



EYFS	Playing & Exploring - Engagement		Active Learning - Motivation		Creating & Thinking Critically - Thinking	
		<ul style="list-style-type: none"> Finding out & exploring Playing with what they know Being willing to 'have a go' 	<ul style="list-style-type: none"> Being involved & concentrating Keep on trying Enjoying achieving what they set out to do 	<ul style="list-style-type: none"> Having their own ideas (creative thinking) Making links (building theories) Working with ideas (critical thinking) 		
ELG - Explore the natural world around them, making observations and drawing pictures of animals and plants - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class - Understand some important processes and changes in the natural world around them, including the seasons						
Focus	Living things and their habitats	Plants	Animals, including humans	Materials		
Nursery	<ul style="list-style-type: none"> Explore different habitats outdoors, e.g. scent, colour & shape of flowers attracting bees Observe growth & decay over time Begin to understand the need to respect & care for the natural environment & all living things Talk about what they see, using a wide vocabulary Understand the key features of the life cycle of a butterfly 	<ul style="list-style-type: none"> Most plants start growing from a seed or bulb All plants need water & light to grow & survive Observe plants closely through a variety of means e.g. magnifiers & photographs Extend vocabulary: leaves, petals, roots, bulb, trunk, branches, stem, garden plants, wild plants, seeds Use all the senses in hands-on exploration of plants Understand the key features of the life cycle of a plant 	<ul style="list-style-type: none"> Observe animals closely through a variety of means e.g. magnifiers & photographs Look at key stages of development from birth to adult Name & identify body parts Observe & describe in words or actions the effects of physical activity on body Understand the key features of the life cycle of an animal 	<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 Explore how things work e.g. pulleys Explore & talk about different forces they can feel e.g. stretch, snap, rigid, magnetic repulsion, water pushing up when pushing a boat under it Talk about the differences between materials and changes they notice e.g. cooking, melting, shadows, floating & sinking 		
Reception	<ul style="list-style-type: none"> Describe what they see, hear & feel whilst outside Observational drawings of the natural world Discuss how to care for the living things & their habitats observe how flora & fauna behave differently as the seasons change Examine change over time Use correct terms e.g. chrysalis, pupa when observing life cycle of butterfly & ladybirds Express opinions on natural & built environments & opportunities to hear different points of view on the quality of the environment. Use words such as busy, quiet, pollution 	<ul style="list-style-type: none"> All plants need water, light and warmth to grow and survive A seed produces roots to allow water to get into the plant and shoots to produce leaves to collect the sunlight Extend vocabulary: blossom, buds, bulb, evergreen, deciduous Describe what they see, hear & feel whilst outside Name & describe some plants Draw pictures of plants Understand the effect of changing seasons on the natural world around them 	<ul style="list-style-type: none"> Shows some understanding that good practices with regard to exercise, eating, drinking water, sleeping & hygiene can contribute to good health Describe what they see, hear & feel Identify different parts of their body & animals Be able to show care and concern for living things Know the effects exercise has on their bodies Have some understanding of growth and change Talk about things they have observed including animals Observational drawings of animals 	<ul style="list-style-type: none"> Observe & interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object & a boat floating on water Use vocabulary to name specific features of the natural world, both natural & man-made Notice & discuss patterns around them e.g. the effect of seasons on flora & fauna Characteristics of liquids & solids e.g. cooking eggs, melting chocolate 		
	NURSERY		FOUNDATION			
Vocabulary	Body part name, animal, animal, fish, birds, plants, tree, leaf, flower, fruit, material names, Summer, day, Spring, dark, Autumn, light, Winter, night & Space, Earth Moon, Sun, star, Sound,		Herbivore, carnivore, omnivore, human, stem, seed, petals, tree trunk, branch, roots leaves, bulb, hard, soft, material, metal, wood, rock, plastic, glass, paper, fabric, smooth, shiny, rough, season, Forces, push, pull, magnet, Earth, Light, Electricity, changes, life cycle, cocoon, observe, listen, feel, sense			

Yr	Unit	Scientific Knowledge	National Curriculum Coverage	Key Concepts	Working Scientifically Skills & Techniques	Key Vocabulary <i>For more detailed vocabulary, please see each unit</i>
1	Ourselves	<ul style="list-style-type: none"> •Observe changes over time between the baby photos and current ones •Consider and notice patterns between foot and hand size. •Discuss each other about what makes a difference to how well they can hear a whistle when it is blown. •Investigate ideas by going outside and asking and extending questions and noticing patterns •Identify the differences between fruit and vegetables using our senses. •Classify fruit and vegetables into different groups •Classify different stimulating items into sensory groups on a sensory board and in sensory bottles for a local community group 	<p>Animals including humans 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>	<p>Processes</p> <p>Systems</p> <p>Forces</p> <p>Energy</p> <p>Organisation</p> <p>Cause and effect</p> <p>Diversity</p> <p>Similarity and difference</p> <p>Scale</p>	<p>Skills:</p> <p>i) asking simple questions and recognising that they can be answered in different ways</p> <p>ii) observing closely, using simple equipment</p> <p>iii) performing simple tests</p> <p>iv) identifying and classifying</p> <p>v) using their observations and ideas to suggest answers to questions</p> <p>vi) gathering and recording data to help in answering questions</p> <p>Investigative Techniques:</p> <p>Exploring</p> <p>Pattern seeking</p> <p>Sorting, classifying & identifying</p>	<p>Head; Neck;</p> <p>Arm; Elbow; Leg</p> <p>Knee; Face; Ears</p> <p>Eyes; Hair; Mouth</p> <p>Teeth; Smell</p> <p>Sound; Taste</p> <p>Touch; Sight</p>
1	Our Pets	<ul style="list-style-type: none"> •Observe what happens when chicks hatch. •Plan questions for visitors thinking carefully about what information they want to gather and how to phrase the question accordingly. •Interact and observe the visitors, recording their answers to questions and gathering information. •Discuss and draw up a list of essential items for basic survival. •Explore the idea of warming up muscles by investigating what happens when cold elastic bands are stretched without being warmed up. •Complete different physical activities, counting rate of heartbeat. •Design a balanced lunch box on paper to serve as a reminder of how much of each food group is required for a balanced lunch. 	<p>Animals, including humans</p> <p>i) identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>ii) identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>iii) describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p>	<p>Organisation</p> <p>Cause and effect</p> <p>Diversity</p> <p>Similarity and difference</p> <p>Scale</p>	<p>Skills:</p> <p>i) asking simple questions and recognising that they can be answered in different ways</p> <p>ii) observing closely, using simple equipment</p> <p>iii) performing simple tests</p> <p>iv) identifying and classifying</p> <p>v) using their observations and ideas to suggest answers to questions</p> <p>vi) gathering and recording data to help in answering questions</p> <p>Investigative Techniques:</p> <p>Exploring</p> <p>Problem solving</p> <p>Observing</p>	<p>Fish</p> <p>Amphibian</p> <p>Reptile</p> <p>Bird</p> <p>Mammal</p> <p>Carnivore</p> <p>Herbivores</p> <p>Omnivores</p>
1	Let's Build	<ul style="list-style-type: none"> •Identify and name the materials found in the classroom, using the scientific words: wood, plastic, glass and metal. •Sort the objects according to their properties •Explore a variety of different magnets and objects (both magnetic and non-magnetic), including paperclips in jars/bowls of water. •Explore moving magnets without touching them, strength test with different magnets •Sort objects in the classroom according to these criteria: hard, soft, stretchy, stiff, bendy/floppy (Sorting, classifying and identifying). •Listen to the story of three pigs who didn't choose the right materials and recreate using straw, twigs, bricks and a hairdryer (Exploring, problem solving). 	<p>Everyday materials</p> <p>i) distinguish between an object and the material from which it is made ii) identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>iii) describe the simple physical properties of a variety of everyday materials iv) compare and group together a variety of everyday materials on the basis of their simple physical properties</p>	<p>Scale</p>	<p>Skills:</p> <p>i) asking simple questions and recognising that they can be answered in different ways</p> <p>ii) observing closely, using simple equipment</p> <p>iii) performing simple tests</p> <p>iv) identifying and classifying</p> <p>v) using their observations and ideas to suggest answers to questions</p> <p>vi) gathering and recording data to help in answering questions</p> <p>Investigative Techniques:</p> <p>Sorting, classifying & Identifying</p>	<p>Hard</p> <p>Soft</p> <p>Stretchy</p> <p>Stiff</p> <p>Shiny</p> <p>Dull</p> <p>Rough</p> <p>Smooth</p> <p>Bendy</p> <p>Waterproof</p> <p>Absorbent</p> <p>Opaque</p> <p>Transparent</p>
1	Marvellous Materials	<ul style="list-style-type: none"> •Investigate materials to repair a torn umbrella, using materials they select for their useful properties. •Discuss selection of materials for fixing the umbrella: what properties does this material have that makes it a good choice? 	<p>Everyday Materials</p> <p>i. distinguishes between an object and the material from which it is made</p>	<p>Processes</p> <p>Systems</p>	<p>Skills</p> <p>i) asking simple questions and recognising that they can be answered in different ways</p> <p>ii) observing closely, using simple equipment</p>	<p>Hard</p> <p>Soft</p> <p>Stretchy</p> <p>Stiff</p>

		<ul style="list-style-type: none"> Investigate the materials for their useful properties, considering questions such as: how can we know that this material will not let the rain through? How can we test it? Use pipettes to simulate raindrops and experiment with the different materials Observe a block of ice and record the changes. Devise an investigation to melt the ice quickly or slowly. Create puddles in shallow containers or plastic sheets. Drawing chalk lines around the puddles at different times, measure and observe the changes and make predictions. Create a simple chart, or series of diagrams, to show how the puddles change. 	<ul style="list-style-type: none"> ii. identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock iii. describe the simple physical properties of a variety of everyday materials iv. compare and group together a variety of everyday materials on the basis of their simple physical properties 	<ul style="list-style-type: none"> Forces Energy Organisation Cause and effect Diversity Similarity and difference Scale 	<ul style="list-style-type: none"> iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in answering questions <p>Investigative Techniques:</p> <ul style="list-style-type: none"> Problem solving Observing Exploring 	<ul style="list-style-type: none"> Shiny Dull Rough Smooth Bendy Waterproof Absorbent Opaque Transparent
1	Wonderful Weather	<ul style="list-style-type: none"> Go outside and look at the weather, observe the temperature and wind. Suggest how to dress a teddy or doll appropriately for the current weather conditions Take the temperature outside in the morning and the afternoon. Record these observations in the classroom and discuss the changes Play shadow tag and look at the shape of shadows. Consider the questions: Does my shadow always look like that? What was it like first thing in the morning? Is it better to play shadow tag at lunchtime or after school? Track a shadow by observing and measuring it over time. Make a bar chart of paper strips of shadow length plotted against time intervals. Set the rainfall gauges up in the playground and record the rainfall over a period of time. Make a windsock to measure wind direction and a wind vane to measure the direction of the wind 	<p>Seasonal Changes</p> <ul style="list-style-type: none"> i) observe changes across the four seasons. ii) observe and describe weather associated with the seasons and how day length varies. 		<p>Skills</p> <ul style="list-style-type: none"> i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment. iii) performing simple tests. iv) identifying and classifying v) using their observations and ideas to suggest answers to questions <p>Investigative Techniques:</p> <ul style="list-style-type: none"> Pattern seeking Exploring Researching Analysing secondary sources Observing 	<ul style="list-style-type: none"> Spring Summer Autumn Winter Sunny Hot Wet Raining Cold Foggy Windy Temperature Day Night
1	What's growing?	<ul style="list-style-type: none"> Go outside to the school garden to look at plants. Make a map of the garden plot, identifying the plants and predicting what they will turn into when they are fully grown. In groups, prepare tubs and plant chitted potatoes. Design and set up a garden centre in the classroom. Plant a bean in a jar and seeds in a bag and keep them in the classroom garden centre Find flowers outside in the playground and carefully examine them with a magnifying glass. Sketch and photograph them. Do bark and leaf rubbings using paper and wax crayons. Understand the basic structure of a tree and what goes on inside. Represent the inside of a tree through playground art, using cloths, chalk and found materials. 	<p>Plants</p> <ul style="list-style-type: none"> i) identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. ii) identify and describe the basic structure of a variety of common flowering plants, including trees. 		<p>Skills</p> <ul style="list-style-type: none"> i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment. iii) performing simple tests. iv) identifying and classifying v) using their observations and ideas to suggest answers to questions <p>Investigative Techniques:</p> <ul style="list-style-type: none"> Exploring Observing Researching Analysing secondary sources 	<ul style="list-style-type: none"> Trunk Stem Leaves Flowers Petals Fruit Bulb Root Seeds Branches

Yr	Unit	Scientific Knowledge	National Curriculum Coverage	Key Concepts	Working Scientifically Skills & Techniques	Key Vocabulary <i>For more detailed vocabulary, please see each unit</i>
2	Healthy Animals	<ul style="list-style-type: none"> •Observe what happens when chicks hatch. •Plan & ask questions; recording their answers to questions and gathering information. •Discuss and draw up a list of essential items for basic survival. •Explore the idea of warming up muscles by investigating what happens when cold elastic bands are stretched without being warmed up. •Design a balanced lunch box on paper to serve as a reminder of how much of each food group is required for a balanced lunch. By drawing on previous knowledge of healthy food, select healthy sandwiches to pack in the picnic. Record the healthy picnic in photographs and talk about their learning with their guests. 	Animals, including humans i) notice that animals, including humans, have offspring which grow into adults ii) find out about and describe the basic needs of animals, including humans, for survival (water, food and air) iii) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	Processes Systems Forces Energy Organisation Cause and effect Diversity Similarity and difference Scale	Skills i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in answering questions Investigative Techniques Exploring Observing Problem solving	Nutrition Exercise Survival Reproduction Growth Hygiene Offspring Baby Toddler Child Teenager Adult
2	Habitats	<ul style="list-style-type: none"> •Explore outside, and through observation, the differences between things that are living, dead, and things that have never been alive. •Find specimens and explain how they know they are alive or otherwise. •Photograph or draw the micro-habitats in the school grounds, adding five adjectives to describe them (damp/wet/dry, dark/light). •Create shoebox dioramas for plastic animal toys or laminated images of living things. •Annotate the dioramas with researched information. •Role play the interdependence of a food chain and consider what part each plays in its survival. •Explore the school grounds, looking for examples of food chains •In groups, design a layer of the bug hotel, incorporate specific micro-habitats agreed for that group by the class. Build a bug hotel according to the group designs. 	Living things and their habitats i) explore and compare the differences between things that are living, dead, and things that have never been alive ii) 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		Skills i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in answering questions Investigative Techniques Exploring Sorting Classifying & Identifying Problem solving Researching Analysing secondary sources	Habitat Micro-habitat Seashore Beach Woodland Ocean Rainforest Riverbank Deciduous Food chain Predator Prey Sustainable
2	Materials Matter	<ul style="list-style-type: none"> •Consider the questions about materials •Investigate which papers are the most absorbent by laying thin strips of equal length of different materials (including a waterproof strip) in a shallow tray and pouring coloured water onto the edge of the strips. •Devise an investigation to test a variety of materials (plastics, metals, wood and bricks) for their absorbent property. •Investigate the absorbency of fabrics by stretching them over a jar to make them taut and using a dropper to drop water onto the cloth. Observe and measure the number of drops and the time they stay on the cloth before being absorbed. •Explore the texture and various properties •Make a batik wax resist 	Uses of everyday materials i) identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses ii) find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching		Skills i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in answering questions Investigative Techniques Exploring; observing Problem solving; pattern seeking	Purpose; Use Wood; Metal Plastic; Glass Brick; Rock Paper Cardboard Solid; Squash Bend; Twist

2	Materials – Everyday Uses	<ul style="list-style-type: none"> •Explore the properties of a variety of balls in the playground. Design an investigation to test which ball is the bounciest. •Talk about how to test fabric's elasticity properties, make predictions and devise an investigation based on attaching weights to the ends of strips of fabric. •Devise an investigation to test how much they will bend by hanging weights from string onto the end of each strip of material. •Sort objects in the classroom according to these criteria: flexible, rigid, hard, soft, stretchy, stiff. •Be challenged to find the strongest paper to wrap a present. Collect sheets of different types of paper and make them the same size. Make a hole in each sheet and hang a weight from it, adding weights until the paper tears. Record the results. •Work in small groups to design and make a paper bridge to hold a toy car, selecting the paper they think will work best. 	<p>Uses of everyday materials</p> <p>i) identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>ii) find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>	Processes	<p>Skills</p> <p>i) asking simple questions and recognising that they can be answered in different ways</p> <p>ii) observing closely, using simple equipment</p> <p>iii) performing simple tests</p> <p>iv) identifying and classifying</p> <p>v) using their observations and ideas to suggest answers to questions</p> <p>vi) gathering and recording data to help in answering questions</p> <p>Investigative Techniques</p> <p>Exploring; Pattern seeking; Problem solving</p> <p>Fair testing; Classifying; Sorting; Identifying</p>	<p>Purpose Use</p> <p>Wood</p> <p>Metal</p> <p>Plastic</p> <p>Glass</p> <p>Brick</p> <p>Rock</p> <p>Paper</p> <p>Cardboard</p> <p>Solid</p> <p>Squash</p> <p>Bend</p> <p>Twist</p>
2	Ready, Steady, Grow	<ul style="list-style-type: none"> •Make a seed helicopter and try it out in the playground. Collect dandelion plants and look carefully at their seeds, using a magnifying glass. Make a dandelion seed each and form together to make a dandelion plant. •Make a large burr out of clay and display in the classroom, with facts about how they are dispersed. •Discuss hydroponics and the concept of growing bulbs in water. Set up and plant a bulb in a glass. •Place one egg shell with cress in a cupboard and talk about what might happen to the cress and its growth. •Start a record of the cress growth and predict how long it will take for the cress to grow long enough to eat. •In teams, make the hydroponic plant out of craft and junk materials. Can you talk about each part of the plant model, including its name and function? 	<p>Plants</p> <p>i)observe and describe how seeds and bulbs grow into mature plants.</p> <p>ii)find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	Systems Forces Energy Organisation Cause and effect Diversity Similarity and difference	<p>Skills</p> <p>i) asking simple questions and recognising that they can be answered in different ways</p> <p>ii) observing closely, using simple equipment.</p> <p>iii) performing simple tests.</p> <p>iv) identifying and classifying</p> <p>v) using their observations and ideas to suggest answers to questions</p> <p>Investigative Techniques</p> <p>Exploring</p> <p>Researching</p> <p>Analysing secondary sources</p> <p>Pattern seeking</p> <p>Problem solving</p>	<p>Germination</p> <p>Growth</p> <p>Survival</p> <p>Reproduce</p> <p>Reproduction</p> <p>Seed</p> <p>Bulb</p>
2	Gardens & Allotments	<ul style="list-style-type: none"> • Plant edible plants (lettuces, etc.). •Make bird scaring sculptures with found and recycled materials. •Weed and tend to an allotment, understanding why the weeds need to be pulled out. Identify the weeds. Make flap pictures of the micro-habitat they have made and the mini-beast they hope it will attract. •Visit a farm or have a farmer visit the school. Understand the jobs a farmer has to do and why. Play farms with the small world play and set up a role-play farm in the classroom. •Make a food chain game using cups with photographs attached. Challenge another class to complete the food chains. •Look more closely at what happens in a food chain. Understand that the sun's energy travels through a food chain and then back into the ground. Interpret the transfer of energy in a food chain through a dance, using masks and torches. 	<p>Plants</p> <p>i)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>ii)identify and name a variety of plants and animals in their habitats, including microhabitats.</p> <p>iii)describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p>	Scale	<p>Skills</p> <p>i) asking simple questions and recognising that they can be answered in different ways</p> <p>ii) observing closely, using simple equipment.</p> <p>iii) performing simple tests.</p> <p>iv) identifying and classifying</p> <p>v) using their observations and ideas to suggest answers to questions</p> <p>Investigative Techniques</p> <p>Exploring</p> <p>Analysing secondary sources</p> <p>Pattern seeking</p> <p>Problem solving</p>	<p>Germination</p> <p>Growth</p> <p>Survival</p> <p>Reproduce</p> <p>Reproduction</p> <p>Seed</p> <p>Bulb</p>

Yr	Unit	Scientific Knowledge	National Curriculum Coverage	Key Concepts	Working Scientifically Skills & Techniques	Key Vocabulary <i>For more detailed vocabulary, please see each unit</i>
3	Keeping Healthy	<ul style="list-style-type: none"> Review a food survey to answer questions on diet and look for patterns and trends display using tables and bar charts Use knowledge of food groups and a balanced diet to design healthy meals Create a skeleton puppet with moving joints Investigate the question –Do some people have stronger muscles because they use them more? Plan and carry out a practical investigation in groups that attempts to answer a question Give an illustrated presentation to clients on health and fitness, using resources they have made throughout the block and evidence from research 	Animals Including Humans I. 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 II. Identify that humans and some other animals have skeletons and muscles for support, protection and movement		Investigative Techniques Pattern seeking; exploring; analysing secondary sources; communication Skills I. asking relevant questions and using different types of scientific enquiries to answer them II. setting up simple practical enquiries, comparative and fair tests III. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment IV. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions V. recording findings using simple scientific language, bar charts, and tables	Skeleton Muscles Nutrition Support Protection Movement Ribs Spine Skull
3	Light & Shadows	<ul style="list-style-type: none"> Investigate the nature of darkness, light and sight with a torch, a cardboard box and pencil holes Predict and then investigate how well different colours and materials reflect light in a simulated dark cave, use results to sort and classify samples Discover the properties of mirrors and reflections by undertaking different investigative tasks & use scientific knowledge on light to explain findings Investigate how different objects create shadows Investigate the effect of moving the light source on the size of shadows Investigate how coloured light beams mix and what its like to look through different coloured filters 	Light I. recognise that they need light in order to see things and that dark is the absence of light II. notice that light is reflected III. recognise that light from the sun can be dangerous and that there are ways to protect eyes IV. recognise that shadows are formed when the light from a light source is blocked by an opaque object V. find patterns in the way that the size of shadows change	Processes Systems Forces Energy Organisation Cause and effect Diversity	VI. reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions VII. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions VIII. identifying differences, similarities or changes related to simple scientific ideas and processes IX. using straightforward scientific evidence to answer questions or to support their findings Investigative Techniques Predicting; exploring; classifying; fair testing; pattern seeking; drawing conclusions	Translucent Transparent Opaque Reflect Shadow
3	Rocks & Fossils	<ul style="list-style-type: none"> Explore a variety of rocks and group them in different ways according to their observable features and attributes Investigate the properties of different rocks with fair Use a rock identification key Go on a rock walk identify different rocks for different purposes. Record findings. Learn about how fossils are made and the life and contribution of the great fossil hunter Mary Anning Investigate different soils, asking questions and seeking answers through a variety of scientific enquiries Assemble a variety of exciting exhibits for the Rock and Fossil Museum 	Rocks i. compare and group together different kinds of rocks on the basis of their appearance and simple physical properties ii. describe in simple terms how fossils are formed when things that have lived are trapped within rock iii. recognise that soils are made from rocks and organic matter	Similarity and difference Scale	Skills i. asking relevant questions and using different types of scientific enquiries to answer them ii. setting up simple practical enquiries, comparative and fair tests iii. 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 iv. recording findings using simple scientific language, drawings, labelled diagrams, keys, v. reporting on findings from enquiries and conclusions vi. identifying differences, similarities or changes related to simple scientific ideas and processes vii. using straightforward scientific evidence to answer questions or to support their findings Investigative Techniques Predicting; exploring; classifying; fair testing; pattern seeking; drawing conclusions; identifying	Sedimentary Igneous Metamorphic Chalk Diamond Sandstone Granite Limestone Basalt Slate Pumice

3	Amazing Magnets	<ul style="list-style-type: none"> •Ask questions and then investigate how toy vehicles run on different surfaces. Begin to explain in terms of forces •Investigate how it is forces that make things move (pushes and pulls) and that magnetic forces can move things at a distance without forces touching •Investigate how magnets attract some materials and not others, Comparing and grouping materials •Investigate the polarisation of magnets, making predictions and testing ideas Develop a game or activity that uses magnetic forces by trying out a variety of ideas •Test your knowledge of magnetic forces. Design a poster to explain the science behind your game or activity stage it in an attractive eye catching way 	Properties and changes of materials i.compare how things move on different surfaces ii.notice that some forces need contact between two objects iii.observe how magnets attract or repel each other and attract some materials and not others iv.compare and group together a variety of everyday materials by magnetic properties and identify some magnetic materials v.describe magnets as having two poles vi.predict whether two magnets will attract or repel each other		Investigative Techniques Exploring; classifying; identifying; predicting; analysing secondary sources	Attract Repel Magnetic force Materials Everyday use Friction Gravity Magnet
3	Roots & Shoots	<ul style="list-style-type: none"> •Plant some beans in transparent jars and place them in different conditions to begin some observations. Use data loggers and other equipment to record light levels, water etc. •Use secondary sources to discover the parts of a plant and how they vary. Look at a variety of different plants making labelled sketches •Make a list of plants the aliens will need to take to the space farm. Classify according to human use for leaves, stems, roots, flowers, fruits, seeds •Review the data from beans. Create graphs and charts to compare growth. Ask questions. Set up further tests with fast germinating varieties to test hypotheses. •Investigate the way in which water is transported within plants. •Review all experiments and discuss findings. 	Plants i.identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers ii.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 iii.investigate the way in which water is transported within plants	Processes Systems Forces Energy Organisation Cause and effect Diversity Similarity and difference Scale	Skills i.asking relevant questions and using different types of scientific enquiries to answer them ii.setting up simple practical enquiries, comparative and fair tests iii.making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment iv.gathering, recording, classifying and presenting data in a variety of ways to help in answering questions v.recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables vi.reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions vii.using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions viii.identifying differences, similarities or changes related to simple scientific ideas and processes ix.using straightforward scientific evidence to answer questions or to support their findings.	Roots Stem Trunk Leaves Flower Water Light Nutrients Soil
3	Flowers, Fruits & Seeds	<ul style="list-style-type: none"> •Study a variety of different flowers; Discover that flowers usually have male and female parts. •Identify male and female parts and learn their function. •Research what happens to a flower after pollination. Observe different plants that show seedpod formation at different stages. •Investigate a wide variety of different fruits, pods, berries etc. that “package” seeds •Investigate other types of dispersal e.g. burrs and wind dispersal. Conduct a wind dispersal investigation •Gather together and stage exhibits for the Art and Science exhibition. Write explanations and captions to accompany art, models, real life exhibits and investigation results. 	Plants i.explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal		Skills i. asking relevant questions and using different types of scientific enquiries to answer them ii.setting up simple practical enquiries, comparative and fair tests iii.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 iv.recording findings using simple scientific language, drawings, labelled diagrams, keys, v.reporting on findings from enquiries and conclusions vi.identifying differences, similarities or changes related to simple scientific ideas and processes vii.using straightforward scientific evidence to answer questions or to support their findings Investigative Techniques Observing; analysing secondary sources; exploring; fair testing	Life cycle Pollination Seed formation Seed dispersal

Yr	Unit	Scientific Knowledge	National Curriculum Coverage	Key Concepts	Working Scientifically Skills & Techniques	Key Vocabulary
4	Its Electric	<ul style="list-style-type: none"> • Explore electricity and understand what you already know • Understand electricity and the dangers it poses • Identify electrical components and explore electrical circuits • Sort materials into conductors and insulators by testing them within a circuit • Using knowledge of electrical circuits, build a buzz-wire game • Demonstrate an understanding of electrical circuits with a class quiz. 	<p>Electricity</p> <p>i) identify common appliances that run on electricity ii) construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers iii) identify whether or not a lamp will light in a simple series circuit iv) recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit v) recognise some common conductors and insulators, and associate metals with being good conductors</p>	<p>Processes</p> <p>Systems</p> <p>Forces</p> <p>Energy</p> <p>Organisation</p> <p>Cause and effect</p> <p>Diversity</p> <p>Similarity and difference</p> <p>Scale</p>	<p>Skills</p> <p>i) asking relevant questions and using different types of scientific enquiries to answer them</p> <p>ii) setting up simple practical enquiries, comparative and fair tests iii) making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers iv) gathering, recording, classifying and presenting data in a variety of ways to help in answering questions v) recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables vi) reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions vii) using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>viii) identifying differences, similarities or changes related to simple scientific ideas and processes ix) using straightforward scientific evidence to answer questions or to support their findings</p> <p>Investigative Techniques</p> <p>Problem solving; sorting; exploring; pattern seeking</p>	<p>Circuit</p> <p>Bulb</p> <p>Cell</p> <p>Wire</p> <p>Conductor</p> <p>Insulator</p> <p>Switch</p> <p>Buzzer</p> <p>Lamp</p> <p>Battery</p>
4	States of matter	<ul style="list-style-type: none"> • Identify misconceptions and classify materials into solids, liquids and gases • Investigate the presence of gases • Understand the behaviour of particles in the different states and use a thermometer to observe temperature changes of water • Investigate evaporation and condensation • Understand and explain the water cycle using scientific language • Demonstrate an understanding of states of matter by recreating a range of simple practical enquiries 	<p>States of Matter</p> <p>i) compare and group materials together, according to whether they are solids, liquids or gases ii) 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) iii) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>		<p>Working Scientifically</p> <p>i) asking relevant questions and using different types of scientific enquiries to answer them</p> <p>ii) setting up simple practical enquiries, comparative and fair tests iii) making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>iv) recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>v) reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>vi) using straightforward scientific evidence to answer questions or to support their findings</p> <p>Investigative Techniques</p> <p>Problem solving; sorting; pattern seeking; classifying; fair testing</p>	<p>Solid</p> <p>Liquid</p> <p>Gas</p> <p>Heating</p> <p>Cooling</p> <p>Condensation</p> <p>Evaporation</p> <p>Temperature</p> <p>Water cycle</p>
4	Listen Up	<ul style="list-style-type: none"> • Consider how sound is made • Explore sound further and investigate vibrations and how sound travels • Investigate pitch and volume by exploring instruments • Understand how we hear sounds and begin to consider ways to reduce what we can hear • Plan and conduct an investigation into which material best reduces the sounds we hear • Present and explain your findings 	<p>Sound</p> <p>i) identify how sounds are made, ii) recognise that vibrations travel through a medium iii) find patterns between the pitch of a sound and features of the object that produced it iv) find patterns between the volume of a sound and the strength of the vibrations v) recognise that sounds get fainter as the distance from the sound source increases</p>		<p>Skills</p> <p>vii) setting up simple practical enquiries, comparative and fair tests</p> <p>viii) making systematic and careful observations and, where appropriate, taking accurate measurements ix) gathering, recording, classifying and presenting data in a variety of ways x) recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>xi) reporting on findings from enquiries xii) using results to draw simple conclusions, make predictions for new values xiii) identifying differences, similarities or changes related to simple scientific ideas and processes xiv) evidence to answer questions or to support their findings</p> <p>Investigative Techniques</p> <p>Exploring; pattern seeking; fair testing; problem solving</p>	<p>Vibration</p> <p>Sound wave</p> <p>Pitch</p> <p>Volume</p> <p>Ear drum</p> <p>Medium</p>

4	Name that Living Thing	<ul style="list-style-type: none"> •Ask relevant questions about living things and their habitats and begin to group them •Observe local habitats and record living things they see around them •Create a branching database to sort and identify local invertebrates •Make close observational drawings and large-scale drawings; understand that tiny details of features help with classification •Write a branching database for a variety of living things in the wider environment 	<p>Living things and their habitats</p> <p>i)recognise that living things can be grouped in a variety of ways</p> <p>ii)explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p>		<p>Skills</p> <p>i)asking relevant questions and using different types of scientific enquiries to answer them ii)setting up simple practical enquiries, comparative and fair tests iii)making systematic and careful observations and, where appropriate, taking accurate measurements using standard units iv)gathering, recording, classifying and presenting data in a variety of ways to help in answering questions v)recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables vi)reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions vii)using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions viii)identifying differences, similarities or changes related to simple scientific ideas and processes ix)using straightforward scientific evidence to answer questions or to support their findings</p> <p>Investigative Techniques</p> <p>Exploring; sorting, classifying and identifying; researching; analysing secondary sources</p>	Vertebrate Fish Amphibian Reptile Bird Mammal Invertebrates Habitats Herbivore Omnivore Carnivore
4	Are these your teeth?	<ul style="list-style-type: none"> •Learn about the first stage of the digestive system, consider why our teeth are different shapes and have different functions •Use everyday objects to demonstrate the human digestive system •Use physical activity to demonstrate an understanding of the functions of each part of the digestive system •Find out what we can learn from a poo •Interpret food chains and discuss the impact of changes to a chain •Plan and perform a 'Healthy Teeth' assembly for an invited audience 	<p>Animals, including humans</p> <p>i)describe the simple functions of the basic parts of the digestive system in humans</p> <p>ii)identify the different types of teeth in humans and their simple functions</p> <p>iii)construct and interpret a variety of food chains, identifying producers, predators and prey</p>	<p>Processes</p> <p>Systems</p> <p>Forces</p> <p>Energy</p> <p>Organisation</p> <p>Cause and effect</p> <p>Diversity</p> <p>Similarity and difference</p>	<p>Skills</p> <p>i)asking relevant questions and using different types of scientific enquiries to answer them ii)setting up simple practical enquiries, comparative and fair tests iii)making systematic and careful observations and, where appropriate, taking accurate measurements using standard units iv)gathering, recording, classifying and presenting data in a variety of ways to help in answering questions v)recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables vi)reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions vii)using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions viii)identifying differences, similarities or changes related to simple scientific ideas and processes ix)using straightforward scientific evidence to answer questions or to support their findings</p> <p>Investigative Techniques</p> <p>Exploring; researching; analysing secondary sources</p>	Mouth Tongue Oesophagus Stomach Intestine Anus Canine Incisor Molar
4	Help our Habitats	<ul style="list-style-type: none"> •Take a walk around their school environment and consider how and why changes have happened; Consider natural and manmade changes to the environment •Look in more detail at climate change •Look at some information on the impacts to living things if an environment changes •Plan how to make a positive change to a small local area considering the impact on people and other living things 	<p>Living things and their habitats</p> <p>i)recognise that environments can change and that this can sometimes pose dangers to living things</p>	Scale	<p>Skills</p> <p>i)asking relevant questions and using different types of scientific enquiries to answer them ii)setting up simple practical enquiries, comparative and fair tests iii)making systematic and careful observations and, where appropriate, taking accurate measurements using standard units iv) gathering, recording, classifying and presenting data in a variety of ways to help in answering questions v)recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables vi)reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions vii)using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions viii)identifying differences, similarities or changes related to simple scientific ideas and processes ix)using straightforward scientific evidence to answer questions or to support their findings</p> <p>Investigative Techniques</p> <p>Exploring; analysing; classifying; identifying</p>	Climate change Natural Man made Environment Change Impact

Yr	Unit	Scientific Knowledge	National Curriculum Coverage	Key Concepts	Working Scientifically Skills & Techniques	Key Vocabulary
5	Space	<ul style="list-style-type: none"> •Develop enquiry questions (planning) •Create a scale model of the solar system •Create an orrery to explore heliocentricity •Create a shadow clock to explore day and night •Create a sundial and explore time zones •Investigate moon phases 	Earth & Space i. Describe the movement of the Earth, and other planets, relative to the Sun in the solar system ii. Describe the movement of the Moon relative to the Earth iii. Describe the Sun, Earth and Moon as approximately spherical bodies iv. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	Processes Systems Forces Energy Organisation Cause and effect Diversity Similarity and difference Scale	Skills i. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. Recording results using scientific diagrams and labels iv. Using test results to make predictions to set up further comparative and fair tests v. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Planning; exploring; analysing secondary sources; observing	Solar system Mercury Venus Earth Mars Jupiter Saturn Uranus Neptune Moon Orbit Axis Rotation
5	May the Force be with you	<ul style="list-style-type: none"> •Investigate parachutes and air resistance •Investigate and create levers •Investigate and create pulleys •Investigate gears (problem solving/fair testing) Investigate friction •Investigate boats and water resistance 	Forces i. Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object ii. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces iii. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	Processes Systems Forces Energy Organisation Cause and effect Diversity Similarity and difference Scale	Skills i. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. Recording results using scientific diagrams and labels iv. Using test results to make predictions to set up further comparative and fair tests v. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Fair testing; problem solving	Air resistance Friction Water Resistance Gravity Mechanisms Pulleys Gears
5	Music Festival	<ul style="list-style-type: none"> •Investigate hard materials suitable for food prep •Investigate thermal insulating properties of materials to keep refreshments hot or cold. Investigate possible food packaging materials •Investigate the absorbency of materials suitable for cleaning with •Investigate electrical insulators/conductors for health and safety purposes •Investigate materials that combine soundproofing with comfort 	Properties and changes of materials i. Compare and group together everyday materials on the basis of their properties, including their hardness, transparency, and conductivity (electrical and thermal) iv. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	Processes Systems Forces Energy Organisation Cause and effect Diversity Similarity and difference Scale	Skills i. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. Recording results using scientific diagrams and labels iv. Using test results to make predictions to set up further comparative and fair tests v. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Fair testing; problem solving; exploring; pattern seeking	Hardness Solubility Transparency Conductivity Electrical Thermal

5	Changing Materials	<ul style="list-style-type: none"> •Compare properties of solids, liquids and gases •Investigate mixing materials& Investigate separating materials •Make new materials (exploring) Investigate irreversible changes •Present findings in the form of an education pack for the Science Museum 	Properties and changes of materials ii.Compare and group together everyday materials on the basis of their properties ii.Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution iii.Use knowledge of solids, liquids and gases to decide how mixtures might be separated, v.Demonstrate that dissolving, mixing and changes of state are reversible changes vi.Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible	Processes Systems	Skills i.Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii.Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii.Recording results using scientific diagrams and labels iv.Using test results to make predictions to set up further comparative and fair tests v.Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Exploring; pattern seeking	Solution Filtering Sieve Evaporation Dissolve Reversible Irreversible
5	The art of living	<ul style="list-style-type: none"> •Observe and sketch insect and amphibian lifecycles for comparison •Research and sketch mammalian and bird life cycles for comparison •Compare the lifecycles of mammals, amphibians, insects and birds •Research reproduction in plants and animals; Create computer animations that explain plant reproduction •Create computer animations that explain animal reproduction 	Living things and their habitats i.Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird ii.Describe the life process of reproduction in some plants and animals	Forces Energy Organisation Cause and effect Diversity Similarity and difference Scale	Skills i.Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii.Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii.Recording results using scientific diagrams and labels iv.Using test results to make predictions to set up further comparative and fair tests v.Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Observing, analysing secondary sources, pattern seeking	Life cycle Asexual reproduction Stigma Stamen Pollinate Photosynthesis Fertilise Germinate Dispersal Gestation Birth Foetus
5	Life Explorers	<ul style="list-style-type: none"> •Create a human timeline •Create a human growth quiz •Research and create an infographic on baby growth •Compare ‘red books’ and predict growth patterns •Create gestation period graphs for a range of animals •Explain gestation through graphic novel style 	Animals (including humans) i.Describe the changes as humans develop to old age		Skills i.Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii.Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii.Recording results using scientific diagrams and labels iv.Using test results to make predictions to set up further comparative and fair tests v.Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Observing, analysing secondary sources, pattern seeking	Puberty Penis Testicles Sperm Vagina Uterus Ovum (egg) Menstruation

Yr	Unit	Scientific Knowledge	National Curriculum Coverage	Key Concepts	Working Scientifically Skills & Techniques	Key Vocabulary
6	Crime Lab Investigation	<ul style="list-style-type: none"> Investigate a range of simple light challenges Investigate and demonstrate that light travels in straight lines Investigate shadows and how they change as a result of light sources Investigate how light reflects (make a periscope) Explore split light (finding 'rainbows') Investigate coloured light mixing 	Light i. Recognise that light appears to travel in straight lines ii. 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 iii. 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 iv. Use the idea that light travels in straight lines to explain shapes of shadows		Skills i. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. Recording results using scientific diagrams and labels iv. Using test results to make predictions to set up further comparative and fair tests v. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Planning, fair tests, exploring pattern seeking	Light Reflect Source Shadow Spectrum
6	Electric Celebration	<ul style="list-style-type: none"> Investigate a range of simple electric circuit challenges Investigate the effects of voltage and number of components on a working circuit Explore resistance through the use of various components Draw circuit diagrams Design and make a dimmer switch Design and create a light decoration circuit 	Electricity i. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit ii. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches iii. Use recognised symbols when representing a simple circuit in a diagram	Processes Systems Forces Energy Organisation Cause and effect Diversity Similarity and difference	Skills i. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. Recording results using scientific diagrams and labels iv. Using test results to make predictions to set up further comparative and fair tests v. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Planning, fair tests, exploring pattern seeking; analysing secondary sources	Circuit Current Buzzer Cell Voltage Lamp Renewable
6	Classification Connoisseurs	<ul style="list-style-type: none"> Make a classification system for sweets; Group animals, microorganisms and plants and identify 'odd ones out' Observe, record and classify local area living things Classify unusual creatures and plants Design a 'new' creature that fits within a specific classification (sorting and classifying) Debate reasons for classifying living things as we do 	Living Things and their Habitats i. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ii. Give reasons for classifying plants and animals based on specific characteristics	Scale	Skills i. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs iv. Using test results to make predictions to set up further comparative and fair tests v. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Sorting; classifying	Micro-organisms Plants Animals Invertebrates Vertebrates Fish Mammals Insect Reptiles Amphibians Classify

6	Game of Survival	<ul style="list-style-type: none"> Identify things that are inherited and things that are learned Explore variation through dog breeds Identify features that support survival in a given environment Meet Darwin, Anning and Wallace and explore the role of fossils in scientific understanding of evolution Use the principles of biscuit evolution to animal and plant evolution 	Evolution and Inheritance i. Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago ii. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents iii. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	Processes Systems Forces Energy Organisation	Skills i. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs iv. Using test results to make predictions to set up further comparative and fair tests v. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Exploring; analysing secondary sources; pattern seeking	Variation Offspring Evolution Hereditary Habitat Characteristic
6	The Art of Being Human	<ul style="list-style-type: none"> Heart rates and physical exertion - a dramatic representation Circulatory system sculptures Heartbeat sound installation Understanding the human body through history Documentary on diet, exercise, drugs and lifestyle (fair testing, analysing secondary sources) Plotting the journey of water and food 	Animals (including humans) i) Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood ii) Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function iii) Describe the ways in which nutrients and water are transported within animals, including humans	Cause and effect Diversity Similarity and difference Scale	Skills i. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs iv. Using test results to make predictions to set up further comparative and fair tests v. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. Identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Exploring; analysing secondary sources; pattern seeking; fair testing; observing	Heart Blood Artery Vein Nutrients Oxygen Circulation Health
6	The Science of Sports	<ul style="list-style-type: none"> Identify characteristics of grass and create their own classification key for given grasses Identify and compare the properties of sports top materials Identify the forces that can impact on a sports game and suggest how friction, air resistance and gravity can be exploited in sports Investigate the impact of exercise on the human body and the impact of nutrition on sports performance Identify the influence of inheritance and environmental factors on sports performance Design and create circuits to ensure floodlights in a stadium are bright enough 	Living Things and their Habitats: i. describe how living things are classified into broad groups Properties of Materials: i. compare and group together everyday materials ii. give reasons, based on evidence from comparative and fair tests Forces: i. explain gravity ii. Identify the effects of air resistance, water resistance and friction iii. recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect Animals including Humans: i. recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function ii. recognise that living things produce offspring of the same kind, Electricity: i. associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit ii. compare and give reasons for variations in how components function iii. use recognised symbols when representing a simple circuit in a diagram	Skills i. planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs iv. using test results to make predictions to set up further comparative and fair tests v. reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. identifying scientific evidence that has been used to support or refute ideas or arguments Investigative Techniques Exploring; analysing secondary sources; pattern seeking; fair testing; observing; classifying		

‘Working Scientifically’ is the continuous area of study in the National Curriculum for Science in England. This aims to ensure that children have greater exposure to a range of enquiry types and that they recognize when the various forms of enquiry are taking place. This is to enable them to decide for themselves which type to use in order to tackle the question they are investigating. The following types of enquiry are included in our Science units.

Exploring:

Discovering what happens through play and exploration, e.g. what happens when you add water to fabric?

Observing over time:

Often linked to exploring but with a time variable included, e.g. using a thermometer to observe temperature changes of water.

Sorting, classifying and identifying:

Putting things into groups based on their characteristics, e.g. in how many ways can you sort these materials?

Fair test:

Used when we can control all the variables except the one we are changing, e.g. which ‘towel’ material will absorb the most water?

Pattern seeking:

Used when there are too many variables to control and so a true fair test is not possible, e.g. do some people have stronger muscles because they use them more?

Problem solving:

Using the science we know to solve a problem, e.g. Using what you have learned about how sounds are made and the loudness of sounds made by different materials, design an effective bird scarer that uses wind chimes or similar.

Researching and analysing secondary sources

Using secondary sources to help answer scientific questions that cannot be answered through practical investigations, e.g. which materials are biodegradable?