

St Gabriel's Catholic Primary School – Science Curriculum Mapping and Progression of Skills Cycle A



Year Group	Term	Topic	Concepts	Skills	Knowledge	Vocabulary
EYFS Pre-School	On-going throughout the year			Asking Questions -To begin to answer questions about things around them, familiar places, objects and people. (Who, What, Where).	-To begin to understand the language associated with changing materials (Squash, squeeze, push, rip, cut, roll, stretch - Dough Disco link). -To know how to keep clean e.g. washing hands and brushing teeth (daily tooth brushing programme)	<u>Core Vocabulary</u> Push, roll, squeeze, cut, squash <u>Other Vocabulary</u> rip, stretch <u>Core Vocabulary</u> Toothbrush, toothpaste, brush <u>Other Vocabulary</u> clean, wash, soap germs
	On-going throughout the year	Weather		Asking Questions -To begin to answer questions about things around them, familiar places, objects and people. (Who, What, Where). Making measurements -To make simple observations.	-To observe the weather and how it changes (daily calendar) -To know the names of different types of weather (Rainy, sunny, windy, snowy, cold).	<u>Core Vocabulary</u> Sunny, rainy, windy snowy, cloudy <u>Other Vocabulary</u> Hot, cold, season, autumn, winter, spring, summer,



			<p>Recording and Presenting Data</p> <p>-To present results in simple drawings (mark making)</p>	<p>-To begin to develop an understanding of change over time.</p>	<p>change, same, different</p>
Autumn 1	Myself		<p>Asking Questions</p> <p>-To begin to answer questions about things around them, familiar places, objects and people. (Who, What, Where).</p> <p>Recording and Presenting Data</p> <p>-To present results in simple drawings (mark making)</p>	<p>-To know and name some external body parts (See vocab list).</p> <p>-To know that water and milk is healthy to drink.</p>	<p>Core Vocabulary</p> <p>Shoulders, knees, water, milk, healthy</p> <p>Other Vocabulary</p> <p>Head, toes, legs, arms, ears, eyes, nose, mouth-tummy</p>
Spring 2	Growing- Humans and animals		<p>Asking Questions</p> <p>-To begin to answer questions about things around them, familiar places, objects and people. (Who, What, Where).</p> <p>Making measurements</p> <p>-To make simple observations.</p> <p>Answering Questions using Data</p>	<p>-To know how they are different from when they were a baby.</p> <p>-To know and talk about the basic human life cycle (Baby, child, adult).</p> <p>-To know and talk about the lifecycle of a butterfly.</p>	<p>Core Vocabulary</p> <p>Baby, child, adult. caterpillar, butterfly</p> <p>Other Vocabulary</p> <p>life cycle, egg, cocoon.</p>



				-To begin to notice similarities and differences in photos and real life experiences.		
Spring 2	Growing- Plants		<p>Asking Questions</p> <p>-To begin to answer questions about things around them, familiar places, objects and people. (Who, What, Where).</p> <p>Making measurements</p> <p>-To make simple observations.</p> <p>Answering Questions using Data</p> <p>-To begin to notice similarities and differences in photos and real life experiences.</p> <p>Recording and Presenting Data</p> <p>-To present results in simple drawings (mark making)</p>	<p>-To identify and name some plants we eat e.g. fruits and vegetables.</p> <p>-To know fruits and vegetables are healthy to eat.</p> <p>-To know a plant grows from a seed.</p> <p>-To be able to name and recognise the main parts of plant e.g. leaves, flower and petals.</p> <p>-To know plants need water to grow.</p>	<p>Core Vocabulary</p> <p>healthy, fruit, vegetables, petal, leaf</p> <p>Other Vocabulary</p> <p>Apple, Banana Pear, Strawberry, Carrots, Potatoes, Onions, Peas</p> <p>Flower, daffodil, sunflower, cress, seed, grow</p>	
Summer 2	Traditional tales		<p>Asking Questions</p> <p>-To begin to answer questions about things around them,</p>	<p>-To identify and name common materials that make objects (Wood and metal).</p>	<p>Core Vocabulary</p> <p>Wood, Metal, Material</p>	



				familiar places, objects and people. (Who, What, Where). Making Measurements -To make simple observations.		
	Summer 2	Animals		Asking Questions -To begin to answer questions about things around them, familiar places, objects and people. (Who, What, Where). Answering Questions using Data -To begin to notice similarities and differences in photos and real life experiences.	-To name some common pets, zoo and farm animals.	<u>Core Vocabulary</u> sheep, horse, rabbit, hamster, tiger, lion <u>Other Vocabulary</u> Cow, pig, hen, elephant, monkey, giraffe, dog, cat, gold fish
Year Group	Term	Topic	Concepts	Skills	Knowledge	Vocabulary
EYFS Reception	Ongoing	Seasonal change (Across the year) Autumn, winter, spring and summer topics		Asking Questions -To answer questions about aspects of the natural world (Who, what, where, why and how) Making Measurements	Seasonal change also covered through daily Calendar -To know and name the four seasons in the year. -To know what the weather is like in each of the four seasons.	<u>Core Vocabulary</u> Seasons, autumn, spring, summer, winter. <u>Other Vocabulary</u>



				<p>-To observe closely using appropriate senses and simple equipment e.g. magnifying glasses.</p>	<p>-To observe and talk about the changes they can see. -To recognise and talk about the signs of the different seasons. -To know that trees lose their leaves and change colour in autumn. -To know that trees and plants grow leaves and flowers in spring.</p>	<p>Sunny, rainy, windy, snowy, cloudy, frosty, icy, hailstone, thunder, lightning. Trees, leaves, blossom, flowers.</p>
Autumn 1	Marvellous Me!		<p>Making Measurements -To observe closely using appropriate senses and simple equipment e.g. magnifying glasses.</p> <p>Answering Questions using Data -To recognise similarities and differences between living things and objects.</p>	<p>-To know and name some external and internal body parts. -To know that humans have a skeleton and it is made of bones. -To know and name some foods which are healthy to eat. -To know and name some foods which are unhealthy to eat. -To know humans need to drink water to stay healthy. -To know when and why we need to wash our hands. -To know exercise keeps our bodies healthy. - To name some ways to keep our body fit and healthy.</p>	<p>Core Vocabulary Skeleton, spine, skull, healthy, unhealthy, Other Vocabulary Head, shoulders, knees, toes, legs, arms, back, ears, eyes, nose, mouth, eyebrows, eyelashes, fingers, cheeks, stomach, elbow. Bones, ribs, kneecap, hips. Fruit, vegetables. germs, tooth decay,</p>	



					<p>-To know how to keep our teeth healthy.</p> <p>-To know sleep is important to keep our body and mind healthy.</p>	<p>exercise, grow, growth.</p>
Autumn 2	Autumn Light and Dark		<p>Asking Questions -To answer questions about aspects of the natural world (Who, what, where, why and how)</p> <p>Making Measurements -To begin to observe closely, using appropriate senses and simple equipment.</p> <p>Answering Questions using Data -To recognise similarities and differences between living things and objects</p>	<p>Seasonal change also covered through daily Calendar</p> <p>-To know and name the 4 seasons in the year.</p> <p>-To know what the weather is like in each of the four seasons.</p> <p>-To observe and talk about the changes they can see.</p> <p>-To recognise and talk about the signs of the different seasons.</p> <p>-To know that trees lose their leaves and change colour in autumn.</p> <p>-To know and name some nocturnal animals.</p>	<p>Core Vocabulary Seasons, autumn, spring, summer, winter.</p> <p>Other Vocabulary Sunny, rainy, windy, snowy, cloudy, frosty, icy, hailstone, thunder, lightning. Trees, leaves, conkers, pinecones. Nocturnal, owls, badgers, bats, hedgehog.</p>	
Spring 1	The world around us (cold places)		<p>Asking Questions</p>	<p>-To be able to name some Arctic and Antarctic animals</p>	<p>Core Vocabulary freeze, melt, solid, float, sink,</p>	



			<p>-To begin to ask questions to find out information on topics that interest them.</p> <p>Making Measurements</p> <p>-With support perform simple tests.</p> <p>-To observe closely using appropriate senses and simple equipment e.g. magnifying glasses.</p> <p>Recording and Presenting Data</p> <p>-To present some findings in simple tables and drawings (mark making) using ICT where relevant with support</p>	<p>-To know that water can be a liquid or a solid.</p> <p>-To know you need to freeze water to make it a solid.</p> <p>-To know you need to heat ice (Solid water) to make it a liquid again.</p> <p>-To know other materials melt.</p> <p>-To know that some materials float or sink</p> <p>-To know that floating means to stay on top of the water.</p> <p>-To know that sinking means that the object goes to the bottom of the water.</p>	<p>Other Vocabulary</p> <p>Arctic, Antarctica, Polar regions, polar bears, penguins, arctic hare, arctic fox, huskies, Inuit, icebergs, icicles.</p> <p>Liquid, zero degrees.</p>
	Spring 2	House and Homes	<p>Making Predictions</p> <p>-With support say what they think might happen.</p> <p>Making Measurements</p> <p>-With support perform simple tests.</p>	<p>-To identify and name some common materials that make objects (wood, plastic, metal and fabric).</p> <p>-To know some properties of common materials (hard, soft, rough, smooth).</p> <p>-To know that you can group materials/ objects according to their properties.</p>	<p>Core Vocabulary</p> <p>Plastic, Fabric, rough, smooth, magnetic, waterproof</p> <p>Other Vocabulary</p> <p>Materials, wood, metal, fabric object,</p>



			<p>-To observe closely using appropriate senses and simple equipment e.g. magnifying glasses.</p> <p>Recording and Presenting Data</p> <p>- To present some findings in simple tables and drawings (mark making) using ICT where relevant with support</p>	<p>-To know that some metals are magnetic- they are attracted to magnets.</p> <p>-To know some materials are waterproof.</p>	<p>Hard, soft, aluminium, waterproof, not waterproof, group, sort.</p>
Summer 1	Growing (Humans)		<p>Answering Questions using Data</p> <p>-To recognise similarities and differences between living things and objects</p>	<p>-To know that we are called humans.</p> <p>-To know and recall the human life cycle (baby, toddler, child, teenager, adult, old person)</p> <p>-To know humans change over time.</p>	<p>Core Vocabulary</p> <p>Humans, lifecycle, toddler, teenager,</p> <p>Other Vocabulary</p> <p>baby, child, adult, old person</p>
Summer 1	Growing (Plants)		<p>Asking Questions</p> <p>-To answer questions about aspects of the natural world (Who, what, where, why and how)</p> <p>Making Predictions</p> <p>-With support say what they think might happen.</p>	<p>-To identify and name some common garden plants and some plants we eat.</p> <p>-To know a plant grows from either a seed or a bulb.</p> <p>-To label the basic parts of a flowering plant e.g. leaf, root, stem and flower.</p> <p>-To know plants need water and sunlight to grow healthy.</p>	<p>Core Vocabulary</p> <p>Root, stem, petals, Leaves, bulb</p> <p>Other Vocabulary</p> <p>Plants, fruit, sunlight, water, vegetables, seed,</p>



				<p>Making Measurements</p> <ul style="list-style-type: none"> -With support perform simple tests. -To begin to observe closely using appropriate senses and simple equipment. 	<ul style="list-style-type: none"> -To describe the lifecycle of a frog and a hen. 	<ul style="list-style-type: none"> bulb, leaf, flower, daffodil, dandelion, buttercup, daisy, sunflower, lifecycle, chick, egg, frog spawn, froglet.
Summer 1/2	Growing (Mini-beasts)			<p>Asking questions</p> <ul style="list-style-type: none"> -To answer questions about aspects of the natural world (Who, what, where, why and how) <p>Making Measurements</p> <ul style="list-style-type: none"> -To begin to observe closely, using appropriate senses and simple equipment. <p>Answering Questions using Data</p> <ul style="list-style-type: none"> -To recognise similarities and differences between living things and objects 	<ul style="list-style-type: none"> -To recognise and name some common mini-beasts found on the school grounds. -To know that insects have wings, 6 legs and antennae. -To know that a spider has 8 legs, no wings and no antennae. -To know that some spiders have webs. 	<p>Core Vocabulary</p> <ul style="list-style-type: none"> Mini-beasts, insects, antennae, wings. <p>Other Vocabulary</p> <ul style="list-style-type: none"> Worm, snail, slug, spiders, wasps, bumble bee, ladybird, ant, butterfly, legs



Year Group	Term	Topic	Concepts	Skills	Knowledge	Vocabulary
Years 1 & 2	Ongoing throughout the year	Seasonal Change	Physics	<p>Asking Questions -To ask simple questions and recognise that they can be answered in different ways</p> <p>Making Predictions -To say what they think might happen (with support)</p> <p>Making Measurements -To observe closely, using appropriate senses and simple equipment. -To collect evidence to try to answer a question -To make some Measurements of length using standard and non-standard measures -To collect evidence to try to answer a question</p> <p>Recording and Presenting Data -To make records of observations</p>	<p>To observe changes across the four seasons</p> <p>To observe and describe weather associated with the seasons and how day length varies What are the 4 seasons and which months do they occur? -To find out about the different seasons and how they are different -To name the 4 seasons -To know which months the four seasons occur -To investigate the weather during the 4 seasons -To observe, record and describe the weather in each of the 4 seasons -To measure the temperature using standard and non-standard measure -To find out how the day length is affected by the seasons -To observe how the length of the days change over the seasons</p>	<p>Core Vocabulary temperature hours of daylight hibernate migrate</p> <p>Other Vocabulary seasons, autumn, winter, spring, summer, weather, daylight, month</p> <p>Autumn: September, October, November</p> <p>Winter: December, January, February</p> <p>Spring: March, April, May</p>



				<p>-To present some findings/results in tables, drawings and block graphs, using ICT where relevant</p>	<p>-To know in which months the day gets shorter and when they start to get longer – why do the clocks go back / forwards 1 hour in Autumn / Spring?</p> <p>How do the seasons influence what we wear?</p> <p>-To find out about how humans are affected by the seasons</p> <p>- describe changes in the clothes worn during the 4 seasons and why</p> <p>How do the seasons influence the plants?</p> <p>-To describe the effect the 4 seasons has on plants</p> <p>-To observe plant growth, plants seen, deciduous / evergreen trees</p>	<p>Summer: June, July, August</p>
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					<p>How do the seasons influence the animals that we see in the environment?</p> <p>-To find out about how animals are affected by the seasons</p> <p>-To describe the animals over the four seasons – migration / hibernation</p>	
<p>Years 1 & 2</p>	<p>Autumn 1</p>	<p>Plants</p>	<p>Biology</p>	<p>Asking Questions</p> <p>-To ask simple questions and recognise that they can be answered in different ways</p> <p>-To suggest some ideas and questions based on simple knowledge</p> <p>Making Predictions</p> <p>-To say what they think might happen.</p> <p>Enquiry or Investigation</p> <p>-To say how they might find out about ideas and questions that they suggest.</p>	<p>To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>-Which flowers can be found in our school grounds?</p> <p>-To find out what a plant is</p> <p>-To identify and describe garden plants</p> <p>-To identify and describe wild plants</p> <p>Which trees can be found in our school grounds?</p> <p>-To identify and describe a range of trees</p>	<p>Core Vocabulary</p> <p>roots</p> <p>stem/ trunk</p> <p>leaves</p> <p>flowers</p> <p>deciduous/evergreen</p> <p>Other Vocabulary</p> <p>wild plants, garden plants, green plants, common flowering plants, weed, tree, bud, petals, fruit, berry, seed, bulb,</p>



				<p>-To think about and discuss whether comparisons and tests are fair or unfair with/out support.</p> <p>Making Measurements</p> <p>-To make some Measurements of length using standard and non-standard measures.</p> <p>Recording and Presenting</p> <p>Data</p> <p>-To make records of observations</p> <p>-To present results in tables, drawings and block graphs using ICT where relevant</p> <p>Answering Questions using Data</p> <p>-To say what results will show.</p> <p>-To say whether their Predictions were supported.</p> <p>Drawing Conclusions</p> <p>-To draw simple conclusions and explain what they did</p>	<p>To identify and describe the basic structure of a variety of common flowering plants, including trees</p> <p>-To identify the different parts of a plant</p> <p>To observe and describe how seeds and bulbs grow into mature plants</p> <p>How do flower beds change after we plant bulbs/seeds?</p> <p>-To understand that plants can be grown from seeds or bulbs</p> <p>-To understand that different seeds grow into different plants</p> <p>-To make observations of growing plants</p> <p>-To observe and describe how plants grow</p> <p>-To begin to describe how plants mature and reproduce</p> <p>To find out and describe how plants need water, light and a suitable</p>	<p>blossom, bloom, crown, branch, bark, stalk, twig</p> <p>Wild plants:</p> <p>dandelion, daisy, buttercup, nettles, ivy, dog rose, clover, brambles, bluebell, poppy</p> <p>Names of wild flowering plants in the local area</p> <p>Garden plants:</p> <p>fuchsia, pansy, sweet pea, sunflower, rose, lavender, iris, holly</p> <p>Names of garden plants in the local area</p>
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					<p>temperature to grow and stay healthy</p> <ul style="list-style-type: none"> -To find out what plants need to grow -To find out what plants need to stay healthy -To plan, carry out and evaluate an investigation into the conditions that affect germination <p><u>Possible Scientific Enquiry</u></p> <p>Identifying & Classifying</p> <ul style="list-style-type: none"> -Which wildflowers can we find in our school grounds? -Which trees are found in our school grounds? <p>Observing over Time</p> <ul style="list-style-type: none"> -What happens to a bulb after it has been planted? -How does my bean seed change over time? -Do larger bulbs grow into bigger plants? 	<p>Trees: cedar, horse chestnut, oak, rowan</p> <p>Names of trees in the local area</p> <p>seeds, bulb, germination, sprout, shoot, seed dispersal, life cycle, sunlight, water, temperature, nutrition</p> <p>life cycle: seed or bean, germination, roots, leaves, flowers, fruit, seed dispersal, dies</p>
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					<p>Comparative and Fair Testing -Where will my seeds grow best?</p>	
<p>Years 1 & 2</p>	<p>Spring 1</p>	<p>Humans</p>	<p>Biology</p>	<p>Asking Questions -To ask simple questions and recognise that they can be answered in different ways. -To suggest some ideas and questions based on simple knowledge -To test ideas suggested to them and say what they think will happen.</p> <p>Making Predictions -To say what they think might happen with/out support</p> <p>Enquiry or Investigation -To say how they might find out about ideas and questions that they suggest -To think about and discuss whether comparisons and tests are fair or unfair</p>	<p>To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. -To know the names of the main external body parts -To know which body parts link to the senses.</p> <p>To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Children to know that foods can be grouped according to foods for growth and foods for energy) -To know animals and humans need the right type of nutrition to stay healthy – food & water -To know that humans need a balanced diet to be healthy</p>	<p><u>Core Vocabulary</u> senses balanced diet exercise hygiene nutrition</p> <p><u>Other Vocabulary</u> human, body, sight, see, touch, smell, hear, hearing, taste, head, body, eyes, ears, nose, mouth, teeth, shoulder, elbow, hand, thumb, fingers, knee, leg, foot, toes, skin, eyes, nose, ear tongue</p>



				<p>Making Measurements</p> <ul style="list-style-type: none"> -To perform simple tests. -To observe closely, using appropriate senses and simple equipment. -To make Measurements of length and height in standard and non-standard measure -To collect evidence to try to answer a question. <p>Recording and Presenting Data</p> <ul style="list-style-type: none"> -To make records of observations -To present results in tables, drawings and block graphs using ICT where relevant <p>Answering Questions using Data</p> <ul style="list-style-type: none"> -To say what their observations show, and whether it was what they expected <p>Drawing Conclusions</p>	<ul style="list-style-type: none"> -To know which foods, give humans energy -To know which foods, help with growth and repair -To know humans need the right amount of exercise to stay healthy. -To know it is important for humans to keep clean by washing and brushing teeth. -To know how humans can stop the spread of bacteria and viruses by keeping clean. <p>Possible Scientific Enquiry</p> <p>Pattern seeking</p> <ul style="list-style-type: none"> -Do the tallest children in our class have the biggest feet? <p>Comparative and Fair Testing</p> <ul style="list-style-type: none"> -Which parts of the body are more sensitive? -Which are the hardest exercises to do? 	<p>parts of the body including those linked to PSHE teaching</p> <p>diet, energy, heart rate, disease, pulse, Eatwell</p> <p>guide/healthy, fruit, vegetables, dairy and alternatives, carbohydrates, proteins</p>
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				-To draw simple conclusions and explain what they did	Observing over time -How do germs transfer from an infected person to another? How is baby 'x' changing as they get older?	
Years 1 & 2	Summer 1	Living things and their Habitat	Biology	<p>Asking Questions -To ask simple questions and recognise that they can be answered in different ways.</p> <p>Making Predictions -To say what they think might happen with support (say which animals they might find in certain micro/habitats)</p> <p>Enquiry or Investigation -To say how they might find out about ideas and questions that they suggest (with support)</p> <p>Making Measurements -To observe closely, using appropriate senses and simple equipment</p>	<p>To explore and compare the differences between things that are living, dead, and things that have never been alive -To know that living things all feed, move, breathe/respire, excrete, grow, reproduce and are sensitive -To identify what is alive -To identify what is dead (was once alive) -To identify things that have never been alive</p> <p>To 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</p>	<p>Core Vocabulary habitat/micro-habitat organism food chain producer consumer</p> <p>Other Vocabulary life processes, living, dead, never been alive, food sources, depend, survive, biome, carnivore, herbivore, omnivore, vegetation, prey, predator</p>



				<p>-To collect evidence to try to answer a question</p> <p>Recording and Presenting Data</p> <p>-To present results in tables, drawings or block graphs, using ICT where relevant</p> <p>Answering Questions using Data</p> <p>-To make simple comparisons and groupings that relate to differences and similarities</p> <p>-To say what their observations show and whether it is what was expected</p> <p>Drawing Conclusions</p> <p>-To use knowledge to explain what was found and to draw conclusions</p> <p>Evaluating the Enquiry or Investigation</p> <p>-To explain what they did</p>	<p>-To know what a habitat is</p> <p>-To know different types of habitats</p> <p>-To know which are suitable habitats for animals</p> <p>-To know which are suitable habitats for plants</p> <p>-To know a habitat is where a living organism has its needs met</p> <p>To identify and name a variety of plants and animals in their habitats, including micro-habitats</p> <p>-To know some different types of habitats</p> <p>-To compare habitats and the plants and animals that live in them</p> <p>-To know what a micro-habitat is</p> <p>-To name some micro-habitats</p> <p>-To identify and describe some of the animals that live in micro-habitats</p> <p>To describe how animals obtain their food from plants and other animals, using the idea of a simple food chain,</p>	<p>Habitats: woodland, urban, coastal, rainforest, arctic, desert, ocean, river, mountain</p> <p>Microhabitats: short grass, flowers, inside rotting wood, under leaves, in and on soil</p>
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					<p>and identify and name different sources of food</p> <p>-To know that living things need other living things to survive</p> <p>-To know that animals depend on the plants in the habitat as a food source</p> <p>-To know that animals depend on other animals in their habitat as a food source</p> <p>-To know what a food chain is</p> <p>-To know that living things pass energy on through a food chain</p> <p>-To construct a food chain</p> <p>-To know what a producer, consumer, prey and predator are</p> <p><u>Possible Scientific Enquiry</u></p> <p>Pattern Seeking</p> <p>-What animals live in different micro-habitats in the playground?</p> <p>Identifying and Classifying</p> <p>-What animals live in our school grounds?</p>	
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Year Group	Term	Topic	Concepts	Skills	Knowledge	Vocabulary
Years 3 & 4	Autumn 1 & Spring 2	Plants	Biology	<p>Asking Questions</p> <ul style="list-style-type: none"> -In a variety of contexts, to suggest questions and ideas and how to test them <p>Enquiry or Investigation</p> <ul style="list-style-type: none"> -To design a fair test -To think about how to collect sufficient evidence -To think about why observations and Measurements should be repeated -To choose what apparatus to use and what to measure <p>Making Measurements</p> <ul style="list-style-type: none"> -To make systematic and careful observations and comparisons -To take accurate Measurements using standard Measurements effectively 	<p>To know, identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <ul style="list-style-type: none"> -To know and name the main parts of flowering plants -To know and explain the function of the roots -To know the function of the stem/trunk -To know the function of the leaves in flowering plants -To know the function of the flowers <p>To know and explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <ul style="list-style-type: none"> -To know what plants need to grow and survive 	<p>Core Vocabulary</p> <ul style="list-style-type: none"> stamen pistil ovary sepal <p>Other Vocabulary</p> <ul style="list-style-type: none"> roots, stem, leaves, flowers, nutrients, evaporation, water, light, food and nutrients, air, fertilisation, petal, stamen – anther – filament, carpel (pistil)- stigma – style - ovary, ovul, stem, sepal, pollination, pollinator,



				<p>Recording and Presenting Data</p> <ul style="list-style-type: none"> -To record findings using simple scientific language, drawings, labelled diagrams, using ICT where relevant -To report on findings from enquiries, including oral and written explanations, displays or presentation of results and conclusions <p>Answering Questions using Data</p> <ul style="list-style-type: none"> -To make generalisations and begin to identify simple patterns in results presented in tables and suggest explanations for some of these <p>Drawing Conclusions</p> <ul style="list-style-type: none"> -To draw simple conclusions from results and begin to use scientific knowledge and evidence to answer questions, or to suggest explanations for them and to support their findings 	<ul style="list-style-type: none"> -To know that requirements for a plant to grow vary depending on the type of plant -To know that plants produce their own food <p>-To know what plants need to produce their own food</p> <p>To know through investigation, the way in which water is transported within plants</p> <ul style="list-style-type: none"> -To know where plants get their water from To know and name the parts of the plant that transport water -To know that water is absorbed by the roots and distributed around the plant via the stem <p>To know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p> <ul style="list-style-type: none"> -To know and describe the ways in which flowering plants reproduce 	<p>germination, seed dispersal, flowering, seed formation</p> <p>seed dispersal: water, shaking, dropping, carrying, eating, bursting</p>
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				<p>Evaluating the Enquiry or Investigation</p> <p>-To explain and reflects on the investigation</p>	<p>-To know how pollination occurs</p> <p>-To know the part pollination plays in the life cycle of a flowering plant</p> <p>-To know how and where seeds are formed</p> <p>-To know how the ovaries of a flowering plant grow to form seeds</p> <p>-To know why flowering plants disperses their seeds</p> <p>To know and describe how seeds are dispersed in a variety of ways</p> <p><u>Possible Scientific Enquiry</u></p> <p>Observing over Time</p> <p>-How do the plants in our playground change throughout the year?</p> <p>-What happens when cut flowers/celery are put in coloured water?</p> <p>Comparative and Fair Testing</p> <p>-What do seeds need to germinate?</p> <p>-How does the temperature affect how quickly the water is transported through the stem to the flower?</p>	
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					<p>Researching using Secondary Sources</p> <p>-What is the function of the different parts of the plant?</p>	
<p>Years 3 & 4</p>	<p>Autumn 2</p>	<p>Rocks and Soils</p>	<p>Physics</p>	<p>Asking Questions</p> <p>-In a variety of contexts, to suggest questions and ideas and how to test them</p> <p>Making Predictions</p> <p>-To make Predictions about what will happen</p> <p>Enquiry or Investigation</p> <p>-To consider what makes a fair test</p> <p>-To think about how to collect sufficient evidence</p> <p>Making Measurements</p>	<p>To compare and group together different types of rocks on the basis of their appearance and simple physical properties</p> <p>-To know there are 3 different types of rocks that are formed naturally – Igneous, Sedimentary & Metamorphic</p> <p>-To know Igneous rock is formed when molten magma cools</p> <p>-To know the molten magma can either cool under the Earth's surface or, flow as lava and mix with other minerals</p> <p>- To know the names of some Igneous, Sedimentary and Metamorphic rocks</p>	<p>Core Vocabulary</p> <p>sediment permeable impermeable erosion</p> <p>Other Vocabulary</p> <p>human-made rock, natural rock, igneous rock, sedimentary rock, metamorphic rock, magma, lava, molten, hard, soft, durable, high density, low density, fossilisation, palaeontology, soil,</p>



				<p>-To gather and record evidence in a variety of context to answer a question or test an idea</p> <p>-To make systematic and careful observations and comparisons</p> <p>-To take accurate Measurements using standard units of measure and measuring equipment</p> <p>-To make generalisations and begin to identify simple patterns in results presented in tables</p> <p>Recording and Presenting Data</p> <p>-To gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>-To record findings using simple scientific language, drawings, labelled diagrams using ICT where relevant</p> <p>Drawing Conclusions</p> <p>-To draw simple conclusions from results and begin to use scientific</p>	<p>-To know the names of rocks created by minerals and molten magma cooling – granite, basalt etc</p> <p>-To know that Igneous rocks are strong, hard-wearing and non- porous</p> <p>-To know that sedimentary rocks are formed from sediment that had built up over millions of years</p> <p>-To know that sediment are little pieces of weathered rock found at the bottom of lakes, seas and rivers</p> <p>-To know the names of sedimentary rocks such as chalk and limestone</p> <p>-To know that sedimentary rocks are porous and can easily be worn down</p> <p>-To know that metamorphic rocks are formed when Igneous and Sedimentary rocks are heated and squeezed together (pressured)</p> <p>-To know the names of metamorphic rock, such as, slate and marble</p> <p>-To know that metamorphic rocks are strong</p>	<p>minerals, air, water, organic matter, topsoil, subsoil, baserock, bedrock, decaying, grain, imprint, leaf litter, man-made, mineral, nutrients, porous, pre-historic, preserve, pressure, properties, rock, sediment, soil, surface, surrounding, volcano, weathered</p> <p>natural rock:</p> <p>obsidian, granite, basalt, chalk, sandstone, limestone, marble, quartzite, slate</p>
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				<p>knowledge and evidence to answer questions</p>	<p>-To understand and recognise that bricks and concrete are not rocks because they are man-made</p> <p>-To use knowledge of appearance and simple physical properties to compare and group rocks according to given and chosen criteria</p> <p>To describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>-To know that fossils are the remains of prehistoric life</p> <p>-To know that fossils are formed when a living thing (plant or animal) dies and the body is covered up or buried by sediment over tens of thousands of years</p> <p>-To know that some fossils are formed when the tough bones and teeth in animals, and the woody part of plants are preserved</p> <p>-To know that other fossils are made from imprints in surrounding</p>	<p>human-made rock: brick, concrete, coade stone, absorb,</p>
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					<p>Sedimentary rock such as footprints or imprints from shells</p> <ul style="list-style-type: none">-To know and understand that fossils tell us about the Earth and life that existed hundreds of thousands and millions of years ago <p>To recognise that soils are made from rocks and organic matter</p> <ul style="list-style-type: none">-To know that soil is made from pieces of rock, minerals, decaying plants and water-To know that when rock is broken down into small grains, soil is formed-To know there are layers of soil – above the soil is leaf litter and recently decaying plants. As the soil becomes deeper, the rock grains become larger until bedrock is reached-To know there are different types of soil-To be able to name and describe different types of soil	
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					<p>-To know sandy soil is pale in colour with lots of small air gaps and water drains through easily</p> <p>-To know clay soil is an orange or blue-ish sticky soil with very few air gaps and water doesn't drain easily.</p> <p>-To know chalky soil is a light brown soil and water drains through it quickly</p> <p>-To know peat is different from other soils because it contains no rock particles. It is made from old decayed plants and is dark, crumbly and rich in nutrients</p> <p><u>Possible Scientific Enquiry</u></p> <p>Observing over Time</p> <p>-What is soil made from?</p> <p>Identifying and classifying</p>	
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					<p>-How porous are the rocks? Do the rocks float? Are the rocks durable?</p> <p>NOT a scientific Enquiry</p> <p>-How can we sort these rocks?</p>	
<p>Years 3 & 4</p>	<p>Spring 1</p>	<p>Animals including Humans</p> <p>Muscles and Skeletons</p>	<p>Biology</p>	<p>Asking Questions</p> <p>-In a variety of contexts, to suggest questions and ideas and how to test them</p> <p>Making Predictions</p> <p>-To make Predictions about what will happen</p> <p>Enquiry or Investigation</p> <p>-To consider what makes a fair test</p> <p>-To think about how to collect sufficient evidence</p> <p>Making Measurements</p> <p>-To gather and record evidence in a variety of context to answer a question or test an idea</p> <p>-To make systematic and careful observations and comparisons</p>	<p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p> <p>-To know that a skeleton is a structure of bones that supports the body of a person or animal</p> <p>-To know there are different types of skeleton</p> <p>-To know that vertebrates have a backbone and their skeleton is called an endoskeleton</p> <p>-To know endoskeleton means the skeleton is inside the body and grows with the body</p> <p>-To know that exoskeletons exist outside the body</p>	<p><u>Core Vocabulary</u></p> <p>Endoskeleton exoskeleton vertebrate invertebrate muscles</p> <p><u>Other Vocabulary</u></p> <p>tendons, joints, skeleton, hydrostatic skeleton, contract, relax, muscles, backbone, bones, elbow, organs, protect, support</p>



				<p>-To take accurate Measurements using standard units of measure and measuring equipment</p> <p>-To make generalisations and begin to identify simple patterns in results presented in tables</p> <p>Recording and Presenting Data</p> <p>-To gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>-To record findings using simple scientific language, drawings, labelled diagrams using ICT where relevant</p> <p>Drawing Conclusions</p> <p>-To draw simple conclusions from results and begin to use scientific knowledge and evidence to answer questions</p>	<p>-To know that an exoskeleton is a covering that protects and supports animals</p> <p>-To know that exoskeletons are shed and a new skeleton is grown</p> <p>-To know the 3 most important thing an endoskeleton does:</p> <ul style="list-style-type: none"> - provide support and shape to an animal's body - allow movement through the joints - protect organs <p>-To know that there are 12 common parts of a skeleton and name them – skull, clavicle, scapula, rib cage, humerus, spinal column, pelvis, ulna, radius, femur, fibula and tibia</p> <p>-To know where in the body the 12 common parts of a skeleton can be found</p> <p>-To label correctly the 12 common parts of the skeleton on a diagram</p> <p>-To know the name given to where bones meet are joints</p>	<p>Skeleton: skull, clavicle, scapula, ribcage, humerus, vertebral column (spinal column), ulna, pelvis, radius, femur, tibia, fibula</p> <p>Muscles: Front – deltoids, pectoralis major, biceps, anterior forearms, obliques, rectus abdominals, liopsoas, quadriceps, adductors, dorsi flexors</p> <p>Back – trapezius, deltoids, latissimus, dorsi, triceps, posterior forearms, lower back, gluteals, hamstrings, calves</p>
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					<ul style="list-style-type: none">-To know joints allow our bodies to move -To know that a muscle is a soft tissue in the body-To know there are muscles at the front and back of our bodies-To know the 19 common muscles: Front – deltoids, pectoralis major, biceps, anterior forearms, obliques, rectus abdominals, liopsoas, quadriceps, adductors, dorsi flexors Back – trapezius, deltoids, latissimus, dorsi, triceps, posterior forearms, lower back, gluteals, hamstrings, calves -To know muscles are connected to bones by strong cords called tendons-To know that a muscle contracts and relaxes to cause the movement of the skeleton-To know the muscles work together in opposition to allow your body parts to move	
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					<p><u>Possible Scientific Enquiry</u></p> <p>Pattern Seeking -Do you jump further if you have longer legs?</p> <p>Identifying and Classifying -How can you group animals into groups?</p> <p>Researching using Secondary Sources -How many bones does the human skeleton have? What are the names of the bones</p>	
Years 3 & 4	Spring 2	Plants Continuation from Autumn 1	Biology	See Autumn 1	See Autumn 1	See Autumn 1



<p>Years 3 & 4</p>	<p>Summer 1</p>	<p>Light</p>	<p>Physics</p>	<p>Asking Questions -To suggest relevant questions based on scientific knowledge that can be tested and suggest how to test those using different types of scientific enquiry</p> <p>Making Predictions -To make Predictions about what will happen, some of which are based on scientific knowledge</p> <p>Enquiry or Investigation -To design a fair test -To plan how to collect sufficient evidence -To think about why observations and Measurements should be repeated -To choose what apparatus to use and what to measure</p> <p>Making Measurements -To make systematic observations</p>	<p>To recognise that they need light in order to see things and that dark is the absence of light -To know that in order to see things, we need light -To know that when there is no light we say it is dark (absence of light) -To know that a light source is something that emits light by burning, electricity or chemical reactions -To name sources of burning light such as, the sun, stars, flames -To name sources of electrical light, such as lamps, car headlights and street lights -To name sources of lights caused by a chemical reaction, such as glow sticks and fire flies -To know that light caused by chemical reactions are much less common -To know that light caused by chemical reactions happen when</p>	<p><u>Core Vocabulary</u> opaque translucent transparent</p> <p><u>Other Vocabulary</u> light, light source, dark, reflection, reflect, reflective, ray, smooth, shiny, flat, rough, uneven, surface, pupil, retina, shadow, midday, sunset, angle, bright, chemical reaction, dark, dim, electricity, emits, mirror, product, sunglasses, torches, sun, moon, flame, stars</p>
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				<p>-To take accurate Measurements of temperature using standard units of measure</p> <p>-To use a range of equipment, including thermometers and data loggers</p> <p>Recording and Presenting Data</p> <p>-To record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables, using ICT where relevant</p> <p>Drawing Conclusions</p> <p>-To explain what the evidence shows by drawing simple conclusions</p>	<p>different chemicals react and light is a product of that reaction.</p> <p>-To know the sun and stars always give us light, but we can only see the stars when it is dark</p> <p>-To know and understand that the Moon is not a source of light</p> <p>-To know that we can see the Moon when it's dark because the Sun's light reflects on the surface of the Moon making it appear to emit light</p> <p>-To know that shiny things are not light sources – they appear to be sources of light because they are bright</p> <p>-To define the difference between night and day</p> <p>-To explain why the sun rises and sets each day</p> <p>To recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>-To know that we must never look directly at the sun as the light</p>	
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					<p>produced is very bright and can be harmful to our eyes</p> <ul style="list-style-type: none">-To know that we should never look directly into a torch as this is harmful to our eyes-To know we can protect our eyes in the sun by wearing dark glasses (sunglasses) <p>To notice that light is reflected from surfaces</p> <ul style="list-style-type: none">-To know that light travels in straight lines-To know that light will 'bounce' off some materials-To know that light travels extremely fast – 186,282 miles per second (That's like travelling around the world over 7 times in a second) <p>To recognise that shadows are formed when the light from a light source is blocked by a solid object</p>	
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					<p>-To know that when light is blocked by an opaque object, a dark shadow is formed</p> <p>-To know that when light is shone onto a transparent object, the light travels through it, we can see through it and it makes a very faint shadow</p> <p>To find patterns in the way that the size of shadows change</p> <p>-To know the size of the shadow changes as the light source moves</p> <p>-To know that a shadow gets bigger the closer the object is to the light</p> <p>-To know that a shadow gets smaller the further away an object is moved from the light source</p> <p><u>Possible Scientific Enquiry</u></p> <p>Identifying and Classifying</p> <p>-Which materials are opaque, translucent and transparent?</p>	
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					<p>Comparative and fair testing</p> <p>-How reflective are the materials?</p>	
<p>Years 3 & 4</p>	<p>Summer 2</p>	<p>Electricity</p>	<p>Physics</p>	<p>Asking questions</p> <p>- To suggest relevant questions based on scientific knowledge that can be tested and suggest how to test those using different types of scientific enquiry</p> <p>Making Predictions</p> <p>-To make Predictions about what will happen, some of which are based on scientific knowledge</p> <p>Enquiry or Investigation</p> <p>-To design a fair test. To plan how to collect sufficient evidence -To think about why observations and Measurements should be repeated -To choose what apparatus to use and what to measure (in some contexts)</p>	<p>To identify common appliances that run on electricity</p> <p>-To know that electricity is generated using energy from natural sources</p> <p>-To be able to name natural sources of energy that generate electricity - such as the sun, oil, coal, water and wind</p> <p>To know that these natural energy sources can be called fuel sources</p> <p>-To know that batteries are sources of electricity as well as mains electricity</p> <p>-To know that batteries come in different sizes</p> <p>-To know the names of some common appliances that run on electricity, such as, a toaster, lamp, kettle, laptop, x-box, phone, torch, headlights, television</p>	<p>Core Vocabulary</p> <p>electricity conductor insulator battery circuit</p> <p>Other Vocabulary</p> <p>lightning and static electricity, generate, renewable, non-renewable, appliances, wind power, hydroelectric, solar panels, nuclear energy, atoms, geothermal energy, coal, oil, natural gasses, battery, mains, electrons,</p>



				<p>Making Measurements - To make systematic observations and comparisons of relevant features in a variety of contexts</p> <p>Recording and Presenting Data -To record findings using simple scientific language, drawings, labelled diagrams, classification keys, bar charts and tables using ICT where relevant -To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Answering Questions using Data -To make generalisations and identify simple trends and patterns in results presented in tables,</p>	<p>To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers -To know that a complete circuit is a loop that allows electrical current to flow through wires -To know a circuit contains a battery (cell), wire and an appliance that requires electricity to work (such as a bulb, motor or buzzer) -To know the electrical current runs through the wires from the battery (cell) to the bulb, motor or buzzer -To know that a switch can break or re-connect a circuit# -To construct a simple circuit independently, naming all components within the circuit</p> <p>To identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is</p>	<p>electric current, appliances, bulb, buzzer, cell, component, device, fuel, motor, power, source, switch, wires</p>
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				<p>charts and graphs and to suggest explanations for some of these</p> <p>Drawing Conclusions -To explain what the evidence shows by drawing simple conclusions</p>	<p>part of a complete loop with a battery -To recognise whether all components are present in diagrams or physical circuits to enable a bulb to light up -To know what is missing or wrong in a circuit that is stopping the bulb from lighting</p> <p>To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit -To know a switch controls the flow of the electrical current around the circuit -To know that when the switch in a circuit is off, the current cannot flow and this is not the same as an incomplete circuit</p> <p>To recognise some common conductors and insulators, and</p>	
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					<p>associate metals with being good conductors</p> <p>-To know that some materials allow electricity to pass through them easily and are called conductors</p> <p>-To recognise materials that are good conductors – iron, copper, steel</p> <p>-To know that some materials do not allow electricity to pass through them and these are called electrical insulators</p> <p>-To recognise materials that are insulators – wood, glass, plastic, rubber</p> <p>-To recognise that insulators are used to cover materials that carry electricity</p> <p><u>Possible Scientific Enquiry</u></p> <p>Identifying and Classifying</p> <p>-Which materials conduct electricity?</p> <p>Observing Patterns</p>	
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					<p>-What happens to bulbs when more cells are added to a circuit?</p> <p>-Which materials are good conductors of electricity?</p> <p>-Can all materials be used to connect a gap in a circuit?</p>	
Year Group	Term	Topic	Concepts	Skills	Knowledge	Vocabulary
Years 5 & 6	Autumn 1 & 2	<p>Materials</p> <p>1.Properties</p> <p>2.Changes</p>	Chemistry	<p>Asking Questions</p> <p>-To ask questions and develop a line of enquiry based on observations of the real world</p> <p>-To know how to turn a question or idea into a form that can be tested</p> <p>Making Predictions</p> <p>-To make Predictions using scientific knowledge and understanding</p> <p>Enquiry or Investigation</p> <p>-To decide how to turn ideas into a form that can be tested.</p>	<p>To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</p> <p>-To identify everyday materials according to their properties</p> <p>-To describe everyday materials using more complex vocabulary with accuracy</p> <p>-To be able to say how they have grouped the materials and why</p>	<p><u>Core Vocabulary – Properties</u></p> <p>solid</p> <p>liquid</p> <p>gas</p> <p><u>Core Vocabulary – Properties</u></p> <p>dissolves</p> <p>solution</p> <p>soluble</p> <p>insoluble</p> <p><u>Other Vocabulary</u></p>



			<p>-To identify factors that need to be taken into consideration in different contexts</p> <p>-To choose what evidence to collect</p> <p>-To collect sufficient evidence to test an idea</p> <p>-To choose what equipment to use</p> <p>Making Measurements</p> <p>-To take Measurements using a range of scientific equipment, with increasing accuracy and precision</p> <p>-To decide when observations and Measurements need to be checked</p> <p>-To think about why observations and Measurements should be repeated and take repeat readings when appropriate</p> <p>-To consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena</p> <p>Recording and Presenting Data</p>	<p>To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>-To know that dissolving is when the particles of solid mix with the particles of a liquid</p> <p>-To know that the result of dissolving is a solution</p> <p>-To know that materials that dissolve are soluble</p> <p>-To know that materials that do not dissolve are insoluble</p> <p>-To be able to predict, investigate, observe and explain what happens when a variety of materials are mixed with water</p> <p>-To recognise and describe how to separate materials that have dissolved in a liquid</p> <p>To use knowledge of liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p>	<p>materials, melting, freezing, evaporation/ evaporating, condensing, condensation, properties, circuit, electricity, electrical conductor/ conductivity, flexible/ flexibility, hardness, insulators, magnetic/ magnetism, soluble/ solubility, thermal conductivity, transparent/ transparency, particles, reversible changes, dissolving, sieving, filtering, evaporating, irreversible / reversible changes, reactants, liquid,</p>
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				<p>-To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar charts and line graphs using ICT where relevant</p> <p>-To report and present findings from enquiries, including conclusions, casual relationships and explanations of and a degree of trust in results, in oral and written forms with some guidance</p> <p>Answering Questions using Data</p> <p>-To decide whether results support any prediction</p> <p>-To begin to evaluate repeated results</p> <p>-To recognise and make Predictions from patterns in data and suggest explanations for these using scientific knowledge and understanding.</p>	<p>-To know that some materials can be separated after they have been mixed based on their properties</p> <p>-To know that when we can separate materials after they have been mixed, it is called a reversible change</p> <p>-To know some methods of separation include the use of a magnet, a filter (for insoluble materials), a sieve (based on the size of the solids) and evaporation</p> <p>To be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>-To explain that the properties of different materials are useful to us</p> <p>-To know that we choose objects that are made from different materials because of their properties</p> <p>-To know that some materials are good thermal conductors – they allow heat to move through them easily</p>	<p>permeable, process, rate, resistance, solid, state, temperature, variable, water cycle</p>
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				<p>-To interpret data and think about whether it is sufficient to draw conclusions</p> <p>Drawing Conclusions</p> <p>-To use results to draw conclusions and to make further Predictions</p> <p>-To say whether the evidence supports any prediction made</p>	<p>To know that thermal conductors are used to make items that require heat to move through them easily, such as a saucepan which requires heat to move through to cook food</p> <p>-To know that thermal insulators do not let heat travel through them</p> <p>-To know examples of thermal insulators include woollen clothes and flasks</p> <p>To demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>-To predict what will happen to different materials when they are dissolved, mixed or heated – which would be reversible / irreversible change?</p> <p>-To understand that when a bar of chocolate is melted, it turns into a liquid, but when cooled returns to a solid, even though it has set in a different shape</p>	
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					<ul style="list-style-type: none">-To understand what happens to water when it is heated-To know the water cycle is a reversible process that is constantly repeating itself-To know that during the water cycle, water can change states between being a solid, a liquid and a gas <p>To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda</p> <p>- To know some changes of state are irreversible</p> <ul style="list-style-type: none">-To know that when we cannot separate materials back into the original components after they have been mixed, it is called an irreversible change-To know examples of irreversible changes include when materials burn or mixing bicarbonate of soda with vinegar	
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					<p>-To know that food changes state after being combined and cooked</p> <p>-To know that food that has been cooked is an irreversible change – eg egg, flour, water & yeast - dough – bread</p> <p><u>Possible Scientific Enquiry</u></p> <p>Observing over Time</p> <p>-What happens when coloured sweets are put in water?</p> <p>Identifying and Classifying</p> <p>-Which materials dissolve and which do not?</p> <p>-Which materials can be used as a filter to separate sand from a sugar solution?</p> <p>Comparative and Fair Testing</p> <p>-Which cup will keep our coffee warmer for longer?</p>	
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					<p>-What would happen if I changed the temperature of the water?</p> <p>-What would happen if I turned it upside down? (allowing a fizzy tablet to 'explode' in a film canister)</p> <p>Researching using Secondary Sources</p> <p>-How do chemists create new materials?</p> <p>-How did Spencer Silver invent the glue for sticky notes?</p> <p>-How did Ruth Benerito invent wrinkle-free cotton?</p>	
Years 5 & 6	Spring 1	Forces	Physics	<p>Asking Questions</p> <p>-To ask questions and develop a line of enquiry based on observations of the real world</p> <p>Making Predictions</p> <p>-To make Predictions using scientific knowledge and understanding</p>	<p>To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>-To know that forces are pushes and pulls that change the motion of an object</p> <p>-To recognise that a force can make an object start to move or speed up, slow it down, or even make it stop</p>	<p><u>Core Vocabulary</u></p> <p>gravity</p> <p>friction</p> <p>surface</p> <p>forcemeter</p> <p><u>Other Vocabulary</u></p>



				<p>Enquiry or Investigation</p> <ul style="list-style-type: none"> -To decide how to turn ideas into a form that can be tested -To identify factors that are relevant to a particular situation -To choose what evidence to collect to investigate a question, ensuring the evidence is sufficient -To choose what equipment to use <p>Making Measurements</p> <ul style="list-style-type: none"> -To make a variety of relevant observations and Measurements using a range of scientific equipment, with increasing accuracy, taking repeat readings where appropriate -To decide when observations and Measurements need to be checked, by repeating, to give more reliable data -To consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new 	<ul style="list-style-type: none"> -To know that gravity is a force -To know that gravity pulls objects to the centre of the Earth -To know that weight describes how heavy an object is and that it is Earth's gravitational force that causes objects to have weight -To know that gravitational force on the moon is weaker than on Earth -To know Earth's gravitational force is 6 times stronger than the moons -To understand the size and shape of a meteorite affects the size and shape of the crater left on the ground at impact (mainly affects diameter rather than depth and amount of material scatter -To design a fair test investigation to explore the effect of gravity on falling objects (tray of flour and objects of different weights) <p>To identify the effects of air resistance, water resistance and</p>	<p>forces, earth's gravitational pull, magnetism, weight, mass, kilograms, newtons, Isaac Newton, air resistance, water resistance, buoyancy, streamlined, grip, drag, centre, mechanism, pulleys, gears/cogs, levers, attract, motion, opposite, repel, spring,</p>
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			<p>ideas and explanations for phenomena</p> <p>Recording and Presenting Data</p> <ul style="list-style-type: none"> -To record data and results of increasing complexity using scientific diagrams and labels, tables and bar charts and line graphs using ICT where relevant -To report and present findings from enquiries, including conclusions, in oral and written forms <p>Answering Questions using Data</p> <ul style="list-style-type: none"> -To make comparisons -To evaluate repeated results -To identify patterns in results that do not appear to fit the pattern -To identify scientific evidence that has been used to support or refute ideas and arguments <p>Drawing Conclusions</p> <ul style="list-style-type: none"> -To use results to draw conclusions 	<p>friction, that act between moving surfaces</p> <ul style="list-style-type: none"> -To know friction is a force -To know friction is the resistance of motion when one object rubs against another -To know that forces such as air resistance and water resistance create resistance of motion -To know that air resistance opposes the force of gravity (it pushes up) -To know that air resistance slows objects moving through the air -To know that water resistance is friction that is created between water and an object that is moving through it -To know that water resistance slows objects moving through the water -To know that some objects can move through water with less resistance if they are streamlined -To design a fair test investigation to explore which surface has the most friction acting on a moving object 	
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				<p>-To say whether the evidence supports any prediction made</p>	<p>-To design a fair test investigation to explore the effect of air resistance on different sized parachutes</p> <p>-To design a fair test investigation to explore how different shapes move in water</p> <p>To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p> <p>-To know that levers allow us to do heavy work with less effort</p> <p>-To know that pulleys allow us to do heavy work</p> <p>-To know how pulleys work – object attached to ropes and pulley wheels – pull rope downwards instead of lifting heavy objects</p> <p>-To know gears are toothed wheels whose 'teeth' fit into each other allowing wheels to turn simultaneously</p> <p>-To know gears allow forces to move across a surface</p>	
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					<p>-To know that springs can be stretched by pulling them</p> <p>-To know the greater the force pushing or pulling the spring, the greater the force the spring uses to move back to its normal shape</p> <p>-To design a fair test investigation to explore how levers and pulleys allow a smaller force to have a greater effect</p> <p><u>Possible Scientific Enquiry</u></p> <p>Comparative and Fair Testing</p> <p>-How does the number of pulleys affect the force required to lift a mass?</p> <p>-How does folding the spinner, to make the body length shorter, affect the time it takes to fall?</p> <p>Researching using Secondary Sources</p>	
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					-How did scientists like Galileo Galilei and Isaac Newton help to develop the theory of gravitation	
Years 5 & 6	Spring 2	Earth and Space	Physics	<p>Asking Questions -To ask questions and develop a line of enquiry based on observations of the real world</p> <p>Making Predictions -To make Predictions using scientific knowledge and understanding</p> <p>Enquiry or Investigation -To decide how to turn ideas into a form that can be tested -To identify factors that are relevant to a particular situation -To choose what evidence to collect to investigate a question, ensuring the evidence is sufficient -To choose what equipment to use</p> <p>Making Measurements</p>	<p>To describe the Sun, Earth and Moon as approximately spherical bodies -To know that the sun is a star at the centre of our solar system -To understand that it is NOT safe to ever look directly at the sun, even when wearing sunglasses -To know the moon is a celestial body that orbits a planet -To know that the Earth has one moon; Jupiter has four large moons and numerous small ones -To know the moon doesn't change shape – it appears to change shape because we cannot always see the side of the moon in sunlight or we can only see part of the sunlit side of the Moon as it orbits the Earth</p> <p>To describe the movement of the Moon relative to the Earth</p>	<p>Core Vocabulary axis orbit rotate solar system,</p> <p>Other Vocabulary sun, star, moon, planet, sphere, spherical bodies, satellite, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, gases, helium, hydrogen, rock, metal, dwarf planet, asteroid, comet, galaxy, gravity, leap</p>



				<p>-To make a variety of relevant observations and Measurements using a range of scientific equipment, with increasing accuracy, taking repeat readings where appropriate</p> <p>-To decide when observations and Measurements need to be checked, by repeating, to give more reliable data</p> <p>Recording and Presenting Data</p> <p>-To record data and results of increasing complexity using scientific diagrams and labels, tables and bar charts and line graphs using ICT where relevant</p> <p>-To report and present findings from enquiries, including conclusions, in oral and written forms</p> <p>Answering Questions using Data</p> <p>-To make comparisons</p> <p>-To evaluate repeated results</p>	<p>-To describe the movement of the Sun, Earth and Moon</p> <p>-To know the moon orbits the Earth anticlockwise</p> <p>- To know it takes around 28 days for the Moon to orbit the Earth</p> <p>-To know the Moon is held in its orbit round the Earth by the Earth's gravitational pull</p> <p>-To know that the Moon spins on its axis every time it orbits the Earth, meaning we only ever see one side of the Moon</p> <p>-To know the Moon has different phases depending on where it is in its orbit</p> <p>-To know the Moons gravity causes high and low tides</p> <p>To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p> <p>-To know the Earth rotates on its own axis anti-clockwise</p>	<p>year, meteorite, shadow, spin, time zones, universe</p>
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				<ul style="list-style-type: none"> -To identify patterns in results that do not appear to fit the pattern -To identify scientific evidence that has been used to support or refute ideas and arguments <p>Drawing Conclusions</p> <ul style="list-style-type: none"> -To use results to draw conclusions -To say whether the evidence supports any prediction made 	<ul style="list-style-type: none"> -To know the Earth takes 24 hours (1 day) to completely rotate on its axis -To know the Earth rotates once in a day creating day and night -To know the side of the Earth facing the sun is in daytime and the side of the Earth facing away from the sun is in night time -To recognise that it is the Earth's rotation that causes day and night -To understand that the sun doesn't move, it is us that moves -To understand that because the Earth is rotating, the sun appears to move across the sky as the day goes on -To know that as the Earth rotates, shadows that are formed change in size and orientation -To know that because of the Earth's tilt, the poles experience 24 hours of sunlight in the summer and very few hours of sunlight in the winter -To know that the Earth's tilt creates the seasons 	
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					<p>To describe the movement of the Earth, and other planets, relative to the Sun in the solar system</p> <ul style="list-style-type: none">-To know there are 8 planets in the Solar System and name them – Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto is a dwarf planet)-To know all planets orbit the Sun-To know that all planets have a Moon-To know that Mercury, Venus, Earth and Mars are relatively small and rocky-To know that Jupiter and Saturn are gas giants-To know that Uranus and Neptune are ice giants-To know the solar system also consists of asteroids, meteoroids and comets-To know the Solar System is in a Galaxy called the Milky Way-To know the Galaxy is the Universe	
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					<p>Possible Scientific Enquiry</p> <p>Observing over time -What happens to a shadow during the day?</p> <p>Researching using Secondary Sources -How do the planets move around the sun?</p>	
<p>Years 5 & 6</p>	<p>Summer 1</p>	<p>Animals including Humans</p> <p>Human Body</p> <p>Circulatory System</p>	<p>Biology</p>	<p>Asking Questions -To ask questions and develop a line of enquiry based on observations of the real world</p> <p>Making Predictions -To make Predictions using scientific knowledge and understanding</p> <p>Enquiry or Investigation -To choose what evidence to collect to investigate a question, ensuring the evidence is sufficient</p> <p>Making Measurements</p>	<p>To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>-To know that the circulatory system is made up of the heart, lungs and blood vessels</p> <p>-To know that the heart, blood vessels and blood are the main parts of the circulatory system</p> <p>-To recognise a diagram of the heart</p> <p>-To recognise a diagram of the lungs</p> <p>-To know there are three main types of blood vessels: arteries, capillaries and veins</p>	<p>Core Vocabulary</p> <p>circulatory system organ heart/cardiac plasma platelets</p> <p>Other Vocabulary</p> <p>pulmonary, alveoli, gas exchange, blood vessels, artery, arteries, capillaries, vein, oxygenated, de-oxygenated blood,</p>



				<p>-To consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena</p> <p>Recording and Presenting Data</p> <p>-To report and present findings from enquiries, including conclusions, in oral and written forms</p> <p>Answering Questions using Data</p> <p>-To identify scientific evidence that has been used to support or refute ideas and arguments</p> <p>Drawing Conclusions</p> <p>-To use results to draw conclusions</p> <p>-To say whether the evidence supports any prediction made</p>	<p>-To know the blood vessels carry the blood around the body</p> <p>-To know the heart is composed of four chambers called the right atrium, the right ventricle, the left atrium and the left ventricle</p> <p>-To know and label parts of the heart</p> <p>-To be able to label other parts of the circulatory system: lungs, vena cava</p> <p>-To know that veins (vena cava) carry deoxygenated blood from the body to the heart</p> <p>-To know the right atrium collects the deoxygenated blood from the body via the vena cava and sends the blood to the right ventricle</p> <p>-To know the right ventricle pumps the deoxygenated blood to the lungs and the blood picks up oxygen and disposes of carbon dioxide</p>	<p>water, nutrients, oxygen, carbon dioxide, aorta, atrium, lungs, pulse, vena cava, ventricle, ventilation</p>
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					wrist (radial artery), behind the knee (popliteal artery), the groin (femoral artery), inside the elbow (brachial artery), the foot (dorsalis pedis and posterior tibial artery) and the abdomen (abdominal aorta)	
Years 5 & 6	Summer 1	Animals including Humans Staying Healthy	Biology	<p>Asking Questions -To know how to turn a question or idea into a form that can be tested</p> <p>Making Predictions -To make predictions using scientific knowledge and understanding</p> <p>Enquiry or Investigation -To decide how to turn ideas into a form that can be tested -To identify factors that are relevant to a particular situation -To choose what evidence to collect to investigate a question, ensuring the evidence is sufficient -To choose what equipment to use</p>	<p>To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function -To know that humans need to lead a healthy lifestyle -To know that for humans to lead a healthy lifestyle they need to have a balanced diet (the right amount of different foods and drink – see the Eatwell guide), they need to exercise and be hygienic -To know that some lifestyles choices are harmful to the circulatory system and cause health risks and damage to other parts of the body -To understand the health risks and damage caused to the body by smoking, drugs, alcohol and obesity -To know that tobacco is addictive</p>	<p>Core Vocabulary calories obesity pulse beats per minute addictive</p> <p>Other Vocabulary small intestine, villi, villus, kidney, liver, heart, lung, muscle layers, circulation, brain chemicals, healthy diet, drugs, alcohol, smoking,</p>



				<p>Making Measurements</p> <ul style="list-style-type: none"> - To make a variety of relevant observations and measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate -To decide when observations and measurements need to be checked, by repeating, to give more reliable data. -To measure pulse -To solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (Maths) <p>Recording and Presenting Data</p> <ul style="list-style-type: none"> -To record data and results of increasing complexity using scientific diagrams and labels, tables and bar charts and line graphs using ICT where relevant 	<ul style="list-style-type: none"> -To know that tobacco can cause short-term effects such as shortness of breath, difficulty sleeping, and loss of taste -To know that tobacco can cause long-term effects such as lung diseases, heart disease, cancer and death -To know that alcohol can cause short-term effects such as addiction and loss of control -To know that alcohol can cause long-term effects such as organ damage (liver, heart and stomach), cancer and death -To know that drugs are addictive and can damage the brain or cause death -To know that obesity can cause heart disease and lead to cancer -To know that exercise is important -To know exercise can tone our muscles and reduce fat -To know that exercise increases fitness 	<p>fermentation, disease, death</p>
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				<p>Answering Questions using Data</p> <ul style="list-style-type: none"> -To decide whether results support any prediction -To interpret data and think about whether it is sufficient to draw conclusions <p>Drawing Conclusions</p> <ul style="list-style-type: none"> -To use results to draw conclusions and to make further Predictions -To say whether the evidence supports any prediction made 	<ul style="list-style-type: none"> -To know exercise makes you feel physically and mentally healthier -To know that exercise strengthens the heart -To know that exercise improves lung function -To know that exercise improves the skin <p>Possible Scientific Enquiry</p> <p>Observing over Time</p> <ul style="list-style-type: none"> -How does pulse rate change before, during and after exercise? <p>Pattern Seeking</p> <ul style="list-style-type: none"> -Is there a difference in the resting pulse rate of boys and girls? -Does the resting pulse rate of children vary with age? <p>Comparative and Fair Testing</p>	
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					-How does my pulse rate change over time when I carry out two different types of exercise?	
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