

	Autumn I	Autumn II	Spring I	Spring II	Summer I	Summer II
Year 1	Plants Animals Including Humans Seasonal Changes.					
	Seasonal Change Weather, seasons and length of day Plants Observe plants.	Animals, including humans - Identify and name parts of the human body - Five senses - Identify and name animals using key features.	Seasonal Change Weather, seasons and length of day Plants Observe plants and make comparisons.	Materials Simple physical properties of everyday materials	Seasonal Change Weather, seasons and length of day Plants Identify and classify plants.	Animals, including humans -What animals eat -Simple investigation using the five senses.
Year 2	Living Things and their habitats Animals. Plants (growing seeds and bulbs outside)					
	Plants Plant and how plants grow – Plant bulbs.	Living things and their habitats and animals. Habitats and micro-habitats Babies grow to adults Health and hygiene	Plants, Animals and Habitats. Planting, what plants need to grow, comparing plants – Plant seeds. Some animals get food from plants Identify animals in micro-habitats	Materials Properties of materials and their suitability for different purposes Shapes of solid objects can be changed.	Plants Measuring plants and comparing seeds, bulbs and plants.	Living things and their habitats and Animals Food chains Plants and animals in habitats depend on each other Basic needs of animals and plants Lifecycles of animals.
Year 3	Plants (Gathering Evidence of life cycles)					
	Plants Gathering evidence of plant life cycles. Rocks	Forces and Magnets.	Plants Gathering evidence of plant life cycles. Animals, including humans. Skeleton and muscles.	Animals including humans What nutrients humans get from food	Plants Gathering evidence of plant life cycles and make comparisons.	Light
Year 4	Living things and their habitats (naming and identifying living things in the local environment)					
	Living things and their habitats Gathering evidence of living things in the playground. Animals including humans The digestive system.	States of matter Solid, liquid and gages changing state.	Living things and their habitats Gathering evidence of living things in the playground.	Sound	Electricity	Living things and their habitats Review how the playground habitat has changed through the year. Food chains.
Year 5	Properties and changes of materials (properties of materials statements)	Living things and their habitats (life cycle and reproduction of animals statements)	Forces	Earth and Space	Properties and changes of materials (changes of materials statements) Living things and their habitats (life cycle and reproduction of plants statements)	Animals including humans.
Year 6	Animals including humans	Electricity	Light	Living things and their habitats	SATs	Evolution and inheritance

Nursery (birth to 3 years)			
Communication and Language	Personal, Social and Emotional Development	Understanding the World	Vocabulary
<ul style="list-style-type: none"> • Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" • Ask questions about the world around them. • Say what happened to objects, living things or events. • Talk to an adult about what has been found/found out. 	<ul style="list-style-type: none"> • Make healthy choices about food, drink, activity and tooth brushing. • Washing hands • Walking safely with an adult • Handling of objects and living things. 	<ul style="list-style-type: none"> • Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice. 	<ul style="list-style-type: none"> • Smell, taste, touch, hear, look, feel. • Different, same, hard, soft, wet, dry, cold, hot. • Family, baby, child, old. • Plant, tree, flower, soil • sun, rain, snow, hot, cold • pull, push, stop. • Wash, clean, safe, germs.

Reception (3 and 4 year olds)					
Communication and Language	Personal, Social and Emotional Development	Understanding the World	Communication and Language - Listening, Attention and Understanding EL G	Personal, Social and Emotional Development - Managing Self ELG	Vocabulary
<ul style="list-style-type: none"> • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to work out problems and organise thinking and activities • Explain how things work and why they might happen. • Use new vocabulary in different contexts. • Talk about what they think might happen based on their own experiences. 	<ul style="list-style-type: none"> • Know and talk about the different factors that support their overall health and wellbeing: • regular physical activity • healthy eating • tooth brushing • sensible amounts of 'screen time' • having a good sleep routine • being a safepedestrian. 	<ul style="list-style-type: none"> • Explore the natural world around them. • Describe what they see, hear, and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them. • 	<ul style="list-style-type: none"> • Make comments about what they have heard and ask questions to clarify their understanding. 	<ul style="list-style-type: none"> • Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices. 	<ul style="list-style-type: none"> • change, season, Spring, Summer, Autumn, Winter, melt, freeze • animals, pets, plants, flowers, trees, living things, baby, young, old • sun, rain, snow, hot, cold • materia, wood, stone, metal, plastic, glass • electricity, electrical, plug, dangerous • hot, burn, sunburn, sun cream, bright, blind, sunglasses, cap

Year 1 Plants			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees. <p>Additional guidance:</p> <ul style="list-style-type: none"> Match seed/bulb to the correct plant. Match seed/bulb to the correct tree. Identify garden and wild flowers. 	<ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions 	<p>Research</p> <ul style="list-style-type: none"> Ask questions about how things are and the way they work With help make suggestions about how to find things out Use simple books and electronic media to find things out Record in words and pictures what you find out Begin to use scientific language to talk about what you have found out Talk about whether the information source was useful Give an opinion about some things you found out <hr/> <p>Research</p> <p>Research the names of plants based on observation of leaves, flowers, buds and bark.</p>	<p>Leaf, Leaves, Flowers, blossom, Petals, Fruit, Roots, bud, Bulb, Seed, Trunk, Branches, Stem, Deciduous, Evergreen trees, wild, garden, earth, soil, dead, healthy, alive, living, grow, growing</p>
Lesson Sequence.			

Year 1 Animals and Humans.			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <p>Additional guidance:</p> <p>Humans</p> <ul style="list-style-type: none"> 5 senses Name each body part linked to each sense. Draw each body part linked to each sense. <p>Animals.</p> <ul style="list-style-type: none"> Name common animals (pets) Identify and name some mammals Identify and name some birds and reptiles Identify and name some fish and amphibians Sort animals into carnivore, herbivore and omnivores. 	<ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways performing simple tests using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions 	<ul style="list-style-type: none"> Ask questions about why and how With help notice links between cause and effect With help identify simple variables to change and measure Use simple equipment to record data Record in words or pictures or in simple prepared formats such as tables or tally charts Begin to use simple scientific language to identify and describe simple causal relationships With help say if their test was fair Say if the relationship was as expected <hr/> <p>Fair Test</p> <p>Does our sense of smell improve if we cannot see?</p>	<p>Animals. Fish, Reptiles, Mammals, Birds, Amphibians, vertebrate, invertebrate, Herbivore, Omnivore, Carnivore, Wings, Beak, feathers, scales, fur, consumer, food chain. Humans. Leg, Arm, Elbow, Head, Ear, Nose, Back, hair, touch, skin, taste, mouth, tongue, hear, sight, smell, eye, face, foot, ankle, knee, toe, hand, finger, thumb, neck, elbows, sweet, salty, sour, bitter.</p> <p>Habitat Environment, habitat, pets, wild, rough, smooth, dry, wet, moist, hot, cold, icy,</p>

<ul style="list-style-type: none"> • Look at the needs of individual animals and how they would care for them, • Explore and ask questions about animals in their habitat. 			
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Lesson Sequence.

Year 1 Everyday Materials

National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> • Distinguish between an object and the material from which it is made • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties. <p>Additional guidance:</p> <ul style="list-style-type: none"> • Identify a variety of common materials. • Describe some of the uses • Sort object into material it was made from. • sort materials according to their properties - bendy/not bendy, hard/soft, transparent/opaque. • Investigate if the material will sink or float. • Group materials based on their properties. • Selecting the most appropriate material for a certain purpose. 	<ul style="list-style-type: none"> • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions 	<p>Classification and identification.</p> <ul style="list-style-type: none"> • Decide what to observe to identify or sort things • Sort objects by observable and behavioural features • Record my sorting in sorting circles or tables • Identify similarities and differences and talk about them • Begin to use scientific language to talk about how things are similar or different • Use my records to help sort or identify other things <p>Classification and identification.</p> <p>Classify different materials, choosing their own criteria.</p>	<p>Materials, properties, brick, plastic, fabric, wool, foil, elastic, man-made, natural, manufactured, object, Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, stretchy, elastic, stiff, shiny, dull, not bendy, Bendy, Rough, Smooth, flexible, rigid, solid, liquid, waterproof, absorbent, not absorbent, transparent, opaque</p>

Lesson Sequence.

Year 1 Seasonal changes.			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies. <p>Additional guidance:</p> <ul style="list-style-type: none"> Observe and talk about changes in the weather Weather linked to seasons Compare how the seasons are different How humans and animals are affected by the different seasons. – Dressing for the seasons - Link to animals unit. Plants in different seasons. Day length affected by the seasons. Dangers of the sun 	<ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions 	<p>Observation over time</p> <ul style="list-style-type: none"> Ask questions about how and why things change Ask questions about how and why things are similar or different With help identify changes to observe and measure and suggest how to do it Use non-standard units and simple equipment to record changes Record in words or pictures or in simple prepared formats such as tables and / or charts Make comparisons between simple features of objects, materials or living things Record observations in words or pictures or simple tables Identify simple changes and talk about them Sequence the changes Begin to use scientific language to talk about the changes Say whether the change was as expected <p>Pattern Seeking.</p> <ul style="list-style-type: none"> Ask questions about why and how things are linked With help decide what patterns to observe and measure and suggest how to do it. Use non-standard units and simple equipment to record events that might be related Record in words or pictures or in simple prepared formats such as tables, tally charts and maps Identify simple patterns and talk about them Make links between two sets of observations Begin to use scientific language to talk about patterns Talk about whether the pattern was as expected 	Summer, Spring, Autumn, Winter, season, Sun, Day, Moon, Night, Light, Dark, rain, sleet, snow, blizzard, freezing, frost, ice, mist, fog, wind, temperature, hot, cold, cool, weather, forecast, clouds, thunder, lightning, environment, air.
		<p>Observation over time Take weather measurements over the year and make observations. (temperature, rain fall)</p> <p>Pattern Seeking. End of the year look for patterns in evidence – Do we have more sunny days in Summer?</p>	
Lesson Sequence.			

Year 2 Plants			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. <p>Additional guidance:</p> <ul style="list-style-type: none"> Life cycle of a flowering plant including seed, flower and fruit. Know all flowering plants grow from seeds. Find seeds in different types of flowers and fruit. Know what seeds need to grow. 	<ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions 	<ul style="list-style-type: none"> Ask questions about how and why things change Ask questions about how and why things are similar or different With help identify changes to observe and measure and suggest how to do it Use non-standard units and simple equipment to record changes Record in words or pictures or in simple prepared formats such as tables and / or charts Make comparisons between simple features of living things Record observations in words or pictures or simple tables Identify simple changes and talk about them Sequence the changes Begin to use scientific language to talk about the changes Say whether the change was as expected 	Seeds, seedling, sprout, mature plant, Bulbs, Water, Light, Temperature, Growth, grow, healthy, unhealthy, suitable conditions, germinate, wild, soil, energy, food
		<p>Observation over time</p> <p>Plant seeds and bulbs and observe how they grow over time.</p>	
<p>Lesson Sequence.</p>			

Year 2 Animals and Humans.			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Notice that animals, including humans, have offspring which grow into adults Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. <p>Additional guidance:</p> <p>Humans</p> <ul style="list-style-type: none"> Life Cycle of a human. Learn what humans need to survive. Healthy and unhealthy food. Learn why exercise is important. <p>Animals.</p>	<ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions 	<ul style="list-style-type: none"> Ask questions about how things are and the way they work With help make suggestions about how to find things out Use simple books and electronic media to find things out Record in words and pictures what you find out Begin to use scientific language to talk about what you have found out Talk about whether the information source was useful Give an opinion about some things you found out Interpret and talk about data 	Animals Dead, alive, food chain, healthy, predator, prey, producer, consumer, decomposer, nocturnal, group, adapt, diversity, survive, organism, group, herbivore, carnivore, omnivore. Humans Water, Air, Food, Adult, Baby, Offspring, Exercise, Hygiene
		<p>Research</p> <p>To research an animals of their choice and their basic needs to survive.</p>	

<ul style="list-style-type: none"> • Identify the offspring of a range of animals. • Different ways animal reproduce • Life Cycle of an animal. • Learn what animals need to survive. • Look at different animals and compare what they need to survive. (could build on from Y1- mammal, amphibian, reptile, bird and fish) 			
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Lesson Sequence.

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Year 2 Everyday Materials

National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. <p>Additional guidance:</p> <ul style="list-style-type: none"> • identify the materials that different objects are made from. • Identify man made natural materials. • Test and investigate the properties of materials. • identify the materials that different objects are made from. • identify the materials that different objects are made from. • identify the materials that different objects are made from. 	<ul style="list-style-type: none"> • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions 	<ul style="list-style-type: none"> • Ask questions about why and how • With help notice links between cause and effect • With help identify simple variables to change and measure • Use non-standard units and simple equipment to record data • Record in words or pictures or in simple prepared formats such as tables or tally charts • Begin to use simple scientific language to identify and describe simple causal relationships • With help say if their test was fair • Say if the relationship was as expected <p>Fair Testing.</p> <p>To test materials for different uses.</p>	<p>Materials, natural, man-made, manufactured, object, group, properties, change, bend, twist, stretch, squash, metal, plastic, wood, paper, glass, clay, Hard, Soft, Stretchy, Stiff, Rigid, flexible, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent translucent Brick, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil</p>

Lesson Sequence.

Year 2 Living Things and their Habitat

National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other Identify and name a variety of plants and animals in their habitats, including micro-habitats Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. 	<ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions 	<p>Classifying</p> <ul style="list-style-type: none"> Decide what to observe to identify or sort things Sort objects by observable and behavioural features Record my sorting in sorting circles or tables Identify similarities and differences and talk about them Begin to use scientific language to talk about how things are similar or different Use my records to help sort or identify other things <p>Pattern Seeking</p> <ul style="list-style-type: none"> Ask questions about why and how things are linked With help decide what patterns to observe and measure and suggest how to do it. Use non-standard units and simple equipment to record events that might be related Record in words or pictures or in simple prepared formats such as tables, tally charts and maps Identify simple patterns and talk about them Make links between two sets of observations Begin to use scientific language to talk about patterns Talk about whether the pattern was as expected <hr/> <p>Classifying</p> <p>Classify things found in the environment (choosing their own criteria to do so), leading to living, dead and never been alive.</p> <p>Pattern Seeking</p> <p>Which habitat do worms prefer – where can we find the most worms?</p>	<p>Animal and Human vocabulary.</p> <p>Habitat</p> <p>Water, air, habitat, micro-habitat, environment, Living, Dead, Energy, Woodland, Pond, Desert, ocean, polar</p>

Lesson Sequence.

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Year 3 Plants			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings 	<ul style="list-style-type: none"> Talk about things changing and decide when questions can be answered by observing over time Decide what observations to make, how often and what equipment to use Make records using tables and bar charts Draw simple conclusions from the changes observed Talk about some changes using scientific language Suggest improvements to the ways observed 	Air, Light, Water, Nutrients, Soil, Transportation, Dispersal, Pollination, Flower, function, anchor, fertilisation, air, oxygen, carbon dioxide, seed dispersal, overcrowding, life process, producer, life cycle, germination, nectar, insect, pollen
<p>Additional guidance:</p> <ul style="list-style-type: none"> Recap life cycle of a flowering plant including seed, flower and fruit. Identify different parts of plants including seed, fruit and flower. Grow different type of plants (marigold, bell pepper). Pollination life cycle Seed dispersal. 		<p>Observation over time</p> <p>Observe flowers / celery in coloured water (link to how water is transported within plants)</p>	
<p><u>Lesson Sequence.</u></p>			

Year 3 Animals and Humans.			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary

<ul style="list-style-type: none"> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identify that humans and some other animals have skeletons and muscles for support, protection and movement. <i>Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.</i> 	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, suggest improvements and raise further questions using straightforward scientific evidence to answer questions or to support their findings 	<ul style="list-style-type: none"> Talk about how things are and the way they work and decide when questions can be answered by research using secondary sources Use information sources to find the information needed Use data from other pupils Record what they found out in their own words Present information in different ways Draw conclusions from what they found out from different sources Talk about what the information and data means using some scientific language Suggest ways to improve how to find out and use information 	<p>Animals Carnivore, herbivore, omnivore, vertebrate, invertebrate,</p> <p>Humans Muscles, Nutrition, Skeletons, balanced diet, protein, fats, carbohydrates, vitamins, minerals, fibre, energy, food pyramid, function, structure, vegetarian, support, protect, movement, organs, relax, contract, heart, lungs, brain, ribs, skull, bones, spine, joint, femur, clavicle, humerus, fibula</p>
<p>Additional guidance:</p> <p>Humans.</p> <ul style="list-style-type: none"> Five food groups. Nutrition gained from each food group. Creating a balanced, healthy meal. Food pyramid (amounts). Human skeleton – label bones (protection, support and movement) Human skeleton – muscle and movement. <p>Animals.</p> <ul style="list-style-type: none"> Sort animals into carnivore, herbivore and omnivores based on their diets. Animal skeletons - Vertebrates and invertebrates Animal Skeletons / bones. 		<p>Research</p> <p>Children to research different food groups and how they keep us healthy. They will design a meal based on a certain dietary. (vegetarian / vegan / lactose intolerant)</p>	
<p><u>Lesson Sequence.</u></p>			

Year 3 Rocks.

National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties (<i>sedimentary and igneous rock</i>) Describe in simple terms how fossils are formed when things that have lived are trapped within rock <p>Recognise that soils are made from rocks and organic matter.</p>	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries and comparative tests making systematic and careful observations gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams and keys reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings 	<ul style="list-style-type: none"> Talk about how things are and the way they work and decide when questions can be answered by research using secondary sources Use information sources to find the information needed Use data from other pupils Record what they found out in their own words Present information in different ways Draw conclusions from what they found out from different sources Talk about what the information and data means using some scientific language Suggest ways to improve how to find out and use information 	<p>Rocks, appearance, grain, crystal, permeable, impermeable, sedimentary, igneous, metamorphic, absorbent, texture, Fossils, Soils, Sandstone, limestone, slate, chalk, Granite, Marble, Crystals, characteristics, properties.</p>
<p>Additional guidance:</p> <ul style="list-style-type: none"> Sort rocks into man made and naturally occurring. Learn how rocks are formed (sedimentary, igneous and metamorphic) Describe the characteristics of rocks. Testing the properties of rocks. Identify and name types of rocks based on their characteristics and properties. Know what a fossil is. Learn how a fossil is formed. Identify fossils and what could be learnt from it. How soil is formed The uses of soil. 		<p>Classification and identification</p> <p>To devise comparative tests for rocks, record and evaluate observations and results</p>	

Lesson Sequence.

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Year 3 Light			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous and that there are ways to protect their eyes Recognise that shadows are formed when the light from a light source is blocked by an opaque object Find patterns in the way that the size of shadows change. 	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries and comparative tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> Talk about where patterns may be found and decide when questions can be answered by pattern seeking Decide on which sets of data to collect, what observations to make and what equipment to use Use a range of equipment to collect data using standard measures Make records using tables Begin to use and interpret data collected Talk about patterns using some scientific language Suggest improvements to the way to look for patterns <p>Pattern Seeking.</p> <p>To find patterns when investigating how shadows change size.</p>	<p>Rocks, appearance, grain, crystal, permeable, impermeable, sedimentary, igneous, metamorphic, absorbent, texture, Fossils, Soils, Sandstone, limestone, slate, chalk, Granite, Marble, Crystals, characteristics, properties.</p>
<p>Additional guidance:</p> <ul style="list-style-type: none"> Know light travels in a straight line. Lights need to be in a direct line of an object for it to be seen. Sort objects into light and reflectors Know that reflectors can be used to help light travel. Know what opaque, translucent and transparent means and give examples. 			
<u>Lesson Sequence.</u>			

Year 3 Forces			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing. 	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries and fair tests gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, bar charts and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> Talk about links between cause and effect and with help pose a fair test question Help to plan a fair test Decide what data to collect Decide what equipment to use and how to make observations Use a range of equipment to collect data using standard measures Make records using bar charts Begin to use and interpret data collected through data loggers Draw simple conclusions from fair tests Talk about and explain, simple causal relationships using some scientific language Suggest ways to improve fair tests 	<p>Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull, magnet, non- magnetic, north pole, south pole, repel, contract, surface, strength, resistant, contact.</p>
<p>Additional guidance:</p> <ul style="list-style-type: none"> Sort forces into push and pull Demonstrate how some forces don't need contacts (magnetic / Gravity) 		<p>Fair Testing.</p> <p>To carry out a fair test on magnets and use findings to draw conclusions.</p>	
<u>Lesson Sequence.</u>			

Year 4 Animals including Humans			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey. 	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using 	<ul style="list-style-type: none"> Talk about links between cause and effect and with help pose a fair test question Help to plan a fair test Decide what data to collect Decide what equipment to use and how to make observations 	<p>Teeth Carnivore, herbivore, omnivore, tooth, incisor, molar, canine, biting, holding, tearing, grinding, root, gum, jaw, bone,</p>

<p>Additional guidance:</p> <p>Humans</p> <ul style="list-style-type: none"> Recap - carnivore, herbivore and omnivores animals and lead into human diets. (Vegan, vegetarian). Link into teeth. Animal teeth being different and why. Name different types of human teeth Identify the function of the teeth. Learn how to check teeth healthy. Identify and locate main organs of the digestive system. Learn how the digestive system works. <p>Animals.</p> <ul style="list-style-type: none"> Animal diets - carnivore, herbivore and omnivores Food chains / Food webs. 	<p>standard units, using a range of equipment, including thermometers and data loggers</p> <ul style="list-style-type: none"> gathering, recording and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> Use a range of equipment to collect data using standard measures Make records using bar charts Begin to use and interpret data collected through data loggers Draw simple conclusions from fair tests Talk about and explain, simple causal relationships using some scientific language Suggest ways to improve fair tests <p>Fair Test</p> <p>Which drinks are best for our teeth?</p>	<p>tooth decay, plaque, enamel.</p> <p>Digestion. Digestion, digestive system, food, nutrients, mouth, tongue, teeth, stomach oesophagus, small intestine, large intestine, rectum, anus, mucus, acid, absorption</p> <p>Animals Herbivore, carnivore, omnivore, Predator, food chain, prey, producer, consumer, food webs, ecosystem, habitat.</p>
Lesson Sequence.			

Year 4 Living Things and their Habitat			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things. <p>Additional guidance:</p>	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> Talk about things changing and decide when questions can be answered by observing over time Decide what observations to make, how often and what equipment to use Use a range of equipment to collect data using standard measures Make records using tables and bar charts Begin to use an interpret graphs produced by data loggers Draw simple conclusions from the changes observed Talk about some changes using scientific language Suggest improvements to the ways observed 	<p>Vertebrates, invertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats, Flowering, non-flowering plants, animals, plants, population, development, litter deforestation</p>

		Observation over time.	
		Observe living things in their local environment at different times of the year.	
Lesson Sequence.			

Year 4 States of Matter			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> • Compare and group materials together, according to whether they are solids, liquids or gases • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. <p>Additional guidance:</p> <ul style="list-style-type: none"> • Sort objects into solid, liquid gases. • Particle model to show the different states of matter. • Explore the properties of gas. • Observe that materials change state when they are heated or cooled. • Research the temperature needed for materials to change state. • Know the stages of the water cycle. • Describe each stage of the water cycle. • Know the process of evaporation. • Know the process of condensation. • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<ul style="list-style-type: none"> • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> • Talk about how things are and the way they work and decide when questions can be answered by research using secondary sources • Use information sources to find the information needed • Use data from other pupils • Record what they found out in their own words • Present information in different ways • Draw conclusions from what they found out from different sources • Talk about what the information and data means using some scientific language • Suggest ways to improve how to find out and use information <p>Research</p> <p>Research the water cycle.</p>	Solid, Liquid, Gas, air, Evaporation, Condensation, Particles, Temperature, Freezing, Heating, Oxygen, powder, grain, granular, crystals, ice, water, steam, water vapour, heated, heating, cooled, cooling ,degrees Celsius, melt, freeze, solidify, melting point
Lesson Sequence.			

Year 4 Electricity			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors. <p>Additional guidance:</p>	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> Talk about where patterns may be found and decide when questions can be answered by pattern seeking Decide on which sets of data to collect, what observations to make and what equipment to use Use a range of equipment to collect data using standard measures Make records using tables, bar charts of simple scatter graphs Begin to use and interpret data collected through data loggers Draw conclusions about simple patterns between two sets of data Talk about patterns using some scientific language Suggest improvements to the way to look for patterns <p>Pattern Seeking</p> <p>What happens when you add/remove batteries/lamps as part of an electrical circuit?</p>	Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, appliances, electricity, electrical, danger, electrical safety sign, open, closed, components, plug motor, mains
Lesson Sequence.			

Year 4 Sound			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through a medium to the ear 	<ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them making systematic and careful observations and, where appropriate gathering, recording, classifying and presenting data in a variety of ways to help in answering questions 	<ul style="list-style-type: none"> Talk about criteria to use to sort and classify things Decide what equipment to use to identify and classify things Talk about things that can be grouped and decide when questions can be answered by sorting and classifying Carry out simple tests to sort and classify according to properties or behaviour 	Volume, Vibration, Wave, Pitch, Tone, Speaker, sound source, noise vibrate, travel, solid, liquid, gas, tune, high, low, volume, loud, quiet, fainter, muffle, insulation,

<ul style="list-style-type: none"> Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it Recognise that sounds get fainter as the distance from the sound source increases. Find out how the pitch and volume of sounds can be changed in a variety of ways. <p>Additional guidance:</p>	<ul style="list-style-type: none"> reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> Use Carroll diagrams, Venn diagrams and more complex tables to sort things Use simple keys and branching databases to identify things Make simple branching data bases(keys) for things that have clear differences Draw simple conclusions about things that have been sorted and classified Talk about the similarities and differences identified using some scientific language Suggest improvements to the way they sort and classify things <p>Classification and identification.</p> <p>Based on the childrens own criteria, sort musical instruments.</p>	<p>instrument, percussion, strings, brass, woodwind, tuned instrument</p>
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Lesson Sequence.

Year 5 Animals including Humans			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Describe the changes as humans develop to old age. <p>Additional guidance:</p> <p>Humans</p> <ul style="list-style-type: none"> Recognise the stages of growth and development. Gestation period in humans. Development during childhood and the needs. Initial changes inside and outside the body during puberty. Compare puberty between boys and girls. How the body changes during adulthood to old age. 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, 	<ul style="list-style-type: none"> Recognise when research using secondary sources will help to answer questions Decide what sources of information might answer questions Use relevant information and data from a range of secondary sources Recognise how data has been obtained Start to notice when information or data is biased or based on opinions rather than facts Present findings in suitable formats Draw valid conclusions from own research Talk about and explain research using scientific knowledge and understanding Evaluate how well their research has answered the question Recognise that some scientific questions may not have been answered definitively Draw valid conclusions based on the data 	<p>Humans</p> <p>Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty, fertilisation, egg cell, sperm cell, baby; infant; toddler; child; adolescent; teenager; young adult, mature adult, old age, elderly, life cycle, hormones.</p> <p>Animals.</p> <p>Reproduce, grow, reproduction, life cycle, mammal, amphibian, insect, bird, fish, reptile,</p>

	<p>in oral and written forms such as displays and other presentations</p> <ul style="list-style-type: none"> identifying scientific evidence that has been used to support or refute ideas or arguments 	<p>Research</p> <p>How do humans change as they get older?</p>	<p>male, female, metamorphosis.</p>
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Lesson Sequence.

Year 5 Living Things and their Habitat

National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals <p>Additional guidance:</p> <ul style="list-style-type: none"> Describe the life process of reproduction in some plants They should observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, Pupils should find out about different types of reproduction, including sexual and asexual reproduction in plants, Identify reproduction parts of different plants. Reproduction of sexual plants. Reproduction of asexual plants. 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> Recognise when observing changes over time will help to answer questions Decide how detailed observations need to be and what equipment to use to make measurements as accurate as possible Use equipment accurately without support Record data appropriately Interpret changes in the data Recognise the effect of changing the time and number of observations Draw valid conclusions from data about changes Recognise the significance of things changing over time Talk about and explain changes using scientific knowledge and understanding Evaluate how well they observed over time <p>Observation over time</p> <p>Observe changes in an animals over time (life cycle) Tadpoles?</p>	<p>Germination, fertilisation, pollination, fruit, seed, stigma, anther, style, ovary, ovule, carpel, nucleus, pollen, pollen grain, pollen tube, seeds, bulb, tuber, stem, root cutting, sexual, asexual.</p>

Lesson Sequence.

Year 5 Properties and change of Materials			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. <p>Additional guidance:</p> <ul style="list-style-type: none"> Group materials based on their characteristics and properties. investigate which materials are soluble in water Some change of states can be reversed. explore ways in which the original materials in some mixtures and solutions may be recovered Some changes of state can't be reversed. Learn what new material is made from irreversible changes. Consider ways in which certain properties of materials make them useful. They will then sort, test and select materials for different uses, depending on their properties of evaporation with temperature 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> Recognise when identifying and classifying will be helpful to answer questions Decide what equipment, tests and secondary sources of information to use to identify and classify things Use a series of tests to sort and classify materials Use secondary sources to identify and classify things Make own keys and branching data bases with 4 or more items Use more than one piece of scientific evidence to identify and classify things Use equipment accurately to collect observations Draw valid conclusions when sorting and classifying Recognise the significance of sorting and classifying Talk about and explain what they have done using scientific knowledge Evaluate how well the keys have worked <p>Classification and identification</p> <p>Compare and group everyday materials by characteristics such as hardness, solubility or transparency.</p>	rigid, hard, soft, stretchy, flexible, waterproof, absorbent, electrical/thermal conductivity, melting, dissolve, solution, insoluble, solute, solvent, particle, mixture, filtering, sieving, residue, reversible/non reversible changes, new material, burning, rusting,
Lesson Sequence.			

Year 5 Earth and Space			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary

<ul style="list-style-type: none"> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system <i>Pupils should learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune</i> Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. <i>Pupils should be introduced to a model of the Sun and Earth that enables them to explain day and night.</i> <p>Additional guidance:</p>	<ul style="list-style-type: none"> asking relevant questions and using different planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> Recognise when variables cannot be controlled and when pattern seeking will help to answer questions Decide how detailed the data needs to be and which equipment to use to make measurements as accurate as possible Record data appropriately and accurately Present data in scatter graphs and frequency charts Recognise patterns in results Recognise the effect of sample size on reliability Draw valid conclusions from data about patterns and recognise their limitations Recognise the significance of relationships between sets of data Talk about and explain cause and effect patterns using scientific knowledge and understanding Evaluate how well they looked for patterns <p>Pattern Seeking</p> <p>Is there a pattern between the size of a planet and the time it takes to travel around the Sun?</p>	<p>Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation, orbit, planets, celestial body, Mercury, Venus, Mars, Jupiter; Saturn, Uranus, Neptune, Pluto, gravity, gravitational pull, Solar System, Universe, comet, astronaut, rocket, space station, lunar, lunar cycle, revolve, sphere, spherical.</p>
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Lesson Sequence.

Year 5 Forces			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 	<ul style="list-style-type: none"> Recognise when variables need to be controlled and when a fair test is the best way to answer a question Plan a fair test selecting the most suitable variables to measure change and keep the same Decide what equipment to use to make measurements as accurate as possible Use equipment accurately to collect observations Record data appropriately and accurately Present data in line graphs Identify causal relationships Recognise the significance of the results of fair tests 	<p>Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys, gravitational force, force, thrust, up-thrust, push, pull, stationary, contact force, non-contact force, buoyancy, zero gravity, motion,</p>

<p>pulleys and gears, allow a smaller force to have a greater effect.</p> <ul style="list-style-type: none"> • <i>They should experience forces that make things begin to move, get faster or slow down.</i> <p>Additional guidance:</p>	<ul style="list-style-type: none"> • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> • Talk about and explain causal relationships using scientific knowledge and understanding • Evaluate the effectiveness of fair testing, recognising variables that were difficult to control. 	<p>surface area; Mass (g & kg); Balance.</p>
		<p>Fair test</p> <p>How does the surface area of a parachute affect the time it takes to fall to the ground</p>	

Lesson Sequence.

Year 6 Animals including Humans

National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • Describe the ways in which nutrients and water are transported within animals, including humans. • <i>Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body.</i> <p>Additional guidance:</p> <p>Humans</p> <ul style="list-style-type: none"> • Describe the function of blood and blood vessels. • Identify main parts of the circularity system. • Explain the function of main parts in the circularity system. • Explain how the human heart works. • Investigate heart rate and how exercise effects this. • Learn how water and nutrients are transported around the body. • Effects of alcohol and smoking on the body. • How diets can effect body weight (healthy diets). 	<ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> • Recognise when observing changes over time will help to answer questions • Decide how detailed observations need to be and what equipment to use to make measurements as accurate as possible • Use equipment accurately without support • Record data appropriately • Present data in line graphs • Interpret changes in the data • Recognise the effect of changing the time and number of observations • Draw valid conclusions from data about changes • Talk about and explain changes using scientific knowledge and understanding • Evaluate how well they observed over time <p>Observation over time</p> <p>Observe pulse rates before, during and after exercise.</p>	<p>Humans.</p> <p>transport, energy, blood, blood cells; Blood Vessels, capillaries, organ, heart, heart rate, pulse, chamber, artery, vein, contract, oxygen, oxygenated, deoxygenated, carbon dioxide, exercise, cycle, vitamins, nutrient, lungs, drugs, medicine, medication, side-effect, addiction, vitamins; minerals, nutrient, circulatory system</p>

• Benefits of exercise.			
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Lesson Sequence.

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Year 6 Living Things and their Habitat

National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics <p>Additional guidance:</p> <ul style="list-style-type: none"> Classifying plants differently recapping over previous learning. 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> Recognise when identifying and classifying will be helpful to answer questions Decide what equipment, tests and secondary sources of information to use to identify and classify things Use a series of tests to sort and classify materials Use secondary sources to identify and classify things Make own keys and branching data bases with 4 or more items Use more than one piece of scientific evidence to identify and classify things Use equipment accurately to collect observations Draw valid conclusions when sorting and classifying Recognise the significance of sorting and classifying Talk about and explain what they have done using scientific knowledge Evaluate how well the keys have worked <p>Classification and Identification.</p> <p>Create a branching database/dichotomous key to classify a set of living things.</p>	<p>Animals. Classification, , classification system, vertebrates, invertebrates, micro-organisms, animals, insects, fish, amphibians, reptiles, birds, mammals, crustacean Arthropods, arachnids, myriapods</p> <p>Humans. species, fungi, bacteria, virus,</p> <p>Plants. plants; mosses; ferns; conifers; flowering plants;</p>

Lesson Sequence.

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Year 6 Evolution and Inheritance

National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
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<ul style="list-style-type: none"> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. <p>Additional guidance:</p>	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> Recognise when research using secondary sources will help to answer questions Decide what sources of information might answer questions Use relevant information and data from a range of secondary sources Recognise how data has been obtained Start to notice when information or data is biased or based on opinions rather than facts Present findings in suitable formats Draw valid conclusions from own research Talk about and explain research using scientific knowledge and understanding Evaluate how well their research has answered the question Recognise that some scientific questions may not have been answered definitively Draw valid conclusions based on the data <p>Research</p> <p>Research different types of a species and their characteristics making them suitable for different habitats e.g. penguins.</p>	<p>Adapt, Adaptation, inheritance, reproduce, Evolution, Fossils, Characteristics, Reproduction, genes, variation, natural selection, selective breeding, generation, species, trait, heredity, reproduce, diversity, survival, extinct, off spring, parents, identical, , habitat, predator, prey, organisms</p>
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Lesson Sequence.

Year 6 Electricity			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> Associate the brightness of a lamp or volume of a bulb with the number and voltage of cells used in a circuit. Compare and give reasons for the variation in how components function in a circuit including brightness of bulbs, loudness of buzzers and on/off position of switches. Use recognised circuit symbols when representing a simple circuit in a diagram. 	<ul style="list-style-type: none"> asking relevant questions and using different planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 	<ul style="list-style-type: none"> Recognise when variables cannot be controlled and when pattern seeking will help to answer questions Decide how detailed the data needs to be and which equipment to use to make measurements as accurate as possible Record data appropriately and accurately Present data in scatter graphs and frequency charts Recognise patterns in results Recognise the effect of sample size on reliability Draw valid conclusions from data about patterns and recognise their limitations Recognise the significance of relationships between sets of data 	<p>Electrical current; circuit; series circuit; symbols; cell; battery; bulb; buzzer; motor; switches; conductor; insulator; safety precautions; open switch; closed switch; positive terminal; negative terminal; volts; voltage; resistance</p>

Additional guidance:	<ul style="list-style-type: none"> • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> • Talk about and explain cause and effect patterns using scientific knowledge and understanding • Evaluate how well they looked for patterns 	
		<p>Pattern seeking</p> <p>Does the temperature of a light bulb go up the longer it is on?</p>	

Lesson Sequence.

Year 6 Light			
National curriculum	Scientific Skills	Enquiry Skills	Vocabulary
<ul style="list-style-type: none"> • Recognise that light appears to travel in straight lines • Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. <p>Additional guidance:</p>	<ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> • Recognise when variables need to be controlled and when a fair test is the best way to answer a question • Plan a fair test selecting the most suitable variables to measure change and keep the same • Decide what equipment to use to make measurements as accurate as possible • Use equipment accurately to collect observations • Record data appropriately and accurately • Present data in line graphs • Identify causal relationships • Recognise the significance of the results of fair tests • Talk about and explain causal relationships using scientific knowledge and understanding • Evaluate the effectiveness of fair testing, recognising variables that were difficult to control. <p>Fair Test</p> <p>Which material is best for reflecting light?</p>	<p>Reflection, Light, Reflective, opaque, transparent, translucent, light source, shadow, straight.</p>

Lesson Sequence.

