. ●Resistance is the slowing down of electrical current ●The more devices added into a circuit the greater the resistance ●This means less current flows around the circuit 	<p>Making new substances 8 Sessions</p> <ul style="list-style-type: none"> ●All matter, including gas, has mass. ●Sometimes, mixed substances react to make a new substance. These changes are usually irreversible. ●Heating can sometimes cause materials to change permanently. When this happens, a new substance is made. These changes are not reversible. ●Indicators that something new has been made are the properties of the material are different (colour, state, texture, hardness, smell, temperature) ●If it is not possible to get the material back easily it is likely that it is not there anymore and something new has been made (irreversible change) 	<p>Animals: Circulation 7 Sessions</p> <ul style="list-style-type: none"> ●All animals need oxygen to survive. ●Air is breathed into the lungs where the oxygen in the air is passed into the blood. ●Every part of animals' bodies need oxygen, especially muscles. ●Muscles need a supply of oxygen and sugar (glucose) to make them work, they are supplied by the blood. <ul style="list-style-type: none"> ●The heart is a vital organ pumps blood through the blood vessels. ●Blood Vessels are the tubes that blood flows through. ●The blood circulates around the body in a way that ensures all muscles in the body get a supply of oxygen and sugar. ●The heart pumps blood to every muscle in the body. The circulatory route must allow the blood to collect oxygen from the lungs, sugar from the intestines and visit muscles. ●The blood then returns to the heart where it is pumped again. ●Exercise helps the heart to work more efficiently. ●Eating a healthy diet helps to keep the blood vessels from getting blocked. ●Avoiding smoking and alcohol puts less stress on the whole system and keeps it healthier. 	###SATS###	<p>How sound is made, travels and can be changed 8 Sessions</p> <ul style="list-style-type: none"> ●Sounds can be produced in a variety of ways. ●Sounds have the properties of pitch and volume. ●When a sound is produced it spreads out from its source in all directions <ul style="list-style-type: none"> ●Sound is caused by vibration (objects move rapidly back and forth or up and down) ●When objects vibrate it makes the objects in contact with it also vibrate. This includes the air. ●The vibration travels through the air and makes other objects it is in contact with vibrate including your ear drum. <ul style="list-style-type: none"> ●Pitch and volume are caused by how the material vibrates ●The pitch of a sound is caused by how fast an object vibrates. This is called the frequency of vibration. Higher the frequency, higher the pitch ●Smaller objects or tighter strings tend to vibrate with a higher frequency ●The volume of sound is caused by how big each vibration is. This is called the amplitude of vibration. The bigger the amplitude the higher the volume. ●Sounds get fainter as the distance from the sound source increases. <p>Conclude Longitudinal study <i>(3/4 objectives applied)</i></p> <ul style="list-style-type: none"> •Living things can be divided into groups based upon their characteristics •In any habitat there are food chains and webs where nutrients are passed from one organism to another when it is eaten •If the population of one organism in the chain or web is affected, it has a knock-on effect to all the others <ul style="list-style-type: none"> •Mammals, amphibians, insects and birds have different life cycles •All animal life cycles begin with growth and development followed by reproduction •Some animals undergo a complete metamorphosis as they grow. Metamorphosis is a process where animals undergo an abrupt and obvious change in the structure of their body and their behaviour. <ul style="list-style-type: none"> •Environmental change affects different habitats differently •Human activity significantly affects the environment •Different organisms are affected differently by environmental change 	

:	Autumn 1		Autumn 2		Spring 1		Spring 2	Summer 1	Summer 2
	Controlling electrical circuits		Making new substances		Animals: Circulation		###SATS###	How sound is made, travels and can be changed	
Vocab	Current	The flow of electricity through a conductor.	Matter	A physical substance which occupies space.	Oxygen	A colourless, odourless, reactive gas found in the air.		Sound	Vibrations that travel through the air or other medium and can be heard when they reach an animal's ear.
	Voltage	The push on the electrical current through a conductor.	Mass	A quantity of matter measured in kg.	Sugar (Glucose)	A simple type of sugar which is an important energy source in organisms.		Pitch	The rate or frequency of vibrations produced by a sound.
	Volts	The unit for voltage.	React	The process of transformation from one set of substances to another	Lungs	Organs located either side of the breastbone. Responsible for removing CO ² from the blood and adding O ² to it.		Volume	How loud or quiet a sound is.
	Conductor	A material that will allow electricity to flow through it.	Irreversible	Not able to be undone or altered.	Muscles	A band/bundle of fibrous tissue that has the ability to contract producing movement.		Vibration	To move continuously and rapidly to and fro.
	Resistance	A measurement of the opposition to electrical flow in a circuit.			Circulation	Movement of a fluid in a closed system		Ear drum	A membrane of the middle ear which vibrates in response to sound waves.
	Resistor	A component in a circuit that resists electrical flow.			heart	A hollow, muscular organ that pumps the blood through the circulatory system.		Frequency	How high or low a sound is determined by the rate at which vibrations occur over a particular period of time.
								Amplitude	The maximum extent of a vibration.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5/6 Rotation B	<p>Forces that oppose motion 8 Sessions</p> <ul style="list-style-type: none"> ●When objects move through air and water, they have to push it out of the way. The water and air push back with forces called water resistance and air resistance. The harder it is to push the material out of the way the greater the resistance. ●Gases weigh less than liquids and so water resistance is greater than air resistance. ●Friction is a force against motion caused by two surfaces rubbing against each other. It occurs because no surfaces are perfectly smooth; they have bumps and undulations that can interlock when placed on top of each other. ●To move one interlocking surface over another, one of three things must happen: <ol style="list-style-type: none"> 1. The surfaces must rise slightly 2. The bumps on the surface must bend 3. The bumps on the surface must break All of these actions require a force, this is what causes friction ●Some objects require large forces to make them move; gears, pulley and levers can reduce the force needed to make things move. ●The use of levers can reduce the force needed to move things. The object you are lifting is called the load, and the force you apply to the arm to make the object move is called the effort. ●The use of pulleys can reduce the force needed to move things <i>(These are particularly complex ideas. It might be better to teach them through a design technology project where children make toys using cogs, pulleys and levers)</i> 	<p>Light and how we see. 6 Sessions</p> <ul style="list-style-type: none"> ●When light is emitted from a light source, it travels in straight lines until it hits an object. This can be represented by an arrow. ●Shadows form when light hits an opaque object, the area behind is in darkness because light can only travel in straight lines. ●Shadows have the same shape as the objects that cast them. ●When light hits a transparent object, it goes through it in a straight line so we can see a clear image through it. ●When light hits a translucent material, it goes through it but is scattered, this means light can pass through, but we can't see an image through it. ●When light hits a mirrored surface, it reflects off it in straight lines, so we can see an image in the reflective material. ●Sometimes when light hits a material it reflects off it in many different directions (it is scattered). In this case light will be reflected but no image will be seen in the material. ●Shiny surfaces are better reflectors and rough surfaces scatter light more. Opaque objects don't allow any light to pass through them. ●Animals see objects when light is reflected off the object and enters the eye through the pupil. ●The pupil changes its size to allow enough, but not too much light into the eye. ●Too much light damages the eye and too little results in poor quality images. 	<p>Earth and space 8 Sessions</p> <ul style="list-style-type: none"> ●A Solar system is a collection of planets, which orbit (a curved path) a star. ●There are huge number of stars in space and therefore a huge number of solar systems ●Our solar system consists of 8 planets, many of those planets have moons which orbit around them. ●Earth's moon is not a planet but is a satellite which orbits Earth. It is around a quarter of the size of Earth. ●As the Moon orbits the Earth, the Sun lights up different parts of it, making it seem as if the Moon is changing shape. We call these the phases of the moon. ●The Moon doesn't emit (give off) light itself, the 'moonlight' we see is actually the Sun's light reflected off the lunar surface. ●Our solar system can be represented with a model (see diagram), but it isn't possible to draw it to scale. ●The planets and moons are rotating (spinning) ●The time it takes one planet to rotate is called a day. On Earth this is 24 hours ●The time it takes a planet to complete one orbit around its star is called a year. On Earth this is 365.25 days ●The solar system is with a massive collection of stars called the galaxy (called the Milky way) ●The Milky way is one of billions of galaxies in the Universe. ●Stars are huge balls of gas that produce vast amounts of light and heat. ●Asteroids are lumps of rock that orbit a star (there are millions in between Mars and Jupiter) ●Comets are objects that are made of Ice, which melts when they get closer to the sun leaving a tail. ●Gravity is force of attraction between two objects with mass (a quantity of matter) ●The bigger the mass the bigger force it exerts ●Gravity works over distance but gets weaker as distance increases ●Stars, planets, moons have a very large amount of mass. They exert a gravitational attraction on each other ●Differences in gravity result in smaller mass objects orbiting around larger mass objects, e.g., planets around stars and moons around planets 	###SAT S###	<p>10 Sessions Fossils, geological time and classification</p> <ul style="list-style-type: none"> ●The Earth is very old. Around 4.2 billion years. We know this from dating rocks ●Life first appeared on Earth around 3.8 billion years ago. ●Life was, at first, very simple but over millions and millions of years life became more complex through the process of evolution ●There are many sources of evidence for evolution ●Fossils are one of the main sources of evidence for evolution. They show when new organisms appear and when they go extinct. ●Due to the nature of fossil formation and discovery, fossils only provide an incomplete record of evolution. ●Scientists use fossils along with other pieces of evidence (DNA, Embryology, comparative anatomy, artificial selection) to work out how organisms have evolved ●Fossils form when dead organisms are rapidly buried or leave an imprint and are turned to stone over a long period of time. If they survive in the Earth, they then have to be found by a palaeontologist who will study them. ●All living (and extinct) organisms are classified into groups based upon their physical features. ●This includes animals, plants, fungi, and microorganisms like bacteria. ●Within each of these broad groups, organisms are classified into small subgroups. Animals- invertebrates, mammals, birds, amphibians, reptiles and fish, Plants- flowering plants, ferns, conifers, moss. ●Bacteria are a group of organisms that are not visible to the naked eye but are very abundant and have distinct physical features we can only see under powerful microscopes. <p>Classification and Evolution</p> <ul style="list-style-type: none"> ●Evolution is the change of physical form in a population over a long-time span ●Natural selection is the process which controls that change. ●In any population there is variation and competition for resources (food, water, mates). ●Within that variation, organisms that have features which make them better adapted at securing food, water, and mates, are more likely to survive and produce offspring which have inherited those same successful features. Those that are not well adapted will eventually go extinct. ●Over a long enough timeline all organisms in a population will have those successful features. ●This is known as the Theory of Evolution by Natural Selection and was developed by Charles Darwin in 1859 ●Before Darwin, Lamarck's Idea of acquired characteristics was proposed. (Giraffes stretch their necks in life, which made their children have longer necks). ●Darwin as a young man travelled around the world on the HMS Beagle. On this 5-year voyage he saw lots of things and recorded down lots of evidence which allowed him to work out how organisms change over time by a different mechanism of Natural selection 	

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2		
	Forces that oppose motion	Light and how we see.	Earth and space	###SATS###	Fossils, geological time, classification and Evolution			
Vocab	Water resistance	A type of force that uses friction to slow things down moving through water, often called drag	Shadow	A dark area or shape produced by a body or object coming between rays of light and a surface.	Solar System	A collection of planets and moons in orbit around the sun, along with asteroids and comets	Million	A number that is equivalent to the product of a thousand and a thousand e.g., 1,000,000 (106)
	Air resistance	A type of force that uses friction to slow things down moving through air.	Opaque	Not able to be seen through.	Planets	A body moving in an elliptical orbit around a star	Billion	A number that is equivalent to the product of a thousand and a million e.g., 1000,000000 (109)
	Friction	The force resisting the motion of a moving object when in contact with another.	Transparent	A material that allows light to pass through so objects behind can be clearly seen.	Orbit	A curved path of a celestial object round a star or planet	Evolution	The process by which different kinds of living organisms have developed from early forms over time
	undulations	The appearance of up and down structure or motion.	Translucent	A substance that allows light but not detailed shaped to pass through.	Star	A giant ball of gas in the centre of a solar system that all planets orbit around.	Extinct	A species, family or group having no living members in existence.
	Interlock	Two or more objects fitting together.	Reflection	The throwing back of light or sound without absorbing it.	Moon	A natural satellite that orbits a planet	Fossil	The remains or impression of prehistoric animals or plants preserved in rock
	Gears	A toothed wheel that works with others to alter the relation between the speed of a driving mechanism and the speed of a driven part, e.g., the speed of the engine in relation to the speed of the wheels	Pupil	The pupil is the black circle in the centre. It opens and closes to control the amount of light that enters the eye.	Rotating	To move or cause to move around an axis or centre	Palaeontologist	A scientist who specialised in life forms that existed in prehistoric times
	Pulley	A wheel with a grooved rim around which a cord passes which acts to change the direction a force acts to lift heavy objects			Day	A complete rotation of a planet on its axis, on Earth equal to 24 hours	Organism	A living thing, e.g., animal, plant, fungi or bacteria
	Lever	A rigid bar resting on a pivot, used to move heavy objects with one end when downward force is applied to the other end			Year	A complete orbit by a planet around its star, on Earth equal to 365.25 days	Microorganism	A very small organism that cannot be seen with the naked eye
					Galaxy	A system of millions or billions of stars with gas and dust held together by gravity	Bacteria	A specific type of microorganism present in huge numbers across most of the earth
					Universe	All existing matter and space as a whole. Contains all galaxies and has been continually expanding since its formation 13.9 billion years ago	Microscope	An instrument for looking at very small objects
				Asteroid	A small rocky body orbiting the sun. Many are found between Mars and Jupiter.	Evolution	The process by which different kinds of living organisms have developed from early forms over time.	
				Comet	An object consisting of rock and ice orbiting the sun.	Natural selection	The key mechanism of evolution where the best adapted organisms in a population are selected by nature to survive and pass on those physical features.	
				Gravity	The force that attracts a body towards the centre of the earth or any other body with mass.	Population	All the members of a species that live in a one area.	
				Mass	A quantity of matter measured in kg.	Variation	The differences between the individuals in a species.	
						Competition	Species tend to produce more offspring than the environment can sustainably support leading to competition for survival.	
						Adapted	Modified features that make an organism more suitable for its purpose	
						Offspring	The young of living organisms, produced either by a single organism or, in the case of sexual reproduction, two organisms.	
						Inheritance	The passing on of characteristics to offspring.	
						Charles Darwin	Naturalist and scientist credited with the discovery of the mechanisms for how organisms adapt and change over time via the process of natural selection.	
						Lamarck	Jean-Baptise Lamarck was a naturalist who proposed an alternative mechanism for evolution centred around the inheritance of physical characteristics acquired during an organism's lifetime.	
						HMS Beagle	The Ship that Darwin sailed around the world on for 5 years and collected much of the evidence that led to his discovery of the process of Evolution by natural selection.	

Working Scientifically: These skills to be practised at an age appropriate level (according to the maturity/ability of the children) across both rotations within the cohort.

	Working Scientifically Statements	Working Scientifically Skills	Types of enquiry to be introduced
KS1	<ul style="list-style-type: none"> - Gather evidence to describe the differences and similarities between different organisms, habitats and objects. - Gather evidence to describe how things change over time or as a result of something happening (eg how some things spring back when bent and others do not, or plants wilt when they are not watered). - Begin to gather evidence to describe the relationship between variables and patterns (cause and effect), by identifying and seeking to quantify what must be changed and what measured (what change and what measure). 	<p>Venn diagrams, bar charts.</p> <p>Timelines and tables that show how one and more than one thing changes over time, bar charts and basic introduction to line graphs (as a change over time).</p> <p>Results tables with the independent variable increasing in one column and the dependent variable in the other and basic graphs to visualise this.</p> <p>Measuring to an accuracy linking to current expectations in maths</p> <p>Experience of a wide range of scientific equipment, with data reading and measurement where appropriate.</p>	<ul style="list-style-type: none"> - Comparing differences and changes. - Describing in order to classify. - Surveys to identify patterns and support classification. - Describing the effect of changing things. - Using secondary sources, including the internet and experts. - Pupils begin to look for relationships between variables (patterns).
LKS2	<ul style="list-style-type: none"> - Recognise that factors other than that we are changing may have an effect and seek to control these factors (what change and what measure and what keep same). - Gather evidence to describe and classify patterns of behaviour, characteristics and properties of materials, and make generalisations from data samples. 	<p>Results tables with independent variable increasing in one column and dependent variable in the other.</p> <p>Increasing use of equipment that allows for standard measure (thermometers, data loggers, measuring cylinders, force meters, digital balances).</p> <p>Measuring to an accuracy linking to current expectations in maths</p>	<ul style="list-style-type: none"> - Pupils become confident in identifying relationships between variables (patterns).
UKS2	<ul style="list-style-type: none"> - Recognise that conclusions may be uncertain due to difficulties controlling and measuring variables accurately and that measurement always introduces some error. Understand that repeating experiments helps to identify what the true value is and that data points far from the mean are likely to be inaccurate and should be discounted when averaging. - Adapting experiments to produce more precise conclusions when the question requires it, especially when seeking to find maximum, minimum or specific values. 	<p>Results tables with the independent variable increasing in one column and the dependent variable in the other,</p> <p>Results tables that show pupils choosing to repeat experiments as appropriately and the averaging of repeated measurements,</p> <p>Scatter and line graphs to identify precise relationships and important values.</p> <p>Measuring to an accuracy linking to current expectations in maths</p>	<ul style="list-style-type: none"> - Pupils explore more complex relationships or questions requiring greater precision; this will often require the identification of important values (eg biggest, smallest, optimum).

Core Values	British Values	SMSC
Core values should support all learning in science, e.g:	Democracy. The rule of law. Individual liberty. Mutual respect. Tolerance of those of different faiths and beliefs.	There are plenty of opportunities to show SMSC within science:
Kindness: working with others, sharing data, etc		Cultural: Preparing for life in modern Britain <i>(Electricity units, Environmental awareness)</i> Understanding and appreciating personal influences <i>(Influential scientists)</i>
Respect: of the learning (e.g: taking care to read measurements during experiments), showing high level of presentation (e.g: when labelling diagrams to show understanding), of each other during group work, taking a part during group work, etc	<u>Link to British values where possible. Such as:</u> Using democracy to decide how to answer a scientific question Discussing religious theories of creationism when studying evolution Discuss the plight of some famous scientists as they fought for their scientific liberty	Moral: Understanding the consequences of actions <i>(Cause and effect ideas/enquiries, Studying the environment)</i>
Resilience: Shown through careful observation during experiments, when taking part in a long term study, when trying to understand a new concept, etc		Social: Developing personal qualities and using social skills Participating, cooperating and resolving conflicts <i>(During group work)</i>
Creativity: When planning an experiment, suggesting improvements during experiments, presenting results, showing understanding in diagrams, etc		Spiritual: Experiencing fascination, awe and wonder <i>(Through enquiry/demonstrations)</i> Using imagination and creativity in learning <i>(As in core values)</i>