



Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Seasonal Changes Materials	Plants & Animals Materials	Weather, Materials Seasonal Changes, Animals & Plants	Seasonal Changes Materials Plants & Animals	Life Cycles Materials	Weather Recycling Animals
<b>EYFS</b>	<b>Knowledge</b>					
	<p><b>The Natural World</b></p> <ul style="list-style-type: none"> <li>Discuss the changes we can see around us as we leave Summer and enter Autumn.</li> <li>How we can look after birds in Autumn/Winter</li> <li>Learn to name the seeds and leaves in our Forest Environment.</li> <li>I am learning to look closely at the natural world and record my observations through drawing</li> <li>I am learning to describe the natural world using my senses</li> </ul>	<p><b>The Natural World</b></p> <ul style="list-style-type: none"> <li>Learn the term 'Hibernation' and create fit for purpose homes for hibernating animals.</li> <li>Look out for and identify more seasonal changes.</li> <li>In wintery weather, go out and make observations about the look and feel of nature.</li> <li>Observe ice over time and how it melts.</li> </ul>	<p><b>The Natural World</b></p> <ul style="list-style-type: none"> <li>Take notice of the continuing changes in the weather and the seasons. Are we having frosty starts to our day?</li> <li>Discuss the needs of animals (birds) at this time of year.</li> <li>List the characteristics of the four seasons</li> <li>List some of the characteristics of different weather types</li> <li>List some of the materials needed for birds feeders</li> <li>Encouraging curiosity about the natural world and prompting questions about observed phenomena.</li> </ul>	<p><b>The Natural World</b></p> <ul style="list-style-type: none"> <li>What signs of spring can be observed in the environment.</li> <li>Children to list the signs of spring we know and can observe.</li> <li>Make observations about the birds behaviour and look out for nest building.</li> <li>Naming, observing, and taking care of different animals and minibeasts, fostering a sense of responsibility for living things.</li> </ul>	<ul style="list-style-type: none"> <li>Understanding the importance of habitats for minibeasts and how to create a safe space for them.</li> <li>Learning about the life cycles of various creatures, specifically caterpillars turning into butterflies and frogs developing from tadpoles.</li> <li>Observing and identifying different pond life at Norton Priory, enhancing understanding of aquatic ecosystems.</li> <li>Understanding and explaining concepts such as melting/freezing, floating/sinking</li> <li><b>Recycling and Environmental Care:</b> Learning about the importance of recycling and how to care for our planet to protect wildlife and habitats.</li> <li><b>Parts of Plants and Animals:</b> Identifying and naming the different parts of plants and animals and understanding their functions.</li> </ul>	<p><b>The Natural World</b></p> <ul style="list-style-type: none"> <li>Observe seasonal changes. Spring to summer. Take notice of the temperature change.</li> <li>Know the correct clothes to wear for the different weather conditions.</li> <li>About life cycles</li> <li>Some simple things I can do to help look after the planet</li> <li>Explore the natural world around them, making observations and drawing pictures of animals and plants.</li> <li>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.</li> <li>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> </ul>
	<b>Skills</b>					
	<ul style="list-style-type: none"> <li>I am learning to look closely at the natural world and record my observations through drawing</li> </ul>	<ul style="list-style-type: none"> <li>I am understanding the concept of hibernation and learning which animals hibernate.</li> <li>I am designing and creating homes for animals that hibernate.</li> </ul>	<ul style="list-style-type: none"> <li>I am learning to describe the features of plants and animals</li> <li>I am learning to describe and compare the seasons</li> </ul>	<ul style="list-style-type: none"> <li>I am learning to observe and describe changes in the environment, particularly the transition from winter to spring.</li> <li>I am identifying and listing the signs of spring that I</li> </ul>	<ul style="list-style-type: none"> <li><b>I am learning</b> to observe and care for animals and minibeasts, developing empathy and responsibility.</li> <li><b>I am making observations</b> about the natural world, including seasonal changes,</li> </ul>	<p><b>I am learning</b> simple ways to help look after the planet, including recycling and reducing waste.</p> <p><b>I am making observations</b> of the natural world around me, including drawing pictures of</p>









<ul style="list-style-type: none"> <li>• I am learning to describe the natural world using my senses</li> <li>• I am learning to look closely and notice how some things are the same and some are different</li> </ul>	<ul style="list-style-type: none"> <li>• I am identifying and describing seasonal changes throughout the year.</li> <li>• I am making detailed observations about nature, especially in wintery weather.</li> <li>• I am observing and discussing how ice changes and melts over time.</li> <li>• I am giving reasons for changes I notice in nature.</li> <li>• I am describing the features of different environments using descriptive language.</li> <li>• I am comparing and contrasting different natural environments.</li> <li>• I am developing awareness of various habitats and their unique characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>• I am listing the characteristics of the four seasons and discussing their unique traits.</li> <li>• I am recognizing weather types and their characteristics, such as sunny, rainy, windy, and frosty.</li> <li>• I am exploring how animals adapt to the changing seasons and weather conditions.</li> <li>• I am participating in making bird feeders and understanding their purpose in supporting wildlife.</li> <li>• I am experimenting with materials (like toilet roll tubes, lard, and seeds) to create practical items for wildlife.</li> </ul>	<p>can see around me, such as budding flowers and returning birds.</p> <ul style="list-style-type: none"> <li>• I am making observations about bird behaviour, especially nest-building activities, to understand how animals prepare for the season.</li> <li>• I am collecting data by recording my observations, which helps me understand the importance of scientific practices.</li> <li>• I am discussing the needs of birds and other animals during spring, which teaches me about their behaviours and survival strategies.</li> <li>• I am examining bird nests to learn about their construction and the materials used, fostering my understanding of design and engineering concepts.</li> <li>• I am experimenting with natural materials from the forest floor to create bird nests, promoting hands-on learning and creativity.</li> </ul>	<p>to enhance my awareness of my environment.</p> <ul style="list-style-type: none"> <li>• <b>I am explaining</b> the life cycle of a caterpillar and a frog, demonstrating my understanding of biological processes.</li> <li>• <b>I am participating</b> in pond dipping activities to discover and identify different pond life, enhancing my observational skills.</li> <li>• <b>I am discussing</b> and understanding scientific processes, including melting, freezing, floating, sinking, and how magnets work.</li> <li>• <b>I am learning</b> the importance of recycling and how it helps protect our world and its habitats.</li> <li>• <b>I am identifying and naming</b> the different parts of plants and animals, which helps me understand their structures and functions.</li> <li>• <b>I am drawing pictures</b> of what I observe in nature, improving my artistic skills and my ability to represent the natural world visually.</li> <li>• <b>I am developing</b> my critical thinking by discussing what I notice and asking questions about my observations.</li> </ul>	<p>animals and plants, which helps develop my artistic skills.</p> <p><b>I am comparing</b> and contrasting different environments, drawing on my experiences and knowledge from stories read in class.</p> <p><b>I am understanding</b> important processes and changes in the natural world, including the seasons and changing states of matter (e.g., solid, liquid).</p> <p><b>I am participating</b> in discussions about the impact of rubbish on the environment and animals, fostering my environmental awareness.</p> <p><b>I am going on a bug hunt</b> to explore the school field, discovering what lives in the natural environment by looking under logs and stones.</p> <p><b>I am learning</b> to observe and describe seasonal changes as we transition from spring to summer, noticing temperature changes.</p> <p><b>I am identifying</b> the correct clothes to wear for different weather conditions, promoting awareness of practical choices based on the environment.</p> <p><b>I am exploring</b> life cycles of plants and animals, enhancing my understanding of biological processes.</p>
<h3>Vocabulary</h3>					
<p>Forest Floor, Leaves, Seeds, Bark, Twigs, Roots, Acorn, Conker, Pinecone, Moss, Cobweb, Autumn, Chill, Dew, Colours (red, orange, yellow, brown), Crunchy, Soft, Cold, Smooth, Rough, Rules, Nature, Respect, Clues, Memory, Explore, Collect, Notice.</p>	<p>Hibernation, Habitat, Seasonal Changes, Winter, Ice, Melt, Temperature, Dew, Frost, Cold, Wet, Frozen, Smooth, Rough, Soft, Dry, Hard, Observe, Describe, Compare, Features, Environment, Adapt.</p>	<p>Winter, Autumn, Spring, Summer, Seasonal Changes, Weather, Frost/Frosty, Cold, Windy, Rainy, Snow, Temperature, Cloudy, Sunshine, Hibernation, Bird Feeder, Survival, Nest, Shelter, Seed, Lard, String, Characteristics, Features, Observe, Describe, Compare, Notice, Change, Needs, Adapt.</p>	<p>Seasonal Changes, Signs of Spring, Observations, Bird Behaviour, Nest Building, Budding Flowers, Returning Birds, Environmental Changes, Data Collection, Needs of Animals, Survival Strategies, Bird Nests, Construction, Materials, Design, Engineering Concepts, Natural Materials, Creativity.</p>	<p>Bug Hotel, Life Cycle, Caterpillar, Butterfly, Frog, Tadpole, Pond Dipping, Ecosystem, Observation, Mini-beasts, Seasonal Changes, Melting, Freezing, Floating, Sinking, Magnet, Recycling, Environmental Care, Plants, Animals, Parts of Plants, Parts of Animals, Features, Habitat, Responsibility, Nature, Drawing, Discovery.</p>	<p>Temperature, Weather Conditions, Life Cycle, Recycling, Observations, Similarities, Differences, Environments, States of Matter, Blossom, Rubbish, Environment, Habitat, Nature, Drawing, Exploration, Responsibility, Predator, Prey, Bat and Moth, Crawling, Coyotes, Observation Skills.</p>



Year		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
KS1	Y1 Africa	My town. My school. My road.	Seasonal Changes	Toys	Paws, Claws and Whiskers	Kenya	Seaside Holidays!	
		Everyday Materials	Seasonal Changes	Everyday Materials	Animals including humans	Animals including humans	Plants	
		<b>National Curriculum</b>						
		<ul style="list-style-type: none"> <li>Distinguish between an object and the material from which it is made.</li> <li>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> </ul>	<ul style="list-style-type: none"> <li>Observe changes across the four seasons</li> <li>Observe and describe weather associated with the seasons and how day length varies</li> </ul>	<ul style="list-style-type: none"> <li>Describe the simple physical properties of a variety of everyday materials.</li> <li>Compare and group together a variety of everyday materials based on their simple physical properties.</li> </ul>	<ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> </ul>	<ul style="list-style-type: none"> <li>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>		
		<b>Vocabulary</b>						
		Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, waterproof, absorbent, tear, rough, smooth, shiny, dull, see through, not see through	Season, spring, summer, autumn, winter, weather, hot, warm, cool cold, sunny, cloudy, windy, rainy, snowing, hailing, sleet, frost, fog, mist, icy, rainbow, thunder, lightning, storm, light, dark, day, night	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, waterproof, absorbent, tear, rough, smooth, shiny, dull, see through, not see through	Body, head, neck, arms, elbows, legs, knees, face, ears, eyes, eyebrows, eyelashes, nose, hair, mouth, teeth, tongue, feet, toes, fingers, nails, ankle, calf, thigh, hips, waist, trunk, chest, shoulders, back, hands, wrist, tail, wing, claw, fin, scales, feathers, fur, beak, senses, hearing, seeing, touching, smelling, tasting, smooth, bright, dim, loud, quiet, high, low	Names of: wild plants, garden pants, flowering plants, trees, leaf, flower, blossom, petal, fruit, berry, root, bulb, seed, trunk, branch, stem, bark, stalk, vegetable		
		<b>Skills Progression</b>						
		<b>Everyday Materials</b> <ul style="list-style-type: none"> <li>Begin to understand the concept of a question.</li> <li>Begin to understand that some questions can be answered by testing.</li> <li>Recognise that some observable features may change over time.</li> <li>When prompted, say what is happening/has happened to things or events.</li> <li>Sort and match objects using given criteria.</li> <li>Begin to classify using simple prepared tables and sorting rings.</li> <li>Begin to use information from secondary sources</li> </ul>	<b>Seasonal Changes</b> <ul style="list-style-type: none"> <li>Demonstrate curiosity, e.g. ask 'why?' or 'how?' about the world around them.</li> <li>Recognise that some observable features may change over time, e.g. the size of a plant.</li> <li>Begin to suggest a practical way to find something out.</li> <li>Explain why they have sorted things in a certain way.</li> <li>With help, begin to notice patterns and relationships</li> <li>Begin to record own measurements e.g. using prepared tables.</li> <li>Begin to use simple secondary sources, e.g.</li> </ul>	<b>Everyday Materials</b> <ul style="list-style-type: none"> <li>Be able to ask a simple question.</li> <li>Use simple equipment provided, e.g. hand lenses, to make more</li> <li>Accurate observations.</li> <li>When prompted, say what is happening / has happened to things or events.</li> <li>Begin to think or their own ways of sorting a selection of objects or living things.</li> <li>Know about similarities and differences in relation to places, objects, materials and living things.</li> <li>Begin to use simple scientific language to talk about what</li> </ul>	<b>Animals including Humans</b> <ul style="list-style-type: none"> <li>Begin to suggest one way of finding an answer to a question.</li> <li>With help, present evidence.</li> <li>With support, select appropriate equipment to observe.</li> <li>Understand that we can gather</li> <li>Information through our senses.</li> <li>Develop ideas of grouping, sequences, cause and effect.</li> <li>Begin to recognise links between observations and answers to questions.</li> <li>Begin to recognise 'biggest and smallest', 'best and worst' etc. from their data</li> <li>Begin to use information from secondary sources to help answer a question.</li> <li>Begin to understand that some questions can be answered by testing.</li> <li>Use simple equipment provided, e.g. hand lenses, to make more</li> <li>Accurate observations.</li> <li>Recognise that some observable features may change over time, e.g. the size of a plant.</li> </ul>	<b>Plants</b> <ul style="list-style-type: none"> <li>With help, present evidence.</li> <li>Use simple equipment provided, e.g. hand lenses, to make more</li> <li>Accurate observations.</li> <li>Compare features of two objects.</li> <li>With support, identify things to measure and things to observe.</li> <li>Begin to think or their own ways of sorting a selection of objects or living things.</li> <li>Begin to use simple scientific language to talk about what they have found out.</li> </ul>		



	<p>to help answer a question.</p> <ul style="list-style-type: none"> <li>Begin to use simple secondary sources, e.g. books, film, internet, to find information.</li> </ul>	<p>books, film, internet, to find information.</p>	<p>they have found out.</p> <ul style="list-style-type: none"> <li>Begin to classify using simple prepared tables and sorting rings.</li> <li>Begin to recognize 'biggest and smallest', 'best and worst' etc. from their data.</li> <li>Begin to use information from secondary sources to help answer a question.</li> </ul>	<ul style="list-style-type: none"> <li>When prompted, say what is happening / has happened to things or events.</li> <li>With support, identify two variables in an investigation.</li> <li>Begin to set up a comparative test.</li> <li>Know about similarities and differences in relation to places, objects, materials and living things.</li> <li>Discuss what they have found out or what they think may happen.</li> <li>Begin to use information from secondary sources to help answer a question</li> </ul>	<ul style="list-style-type: none"> <li>With support, record own observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.</li> <li>Begin to use information from secondary sources to help answer a question.</li> </ul>	
Scientist	<p><b>Charles McIntosh (1766-1843)</b></p>  <p>Scottish chemist and Inventor of waterproof fabric. The mackintosh raincoat is named after him.</p>	<p><b>Christopher Wren (1632-1723)</b></p>  <p>Inventor of the rain gauge.</p>	<p><b>Ole Kirk Christiansen</b></p>  <p>Inventor of Lego</p>	<p><b>Dr Sandeun Lek Chailert</b></p>  <p>Creator of the Elephant nature foundation protecting elephants.</p>	<p><b>Joan Procter (1897 - 1931)</b></p>  <p>Zoologist and curator of reptiles</p>	<p><b>Wangari Maathai (1940-2011)</b></p>  <p>Wangari Maathai was a Kenyan environmentalist who began a movement to plant trees and re-forest her country. She was the first African woman to win a Nobel Peace Prize.</p>
Enquiries	<ul style="list-style-type: none"> <li><b>Pattern seeking?</b> Is there a pattern in the materials used for objects in school?</li> <li><b>Observation over time:</b> What happens to materials over time if we bury them in the ground?</li> <li><b>Comparative Test:</b> Which materials are most suitable for a house?</li> <li><b>Identify and Classify:</b> What group (material) does each object belong to?</li> </ul>	<ul style="list-style-type: none"> <li><b>Observation over time:</b> How does an oak tree change over the year?</li> <li><b>Comparative and Fair Test:</b> Which trees have the biggest leaves?</li> <li><b>Identify and Classify:</b> How would you group these based on the time of year you see/use them?</li> <li><b>Pattern seeking?</b> Do trees with bigger leaves lose their leaves first in Autumn?</li> <li><b>Research:</b> Do all countries in the world have four seasons?</li> </ul>	<ul style="list-style-type: none"> <li><b>Observation over time:</b> How do some materials change when they are in water? FLOATING/SINKING</li> <li><b>Comparative and Fair Test:</b> Which material is most suitable for an umbrella? WATERPROOF</li> <li><b>Identify and Classify:</b> Which materials are flexible? Which are not? Which are absorbent?</li> <li><b>Research:</b> Which materials can be recycled?</li> </ul>	<ul style="list-style-type: none"> <li><b>Observation over time:</b> How does my height change over the year?</li> <li><b>Comparative and Fair Test:</b> Is our sense of hearing better when we cannot see?</li> <li><b>Identify and Classify:</b> What are the names for all the parts of our bodies?</li> <li><b>Pattern seeking?</b> Do taller children have bigger feet?</li> <li><b>Research:</b> How do you look after a .... ?</li> </ul>	<ul style="list-style-type: none"> <li><b>Observation over time:</b> How does a caterpillar / tadpole change over time?</li> <li><b>Comparative and Fair Test:</b> Do amphibians have more in common with reptiles or fish?</li> <li><b>Identify and Classify:</b> How can we group these zoo animals?</li> <li><b>Pattern seeking?</b> Do you get better at smelling, as you get older?</li> <li><b>Research:</b> How do animals differ in Kenya to ones in UK?</li> </ul>	<ul style="list-style-type: none"> <li><b>Observation over time:</b> How does my sunflower change each week?</li> <li><b>Comparative and Fair Test:</b> Which type of compost grows the best sunflower?</li> <li><b>Identify and Classify:</b> Which plants are wild? Which are garden?</li> <li><b>Pattern seeking?</b> Do bigger seeds grow in to bigger plants?</li> <li><b>Research:</b> Are there plants in flower every season? What are they?</li> </ul>
Cross-curricular	<p><b>DT:</b> Creating a house collage – choosing suitable materials for each element</p> <p><b>English:</b> Comparing objects with 'er' suffix based on material properties</p>	<p><b>Geography:</b> Name weather types in the UK; Identify daily changes in weather; Identify seasonal changes across a year; Recognise weather symbols.</p>	<p><b>History:</b> comparing toys of the past compared to now, link to materials</p> <p><b>Trip</b> – Toy Museum Tatton Park</p> <p><b>DT:</b> designing and making toys, choose appropriate materials for purpose</p>	<p><b>Stunning start:</b> Animal Takeover workshop (selection of animals brought in to hold and discuss)</p> <p><b>English:</b> Informative writing on how to look after a guinea pig (diet, habitat, care)</p>	<p><b>English</b> – writing on science investigation</p>	



		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
		Magical Maps	United Kingdom	Fire, Fire!	Land Ahoy!	Nightingale and Seacole	Go Wild!
		Animals Including Humans	Animals Including Humans	Everyday Materials	Everyday Materials	Living things and their habitats	Living things and their habitats/Plants
<b>Plants all year</b>							
<b>National Curriculum</b>							
<b>Y2 UK, Australasia and Oceania</b>		<ul style="list-style-type: none"> <li>notice that animals, including humans, have offspring which grow into adults</li> <li>find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> </ul>		<ul style="list-style-type: none"> <li>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ul>		<ul style="list-style-type: none"> <li>explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>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</li> <li>identify and name a variety of plants and animals in their habitats, including microhabitats</li> <li>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</li> </ul>	
		<b>Vocabulary</b>					
		offspring, life cycles, grow, change, adults, basic needs, water, food, air survival, exercise, food types (fruit and veg, bread, rice, pasta, milk, dairy, foods high in fat and sugar, meat, fish, eggs, beans), hygiene		Suitable/unsuitable, use, object, material, property, wood, plastic, glass, metal water, rock, fabrics, hard, soft, stretchy, flexible, waterproof, absorbent, transparent, translucent, opaque, shape, change, twist, squash, bend, stretch, roll, squeeze		Living, dead, never been alive, names of local habitats, pond, woodland, meadow, name micro habitats, under log, stony path, under bushes, suited, basic needs, depend, food, food chain, shelter	<b>Plants:</b> seeds, bulbs, bud, root, water, light, growth, healthy, shoot, seedling, germinate, temperature
<b>Skills Progression</b>							
		<u>Asking Questions:</u> <ul style="list-style-type: none"> <li>Understand the concept of 'a question'.</li> <li>Begin to be able to suggest one way of finding an answer to a question.</li> <li>Understand that some questions can be answered by testing.</li> <li>Identify evidence that can be used to answer questions.</li> <li>Present evidence.</li> </ul>	<u>Asking Questions:</u> <ul style="list-style-type: none"> <li>Be able to ask a question</li> <li>Be able to suggest one way of finding an answer to a question. (Observation over time)</li> </ul> <u>Making observations and taking measurements:</u> <ul style="list-style-type: none"> <li>Suggest a practical way to find something out.</li> <li>Identify things to measure and things to observe</li> <li>Recognise that some observable features may</li> </ul>	<u>Asking Questions:</u> <ul style="list-style-type: none"> <li>Understand that some questions can be answered by testing. (boats)</li> <li>Identify evidence that can be used to answer questions</li> </ul> <u>Making observations and taking measurements:</u> <ul style="list-style-type: none"> <li>Select appropriate equipment to observe.</li> <li>Recognise that some observable features may change over time, e.g., the size of a plant.</li> </ul> <u>Comparative and Fair Tests:</u>	<u>Asking Questions:</u> <ul style="list-style-type: none"> <li>Be able to suggest one way of finding an answer to a question. (Research, identify and classify 1)</li> <li>Understand that some questions can be answered by testing. (Squishy materials)</li> <li>Present evidence.</li> </ul> <u>Making observations and taking measurements:</u> <ul style="list-style-type: none"> <li>Understand that we can gather information</li> </ul>	<u>Asking Questions:</u> <ul style="list-style-type: none"> <li>Be able to ask a question</li> <li>Understand that some questions can be answered by testing. (Identify &amp; classify 2, research)</li> <li>Identify evidence that can be used to answer questions.</li> <li>Present evidence.</li> </ul> <u>Making observations and taking measurements:</u>	<u>Asking Questions:</u> <ul style="list-style-type: none"> <li>Be able to suggest one way of finding an answer to a question. (Comparative, observation over time. Pattern seeking)</li> <li>Understand that some questions can be answered by testing. (Observation over time)</li> </ul> <u>Making observations and taking measurements:</u> <ul style="list-style-type: none"> <li>Independently, use simple equipment provided, e.g.,</li> </ul>











	<p><u>Making observations and taking measurements:</u></p> <ul style="list-style-type: none"> <li>Understand that we can gather information through our senses. (eyes)</li> <li>Understand that observation involves all of the senses</li> <li>Independently, use simple equipment provided, e.g., hand lenses, to make more accurate observations.</li> </ul> <p><u>Comparative and Fair Tests:</u></p> <ul style="list-style-type: none"> <li>Identify things to measure</li> <li>Begin to recognize when a test is not fair and begin to suggest improvements.</li> </ul> <p><u>Identifying and Classifying:</u></p> <ul style="list-style-type: none"> <li>Sort and group objects and living things in different ways.</li> <li>Describe how they sorted objects.</li> <li>Begin to classify and identify by linking observable features to already known objects or things.</li> </ul> <p><u>Pattern Seeking and Relationships:</u></p> <ul style="list-style-type: none"> <li>Notice what has changed when observing things or events</li> <li>Discuss what they have found out or what they think may happen.</li> <li>Begin to recognize links between observations and answers to questions.</li> <li>With help, begin to notice patterns and relationships</li> <li>Begin to use simple</li> </ul>	<p>change over time, e.g., the size of a plant.</p> <p><u>Comparative and Fair Tests:</u></p> <ul style="list-style-type: none"> <li>Explain what is happening/has happened to things or events.</li> <li>Make changes and explain what has changed</li> <li>Suggest a practical way to find something out.</li> <li>With support, identify two variables in an investigation, e.g., water and light when investigating plant growth</li> <li>Identify things to measure and things to observe</li> <li>Begin to recognize when a test is not fair and begin to suggest improvements.</li> </ul> <p><u>Recording and presenting evidence:</u></p> <ul style="list-style-type: none"> <li>Guided, record own observations e.g., using photographs, videos, drawings, labeled diagrams or in writing.</li> <li>Record own measurements e.g., using prepared tables, pictograms, tally charts and block graphs.</li> </ul> <p><u>Research using secondary sources:</u></p> <ul style="list-style-type: none"> <li>Use simple secondary sources, e.g., books, film, internet, to find information.</li> <li>Use information from secondary sources to help answer a question.</li> </ul> <p><u>Answering questions and concluding:</u></p> <ul style="list-style-type: none"> <li>Use own experiences of the world around to suggest appropriate answers to questions.</li> <li>With support, relate these to own evidence e.g., observations they have made, measurements they have taken or information</li> </ul>	<ul style="list-style-type: none"> <li>Explain what is happening/has happened to things or events.</li> <li>Make changes and explain what has changed</li> <li>Suggest a practical way to find something out.</li> <li>Confidently, compare features of two objects.</li> <li>Identify things to measure and things to observe</li> </ul> <p><u>Pattern Seeking and Relationships:</u></p> <ul style="list-style-type: none"> <li>Notice what has changed when observing things or events</li> <li>Discuss what they have found out or what they think may happen.</li> <li>Begin to recognize links between observations and answers to questions.</li> <li>With help, begin to notice patterns and relationships (why a paper boat)</li> <li>Begin to use simple scientific language to talk about what they have found out.</li> <li>Communicate their ideas to a range of audiences in a variety of ways.</li> </ul> <p><u>Recording and presenting evidence:</u></p> <ul style="list-style-type: none"> <li>Guided, record own observations e.g., using photographs, videos, drawings, labeled diagrams or in writing.</li> <li>Record own measurements e.g., using prepared tables, pictograms, tally charts and block graphs.</li> </ul> <p><u>Research using secondary sources:</u></p> <ul style="list-style-type: none"> <li>Use simple secondary sources, e.g., books, film, internet, to find information.</li> <li>Use information from secondary sources to help answer a question.</li> </ul> <p><u>Answering questions and concluding:</u></p>	<p>through our senses. 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	<p>scientific language to talk about what they have found out.</p> <ul style="list-style-type: none"> <li>Communicate their ideas to a range of audiences in a variety of ways.</li> </ul> <p><u>Recording and presenting evidence:</u></p> <ul style="list-style-type: none"> <li>Guided, record own observations e.g., using photographs, videos, drawings, labeled diagrams or in writing.</li> <li>Record own measurements e.g., using prepared tables, pictograms, tally charts and block graphs.</li> <li>Independently, classify using simple prepared tables and sorting rings.</li> </ul> <p><u>Answering questions and concluding:</u></p> <ul style="list-style-type: none"> <li>Use own experiences of the world around to suggest appropriate answers to questions.</li> <li>With support, relate these to own evidence e.g., observations they have made, measurements they have taken or information they have gained from secondary sources.</li> </ul> <p><u>Research using secondary sources:</u></p> <ul style="list-style-type: none"> <li>Use simple secondary sources, e.g., books, film, internet, to find information.</li> <li>Use information from secondary sources to help answer a question</li> </ul>	<p>they have gained from secondary sources.</p>	<ul style="list-style-type: none"> <li>Use own experiences of the world around to suggest appropriate answers to questions.</li> <li>With support, relate these to own evidence e.g., observations they have made, measurements they have taken or information they have gained from secondary sources.</li> <li>Recognise 'biggest and smallest', 'best and worst' etc. from their data</li> </ul>	<p><u>Research using secondary sources:</u></p> <ul style="list-style-type: none"> <li>Use simple secondary sources, e.g., books, film, internet, to find information.</li> <li>Use information from secondary sources to help answer a question.</li> </ul> <p><u>Answering questions and concluding:</u></p> <ul style="list-style-type: none"> <li>Use own experiences of the world around to suggest appropriate answers to questions.</li> <li>With support, relate these to own evidence e.g., observations they have made, measurements they have taken or information they have gained from secondary sources.</li> <li>Recognise 'biggest and smallest', 'best and worst' etc. from their data</li> </ul>	<ul style="list-style-type: none"> <li>Independently, classify using simple prepared tables and sorting rings.</li> </ul> <p><u>Research using secondary sources:</u></p> <ul style="list-style-type: none"> <li>Use simple secondary sources, e.g., books, film, internet, to find information.</li> <li>Use information from secondary sources to help answer a question</li> </ul> <p><u>Answering questions and concluding:</u></p> <ul style="list-style-type: none"> <li>Use own experiences of the world around to suggest appropriate answers to questions.</li> <li>With support, relate these to own evidence e.g., observations they have made, measurements they have taken or information they have gained from secondary sources</li> </ul>	<p>think may happen.</p> <ul style="list-style-type: none"> <li>Begin to recognize links between observations and answers to questions.</li> <li>With help, begin to notice patterns and relationships (why a paper boat)</li> <li>Begin to use simple scientific language to talk about what they have found out.</li> <li>Communicate their ideas to a range of audiences in a variety of ways.</li> </ul> <p><u>Recording and presenting evidence:</u></p> <ul style="list-style-type: none"> <li>Guided, record own observations e.g., using photographs, videos, drawings, labeled diagrams or in writing.</li> <li>Begin to make some independent choices about appropriate ways to record data.</li> <li>Record own measurements e.g., using prepared tables, pictograms, tally charts and block graphs.</li> </ul> <p><u>Research using secondary sources:</u></p> <ul style="list-style-type: none"> <li>Use simple secondary sources, e.g., books, film, internet, to find information.</li> <li>Use information from secondary sources to help answer a question.</li> </ul> <p><u>Answering questions and concluding:</u></p> <ul style="list-style-type: none"> <li>Use own experiences of the world around to suggest appropriate answers to questions.</li> <li>With support, relate these to own evidence e.g., observations they did</li> </ul>
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Scientists	<p><b>Dr Ernest Madu (born 1960)</b></p>  <p>Dr Ernest Madu is a cardiologist. His work focuses on providing affordable healthcare in low-resource nations.</p>	<p><b>Louis Pasteur (1822-1895)</b></p>  <p>French chemist and microbiologist; develop the first vaccine.</p>	<p><b>John Loudon McAdam (1756-1836)</b></p>  <p>John Loudon McAdam was a Scottish engineer who modernised the way we build roads. He was the inventor of tarmacadam road surfacing – commonly called tarmac.</p>	<p><b>Julie and Scott Brusaw</b></p>  <p>Julie and Scott are one of the inventors of Solar Roadways. Solar roadways use solar powered road panels to form a smart roadway.</p>	<p><b>Dr Alexandra Harmon Threat</b></p>  <p>Entomologist and bee expert. Assistant Professor of Entomology at the University of Illinois, Urbana-Champaign. She focuses on identifying local and landscape features that contribute to pollinator diversity and restoration.</p>	<p><b>David Douglas (1799-1834)</b></p>  <p>David Douglas was a Scottish botanist, best known as the namesake of the Douglas-fir. He worked as a gardener, and explored the Scottish Highlands, North America, and Hawaii.</p>	
	Enquiries	<ul style="list-style-type: none"> <li><b>Observation Over Time:</b> Do you eat a balanced and healthy diet in a week?</li> <li><b>Identifying &amp; Classifying</b> What makes a balanced diet?</li> <li><b>Identifying and Classifying:</b> Which offspring belongs to each animal?</li> <li><b>Pattern Seeking:</b> Do longer legs make you a faster runner?</li> <li><b>Research:</b> What do animals and humans need to survive?</li> </ul>	<ul style="list-style-type: none"> <li><b>Observation Over Time:</b> How does a tadpole/baby change over time?</li> <li><b>Comparative Testing:</b> Does soap really keep the germs away?</li> <li><b>Research:</b> What food do you need in a healthy diet and why?</li> </ul>	<ul style="list-style-type: none"> <li><b>Observation Over Time:</b> Would a paper boat float forever? WATERPROOF</li> <li><b>Comparative Testing:</b> Which materials would be best for a new house? (Links to new London)</li> <li><b>Identify and Classify:</b> Which materials did you see on our material hunt?</li> <li><b>Research:</b> How have materials changed over time? (houses/roads – link with the scientists)</li> </ul>	<ul style="list-style-type: none"> <li><b>Comparative Testing:</b> Which materials would be the best for a pirate's outfit? Test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for the outfit.</li> <li><b>Identify and Classify:</b> Which materials are transparent, translucent, and opaque?</li> </ul>	<ul style="list-style-type: none"> <li><b>Comparative Testing:</b> Do reptiles have more in common with amphibians or fish?</li> <li><b>Identify and Classify:</b> How would you group these animals based on what habitat you would find them in?</li> <li><b>Identify and Classify:</b> Are the objects we found alive or dead?</li> <li><b>Research:</b> Design your own creature that has adapted to its habitat.</li> </ul>	<ul style="list-style-type: none"> <li><b>Comparative testing:</b> Which habitat do worms prefer to live in and why? (What does it provide?)</li> <li><b>Identify and Classifying:</b> How would you group these things to show whether they are living, dead or never been alive?</li> <li><b>Pattern Seeking:</b> What animals can you find in different microhabitats?</li> <li><b>Research:</b> How do animals adapt to suit their environment? Do animals need each other to survive? (Food chains)</li> </ul>
		<ul style="list-style-type: none"> <li><b>Observation over time:</b> What happens to my bulb when I have planted it?</li> <li><b>Identify &amp; Classify:</b> How could you group these bulbs and seeds?</li> </ul>	<ul style="list-style-type: none"> <li><b>Observation over time:</b> What happens to my bean after I have planted it?</li> <li><b>Identify and Classify:</b> What plants did you see on our hunt?</li> </ul>	<ul style="list-style-type: none"> <li><b>Comparative:</b> What conditions will help me grow the healthiest plant?</li> <li><b>Pattern Seeking:</b> Do all flowers have the same number of petals?</li> <li><b>Research:</b> How does a cactus survive in a desert with no water?</li> </ul>			
Cross-curricular links	<p><b>D&amp;T:</b> Making healthy pizzas <b>P.E.:</b> Linked to pattern seeking enquiry running races</p>	<p><b>Computing:</b> safe searching &amp; refined searching <b>Reading:</b> research our key scientist relating to Animals including Humans</p>	<p><b>History:</b> Linked to Great Fire of London, comparing the materials used in houses then v now</p> <p>Children to design their own new house for modern London</p>	<p><b>D&amp;T:</b> Children to build a boat structure that can float, stay waterproof &amp; move</p>	<p><b>Educational Visit:</b> Burwardsley <b>Computing:</b> Presenting ideas (how they present their newly created creature) <b>Maths:</b> Bar chart for Minbeast investigation</p>	<p><b>English:</b> linked to Literacy writing unit science investigation <b>Educational Visit:</b> Pond/Park <b>SDG's:</b> Life on Land <b>Maths:</b> Pictogram for what plants did you see on our hunt? <b>Maths:</b> Tally chart for petals investigation</p>	





Year		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
LKS2	Y3 Europe	Tribal Tales		Local History	Europe	Espana	Plants of the World	
		Animals Including Humans	Forces and magnets	Rocks	Light	Light	Plants	
		<b>National Curriculum</b>						
		<ul style="list-style-type: none"> <li>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</li> <li>identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul>	<ul style="list-style-type: none"> <li>compare how things move on different surfaces</li> <li>notice that some forces need contact between 2 objects, but magnetic forces can act at a distance</li> <li>observe how magnets attract or repel each other and attract some materials and not others</li> <li>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</li> <li>describe magnets as having 2 poles</li> <li>predict whether 2 magnets will attract or repel each other, depending on which poles are facing</li> </ul>	<ul style="list-style-type: none"> <li>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>recognise that soils are made from rocks and organic matter</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li>recognise that they need light in order to see things and that dark is the absence of light</li> <li>notice that light is reflected from surfaces</li> <li>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>recognise that shadows are formed when the light from a light source is blocked by an opaque object</li> <li>find patterns in the way that the size of shadows change</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>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</li> <li>investigate the way in which water is transported within plants</li> <li>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>	
		<b>Vocabulary</b>						
		Nutrition, food types, carbohydrates, protein, vitamins and minerals, fat, sugar, fruits and veg, dietary fibre, water, balanced diet, skeleton, muscles, support, protection, movement, names of bones, vertebrate, invertebrate	Force, contact force, non-contact force, magnetic force, magnet, strength, bar/ring/button/horses hoe magnets, attract, repel, magnetic material, metal, iron, steel, non-magnetic, poles, north/south pole	Rock, stone, pebble, boulder, soil, fossils, grains, crystals, texture, absorb water, let water through, marble, chalk, granite, sandstone, slate, sandy soil, clay soil, chalky soil, peat		Light, light source, darkness, reflect, reflective, mirror, shadow, block, direction, transparent, opaque, translucent	leaf, flower, blossom, petal, fruit, root, bulb, seed trunk, branch, stem, water, light, air, nutrients, soil, fertiliser, grow, healthy, transported, life cycle, pollination, seed formation, seed dispersal	
<b>Skills Progression</b>								







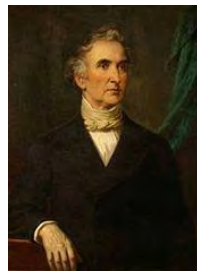

	<ul style="list-style-type: none"> <li>• Begin to raise more relevant questions.</li> <li>• Select appropriate equipment to observe and measure.</li> <li>• Guided, use a range of equipment for measuring length, time, temperature and capacity.</li> <li>• Begin to use standard units for their measurements.</li> <li>• Begin to make decisions about which practical method is best to find something out.</li> <li>• Set up a comparative test.</li> <li>• Recognize when a simple fair test is necessary to answer a scientific question.</li> <li>• Use simple observable features to compare objects or living things.</li> <li>• Group objects and living things in different ways.</li> <li>• With support, explain criteria for grouping, sorting and classifying.</li> <li>• Use observable features of objects to identify them.</li> <li>• Use simple keys.</li> <li>• Recognise links between observations and answers to questions</li> <li>• With support, notice patterns and relationships.</li> <li>• With help, look for changes, patterns, similarities and differences in their data.</li> <li>• Use patterns in their data to draw simple conclusions and answer</li> </ul>	<ul style="list-style-type: none"> <li>• Begin to make own decisions about which method of enquiry is best to answer a question.</li> <li>• Select appropriate equipment to observe and measure.</li> <li>• Guided, use a range of equipment for measuring length, time, temperature and capacity.</li> <li>• Begin to use standard units for their measurements.</li> <li>• Begin to make decisions about which practical method is best to find something out.</li> <li>• Identify two variables in an investigation, e.g. water and light when investigating plant growth.</li> <li>• Set up a comparative test.</li> <li>• Recognize when a simple fair test is necessary to answer a scientific question.</li> <li>• Be able to identify variables to measure and variables to observe.</li> <li>• With others, help to set up a fair test.</li> <li>• Group objects and living things in different ways.</li> <li>• With support, explain criteria for grouping, sorting and classifying.</li> <li>• Use simple keys.</li> <li>• Recognise links between observations and answers to questions</li> <li>• With support, notice patterns and relationships.</li> <li>• Look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>• With help, look for changes, patterns, similarities and differences in their data.</li> </ul>	<ul style="list-style-type: none"> <li>• Begin to raise more relevant questions.</li> <li>• Begin to make own decisions about which method of enquiry is best to answer a question.</li> <li>• Begin to refine a question.</li> <li>• Select appropriate equipment to observe and measure.</li> <li>• Guided, use a range of equipment for measuring length, time, temperature and capacity.</li> <li>• Begin to use standard units for their measurements.</li> <li>• Begin to make decisions about which 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which method of enquiry is best to answer a question.</li> <li>• Begin to refine a question.</li> <li>• Select appropriate equipment to observe and measure.</li> <li>• Guided, use a range of equipment for measuring length, time, temperature and capacity.</li> <li>• Begin to use standard units for their measurements.</li> <li>• With support, use new equipment such as data loggers, appropriately.</li> <li>• Begin to make decisions about which practical method is best to find something out.</li> <li>• Identify two variables in an investigation, e.g. water and light when investigating plant growth.</li> <li>• Set up a comparative test.</li> <li>• Recognize when a simple fair test is necessary to answer a scientific question.</li> <li>• Be able to identify variables to measure and variables to observe.</li> <li>• With others, help to set up a fair test.</li> <li>• Start to recognize when a test is not fair and suggest improvements.</li> <li>• Use simple observable features to compare objects or living things.</li> <li>• With support, explain criteria for grouping, sorting and classifying.</li> <li>• Use observable features of objects to identify them.</li> <li>• Use simple keys.</li> </ul>	<ul style="list-style-type: none"> <li>• Begin to make own decisions about which method of enquiry is best to answer a question.</li> <li>• Begin to refine a question.</li> <li>• Select appropriate equipment to observe and measure.</li> <li>• Guided, use a range of equipment for measuring length, time, temperature and capacity.</li> <li>• Begin to use standard units for their measurements.</li> <li>• Begin to make decisions about which practical method is best to find something out.</li> <li>• Identify two variables in an investigation, e.g. water and light when investigating plant growth.</li> <li>• Set up a comparative test.</li> <li>• Recognize when a simple fair test is necessary to answer a scientific question.</li> <li>• Be able to identify variables to measure and variables to observe.</li> <li>• Start to recognize when a test is not fair and suggest improvements.</li> <li>• Use simple observable features to compare objects or living things.</li> <li>• Group objects and living things in different ways.</li> <li>• With support, explain criteria for grouping, sorting and classifying.</li> <li>• Use observable features of objects to identify them.</li> <li>• Use simple keys.</li> <li>• Begin to classify and identify by linking</li> </ul>
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## Progression of skills and knowledge - Science



	<p>questions.</p> <ul style="list-style-type: none"> <li>With increasing confidence, record own observation e.g. using photographs, videos, pictures, labelled diagrams or writing.</li> <li>With support, record own measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings).</li> <li>Start recording classifications e.g. using tables, Venn diagrams, Carroll diagrams.</li> <li>Draw simple conclusions and write about what they have found out using some scientific language.</li> <li>With support, identify new questions arising from the data</li> <li>Make predictions for new values within or beyond the data they have collected.</li> <li>Recognise when a result seems unusual when compared with other values.</li> <li>Use information from secondary sources to help answer a question</li> </ul>	<ul style="list-style-type: none"> <li>Use patterns in their data to draw simple conclusions and answer questions.</li> <li>With increasing confidence, record own observation e.g. using photographs, videos, pictures, labelled diagrams or writing.</li> <li>With support, record own measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings).</li> <li>Start recording classifications e.g. using tables, Venn diagrams, Carroll diagrams.</li> <li>With support, use relevant scientific language to communicate their findings.</li> <li>Begin to communicate own ideas in ways that are appropriate for different audience.</li> <li>Interpret own data to generate simple comparative statements based on own evidence.</li> <li>Begin to identify naturally occurring patterns and causal relationships.</li> <li>With support, identify new questions arising from the data</li> <li>Recognise when a result seems unusual when compared with other values.</li> <li>Use information from secondary sources to help answer a question.</li> <li>Recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations.</li> </ul>	<p>things.</p> <ul style="list-style-type: none"> <li>Explain which observable features have led them to classify in a particular way.</li> <li>Begin to use simple databases or keys to identify or classify living things, objects or events</li> <li>Recognise links between observations and answers to questions</li> <li>With support, notice patterns and relationships.</li> <li>Look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>With help, look for changes, patterns, similarities and differences in their data.</li> <li>Use patterns in their data to draw simple conclusions and answer questions.</li> <li>With increasing confidence, record own observation e.g. using photographs, videos, pictures, labelled diagrams or writing.</li> <li>Start recording classifications e.g. using tables, Venn diagrams, Carroll diagrams.</li> <li>With support, use relevant scientific language to communicate their findings.</li> <li>Begin to communicate own ideas in ways that are appropriate for different audience</li> <li>With support, use a variety of written communication methods, e.g. guides, keys, drawings and other pictorial representations</li> <li>With support, identify new questions arising from the data</li> <li>Use information from secondary sources to help answer a question.</li> </ul>		<ul style="list-style-type: none"> <li>Begin to classify and identify by linking observable features to already known objects or things.</li> <li>Explain which observable features have led them to classify in a particular way.</li> <li>Recognise when a result seems unusual when compared with other values.</li> <li>With support, ask further questions which can be answered by extending the same enquiry.</li> <li>Use information from secondary sources to help answer a question.</li> <li>Recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations.</li> <li>Begin to identify naturally occurring patterns and causal relationships.</li> <li>Using results to suggest improvements and raise further questions</li> <li>With support, identify new questions arising from the data</li> <li>Make predictions for new values within or beyond the data they have collected.</li> <li>With support, find ways of improving what they have already done.</li> </ul>	<p>observable features to already known objects or things.</p> <ul style="list-style-type: none"> <li>Explain which observable features have led them to classify in a particular way.</li> <li>Use patterns in their data to draw simple conclusions and answer questions.</li> <li>With increasing confidence, record own observation e.g. using photographs, videos, pictures, labelled diagrams or writing.</li> <li>Start recording classifications e.g. using tables, Venn diagrams, Carroll diagrams.</li> <li>Begin to choose own way of communicating ideas to different audiences</li> <li>Begin to identify naturally occurring patterns and causal relationships.</li> <li>With support, identify new questions arising from the data</li> <li>Make predictions for new values within or beyond the data they have collected.</li> <li>Recognise when a result seems unusual when compared with other values.</li> <li>Recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations.</li> </ul>
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Scientist	<p><b>Wilhelm Conrad Rontgen (1845-1923)</b></p>  <p>Wilhelm Rontgen was a German physicist who discovered X-rays in 1895. He was awarded many honours and won the Nobel Prize for physics in 1901.</p>	<p><b>Michael Faraday (1791-1867)</b></p>  <p>Michael Faraday was an English scientist. In 1831, he discovered electromagnetic induction. This was a very important discovery for the future of science and technology</p>	<p><b>Mary Anning (1799-1847)</b></p>  <p>Mary Anning was an English palaeontologist and fossil collector. She became known around the world for important finds she made in Jurassic fossil beds in Dorset.</p>	<p><b>Nicky Fox</b></p>  <p>Nasa scientist who studies the sun.</p>	<p><b>Justus von Liebig (1803-1873)</b></p>  <p>Justus von Liebig was a German chemist. In 1835 he developed a process for applying a thin layer of metallic silver to one side of a pane of clear glass. This technique was soon adapted and improved, allowing for the mass production of mirrors.</p>	<p><b>Professor Monique Simmonds</b></p>  <p>Monique Simmonds is the deputy director of science at the Royal Botanic Gardens, Kew. She researches traditional and commercial uses of plants and fungi. Her work involves her promoting plant and fungal based solutions to global challenges.</p>	
	Enquiries	<p><b>Comparative and fair testing:</b> Compare, contrast and classify skeletons of different animals  <b>Identifying and Classifying:</b> How would you organise these foods into the different nutrient types?  <b>Pattern seeking:</b> Do male humans have larger skulls than females?                  Link to comparative testing  <b>Research:</b> Why do vitamins keep us healthy and which foods can we find them in?</p>	<p><b>Comparative and fair testing:</b> Which surface is best to stop you slipping?  <b>Identifying and Classifying:</b> Which materials are magnetic?  <b>Pattern seeking:</b> Does the size and shape of a magnet affect how strong it is?  <b>Research:</b> How does a compass work?</p>	<p><b>Identifying and Classifying:</b> How can I group these rocks based on their physical appearance and physical properties?  <b>Observation over time:</b> What happens to soil when water is added to it?  <b>Research:</b> How are fossils formed?</p>		<p><b>Comparative and fair testing:</b> How does the distance between the shadow puppet and the screen affect the size of the shadow?  <b>Identifying and Classifying:</b> How would you organise these light sources into natural and artificial sources?  <b>Observation over time:</b> Is the Sun the same brightness all day?  <b>Pattern seeking:</b> Are you more likely to wear glasses if you are older</p>	<p><b>Comparative and fair testing:</b> How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals?  <b>Identifying and Classifying:</b> How many ways can you group our seed collection?  <b>Observation over time:</b> What happens to celery when it is left in a glass of coloured water?  <b>Pattern seeking:</b> What colour flowers do pollinating insects prefer?  <b>Research:</b> What are all the different ways that seeds disperse?</p>
	Cross-	<p><b>Art</b> – Draw a skeleton.  <b>PSHE</b> – healthy eating.  <b>Reading</b> – research enquiry – posters: Why do vitamins keep us healthy and which foods can we find them in?  <b>Maths:</b> Use tape measures to measure circumference of head</p>	<p><b>Reading and computing</b> – research how a compass works.</p>	<p><b>Maths</b> – graph to show results of pattern seeking.  <b>Reading</b> – how a fossil is formed.  <b>Art/DT</b> – make a fossil</p>	<p><b>Art</b> – draw and label inside of a flower.  <b>Computing/Reading</b> – research seed dispersal  <b>Drama</b>- Video about seed dispersal methods and process of pollination.  <b>English</b> – science investigation unit.</p>	<p><b>Maths</b> – pattern seeking enquiry.  <b>Reading</b> – research enquiry.  <b>Art</b> – design own pair of sunglasses.</p>	





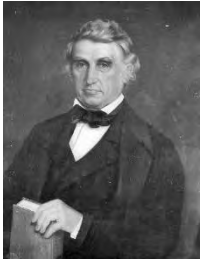
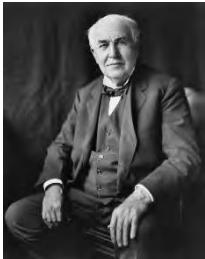




		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Y4	Asia	Roman Britain	Electricity	Water World	India	The Indus Valley	The Sound of Music	
		Animals Including Humans	Electricity	State of matter	Living Things and their Habitats		Sound	
		<b>National Curriculum</b>						
		<ul style="list-style-type: none"> <li>describe the simple functions of the basic parts of the digestive system in humans</li> <li>identify the different types of teeth in humans and their simple functions</li> <li>construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>	<ul style="list-style-type: none"> <li>identify common appliances that run on electricity</li> <li>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>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</li> <li>recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>recognise some common conductors and insulators, and associate metals with being good conductors</li> </ul>	<ul style="list-style-type: none"> <li>compare and group materials together, according to whether they are solids, liquids or gases</li> <li>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)</li> <li>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> </ul>	<ul style="list-style-type: none"> <li>recognise that living things can be grouped in a variety of ways</li> <li>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul>	<ul style="list-style-type: none"> <li>identify how sounds are made, associating some of them with something vibrating</li> <li>recognise that vibrations from sounds travel through a medium to the ear</li> <li>find patterns between the pitch of a sound and features of the object that produced it</li> <li>find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>recognise that sounds get fainter as the distance from the sound source increases</li> </ul>		
<b>Vocabulary</b>								
		Digestive system, nutrition, mouth, teeth, canine, incisor, molar, pre-molar, saliva, tongue, rip, tear, chew, grind, cut, oesophagus (gullet), stomach, small intestine, large intestine, rectum, anus, carnivore, herbivore, omnivore, producer, consumer, predator, prey, food chain	Electricity, appliance, device, mains, plug, electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, positive/negative, connect, connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch, buzzer, motor, faster/slower, conductor, insulator, metal/non metal	States of matter, solid, liquid, gas, air, oxygen, powder, granular/grain, crystals, change state, ice/water/steam, water vapour, heating, cooling, temperature, degrees Celsius, melt, freeze, solidify, melting point, boil, boiling point, evaporation, condensation, water cycle, precipitation, transpiration	Classification keys, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates, names of them, human impact, positive, negative (impact).	Sound, sound source, noise, vibration, travel, solid, liquid, gas, pitch, tune, high, low, volume, loud, quiet, fainter, muffle, strength of vibrations, insulation, instrument, percussion, strings, bass, woodwind, tuned instrument		
<b>Skills Progression</b>								
		<ul style="list-style-type: none"> <li>Raise relevant questions.</li> <li>Make own decisions about which method of enquiry is best to answer a question.</li> <li>Make decisions about which practical method is best to find something out.</li> <li>Independently, set up a comparative test.</li> </ul>	<ul style="list-style-type: none"> <li>Raise relevant questions.</li> <li>Make own decisions about which method of enquiry is best to answer a question.</li> <li>Refine a question.</li> <li>Accurately, select appropriate equipment to observe and measure.</li> </ul>	<ul style="list-style-type: none"> <li>Make own decisions about which method of enquiry is best to answer a question.</li> <li>Use a range of equipment for measuring length, time, temperature and capacity.</li> <li>Accurately, use standard units for their measurements.</li> <li>Identify variables to measure and variables to observe.</li> </ul>	<ul style="list-style-type: none"> <li>Make own decisions about which method of enquiry is best to answer a question.</li> <li>Refine a question.</li> <li>Explain confidently criteria for grouping, sorting and classifying</li> <li>Use observable features of objects to identify them.</li> <li>Use simple keys.</li> <li>Begin to classify and identify by linking observable features to already known objects or things</li> </ul>	<ul style="list-style-type: none"> <li>Refine a question.</li> <li>Identify variables to measure and variables to observe.</li> <li>Set up a fair test.</li> <li>Start to recognize when a test is not fair and suggest improvements.</li> <li>Look for naturally occurring</li> </ul>		

# Progression of skills and knowledge - Science



	<ul style="list-style-type: none"> <li>Recognize links between observations and answers to questions</li> <li>Notice patterns and relationships.</li> <li>Use patterns in their data to draw simple conclusions and answer questions.</li> <li>Record own observation e.g. using photographs, videos, pictures, labelled diagrams or writing.</li> <li>Use relevant scientific language to discuss their ideas.</li> <li>Use relevant scientific language to communicate their findings.</li> <li>Use a variety of written communication methods, e.g. guides, keys, drawings and other pictorial representations which are suggested to them</li> <li>With support, identify new questions arising from the data</li> <li>Use information from secondary sources to help answer a question.</li> </ul>	<ul style="list-style-type: none"> <li>Use a range of equipment for measuring length, time, temperature and capacity.</li> <li>Independently, set up a comparative test.</li> <li>Recognize when a simple fair test is necessary to answer a scientific question.</li> <li>Identify variables to measure and variables to observe.</li> <li>Set up a fair test.</li> <li>Look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>Record own observation e.g. using photographs, videos, pictures, labelled diagrams or writing.</li> <li>Record own measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings).</li> <li>Draw conclusions and write about what they have found out using some scientific language.</li> <li>Communicate their ideas in ways that are appropriate for different audience</li> <li>Choose their own way of communicating ideas to different audiences</li> <li>Interpret own data to generate simple comparative statements based on own evidence.</li> <li>With support, identify new questions arising from the data</li> <li>Make predictions for new values within or beyond the data they have collected.</li> <li>Ask further questions which can be answered by extending the same enquiry.</li> <li>Begin to classify by behavioural features, e.g. conducts electricity, and is magnetic.</li> </ul>	<ul style="list-style-type: none"> <li>Start to recognize when a test is not fair and suggest improvements.</li> <li>Group objects and living things in different ways.</li> <li>Explain confidently criteria for grouping, sorting and classifying</li> <li>Use observable features of objects to identify them.</li> <li>Begin to classify and identify by linking observable features to already known objects or things</li> <li>Begin to classify by behavioural features, e.g. conducts electricity, and is magnetic.</li> <li>Explain which observable or behavioural features have led them to classify in a particular way.</li> <li>Look for naturally occurring patterns and relationships and decide what data to collect to identify them.</li> <li>Look for changes, patterns, similarities and differences in their data.</li> <li>Use patterns in their data to draw simple conclusions and answer questions.</li> <li>Record classifications e.g. using tables, Venn diagrams, Carroll diagrams.</li> <li>Begin to present the same data in different ways in order to help with answering question</li> <li>Begin to identify naturally occurring patterns and causal relationships.</li> <li>Using results to suggest improvements and raise further questions</li> </ul>	<ul style="list-style-type: none"> <li>Begin to classify by behavioural features, e.g. conducts electricity and is magnetic.</li> <li>Explain which observable or behavioural features have led them to classify in a particular way.</li> <li>Independently, use simple databases or keys to identify or classify living things, objects or events</li> <li>Use patterns in their data to draw simple conclusions and answer questions.</li> <li>Record classifications e.g. using tables, Venn diagrams, Carroll diagrams</li> <li>Begin to present the same data in different ways in order to help with answering question</li> <li>Use information from secondary sources to help answer a question.</li> <li>Refine a question.</li> <li>Use new equipment such as data loggers, appropriately.</li> <li>Identify variables to measure and variables to observe.</li> <li>Set up a fair test.</li> <li>Look for naturally occurring patterns and relationships and decide what data to collect to identify them</li> <li>Look for changes, patterns, similarities and differences in their data.</li> <li>Begin to present the same data in different ways in order to help with answering question</li> <li>Interpret own data to generate simple comparative statements based on own evidence.</li> <li>Use relevant scientific language to discuss their ideas.</li> <li>Communicate their ideas in ways that are appropriate for different audience</li> <li>Use a variety of written communication methods, e.g. guides, keys, drawings and other pictorial representations which are suggested to them</li> <li>Begin to identify naturally occurring patterns and causal relationships.</li> <li>Find ways of improving what they have already done.</li> <li>Recognise when a result seems unusual when compared with other values.</li> <li>Identify when repeated results are necessary</li> <li>Ask further questions which can be answered by extending the same enquiry.</li> </ul>	<ul style="list-style-type: none"> <li>patterns and relationships and decide what data to collect to identify them.</li> <li>Look for changes, patterns, similarities and differences in their data.</li> <li>Use patterns in their data to draw simple conclusions and answer questions.</li> <li>Begin to present the same data in different ways in order to help with answering question</li> <li>Choose their own way of communicating ideas to different audiences</li> <li>Interpret own data to generate simple comparative statements based on own evidence.</li> <li>Begin to identify naturally occurring patterns and causal relationships.</li> <li>Using results to suggest improvements and raise further questions</li> <li>Find ways of improving what they have already done.</li> <li>Recognise when a result seems unusual when compared with other values.</li> <li>Identify when repeated results are necessary.</li> <li>Ask further questions which can be answered by extending the same enquiry.</li> <li>Recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations.</li> </ul>
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Scientist	 <p><b>William Beaumont (1785-1853)</b></p> <p>William Beaumont was a surgeon in the U.S. Army. He carried out lots of experiments and research on human digestion. He provided the world with new information about the digestive process in living human beings</p>	 <p><b>Thomas Edison (1847-1931)</b></p> <p>Thomas Edison was an American inventor. He is sometimes described as America's greatest inventor. He invented the first practical incandescent light bulb.</p>	 <p><b>Bernard Palissy (1510-1590)</b></p> <p>Bernard Palissy was a French potter and scientist. He is often credited as the man who 'discovered' the modern theory of the water cycle. He asserted that rainfall alone was sufficient for the maintenance of rivers.</p>	 <p><b>Jane Goodall (Born 1934)</b></p> <p>Jane Goodall is an expert on wild chimpanzees. She is known for her ground breaking discoveries about their behaviour. She has shown us the urgent need to protect chimpanzees from extinction.</p>	 <p><b>Seirian Sumner</b></p> <p>Dr Seirian Sumner is an evolutionary biologist and behavioural ecologist. She specialises in social evolution and behaviour in insects (bees, wasps and ants).</p>	 <p><b>Christian Doppler (1803-1853)</b></p> <p>Christian Doppler was an Austrian mathematician and physicist. He is celebrated for his principle known as the Doppler effect. This describes how noises sound different as you move toward or away from a noisy object.</p>							
							Enquiries	<p><b>Comparative testing:</b> How does smell affect the taste of a food?  <b>Identifying, grouping and classifying:</b> How can we group our teeth into different types?  <b>Research:</b> How are teeth damaged by sugar?  <b>Pattern seeking:</b> What features do all producers, predators and prey have in common?</p>	<p><b>Comparative testing:</b> Which materials conduct and which insulate?  <b>Research:</b> What are the danger of working with electricity and what precautions should we take? <i>(In addition to sessions)</i>  <b>Observation over time:</b> How does the brightness of a solar-powered lightbulb change over time?  <b>Pattern-seeking</b> reflection after data is collected: What days was the bulb brightest? Why?</p>	<p><b>Identifying, grouping and classifying:</b> How can we group these materials into states of matter?  <b>Comparative testing:</b> What is the effect of temperature on the drying of different materials?  <b>Pattern seeking::</b> How does the mixture of a solution affect its properties?  <b>Observation over time:</b> How does the temperature of molten wax change over time?</p>	<p><b>Research:</b> What creatures can be found in certain habitats?  <b>Identifying, grouping and classifying:</b> How can we organise animals into different classification groups? (Repeated focus of unit --&gt; vertebrate vs invertebrate / cold-blooded vs warm-blooded / mammals, birds, amphibians and reptiles).  <b>Pattern seeking:</b> What group of animals is most common in our local environment?</p>	<p><b>Research:</b> What is an environmental disaster caused by humans?  <b>Comparative testing:</b> Will the level of air pollution change depending on the location in the school?  <b>Observation over time:</b> How do the effects of air pollution change over time?</p>	<p><b>Comparative testing:</b> How does the loudness of a sound change as the distance from the sources increases?  <b>Research:</b> What are the speeds of sound and light?  <b>Pattern seeking:</b> Does the pitch of a sound correlate to the material making it?</p>
							Cross-curricular links	<p><b>DT:</b> Creating digestive systems out of recycled materials  <b>English/Drama:</b> Performing short plays based on the food chain.</p>	<p><b>DT:</b> Creating Nativity decorations with built-in circuits.  <b>Maths:</b> Handling decimals and comparing large numbers with voltage/wattages etc  <b>Computing:</b> Voltage of computer hardware and devices.</p>	<p><b>Geography:</b> The Water Cycle (main topic link)  <b>DT:</b> Evaluating use of materials considering their properties  <b>Maths:</b> Handling temperatures and displaying results.</p>	<p><b>Geography:</b> Physical features of environments  <b>Geography:</b> Fieldwork  <b>Art:</b> Scientific drawing</p>	<p><b>Geography:</b> Physical features of environments/biomes  <b>Geography:</b> Fieldwork  <b>English:</b></p>	<p><b>DT:</b> Selecting materials to create different pitches in their musical instruments.  <b>Music:</b> Exploring pitch in both a scientific context and a musical one.</p>



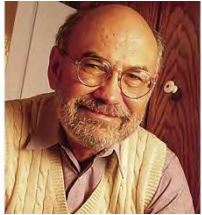




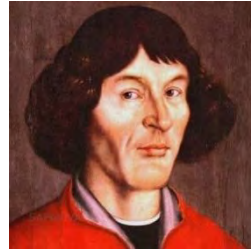
		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
UKS2 Y5 North America		Anglo-Saxons	Vikings	Climate Zones	Natural Resources	The Ancient Maya	Earth and Space	
		Properties and changes of materials		Living Things and their Habitats	Animals Including Humans	Forces	Earth and Space	
	<b>National Curriculum</b>							
		<ul style="list-style-type: none"> <li>Compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</li> <li>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.</li> <li>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li> <li>Demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</li> <li>Describe the life process of reproduction in some plants and animals.</li> </ul>	<ul style="list-style-type: none"> <li>Describe the changes as humans develop to old age.</li> </ul>	<ul style="list-style-type: none"> <li>explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some</li> <li>Mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>	<ul style="list-style-type: none"> <li>describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>describe the movement of the Moon relative to the Earth</li> <li>describe the Sun, Earth and Moon as approximately spherical bodies use the idea of the Earth'</li> <li>Rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>		
	<b>Vocabulary</b>							
		irreversible, dissolve, soluble, insoluble, solvent, solute, solution, filter, sieve, saturation, crystallization, thermal, chemistry, absorbent, electrical/thermal, residue, reversible/non reversible, burning, rusting, conductivity, melting,	Life cycle, reproduction, sexual, asexual, germination, pollination, seed formation, seed dispersal, pollen, stamen, stigma, plantlets, runners, mammal, amphibian, insects, bird, fish, reptile, eggs, live ones	Life cycle, reproduction,	Earth, gravity, weight, mass, air resistance, water resistance, friction, moving surface, mechanism, levers, pulleys, gears, force,	planet, satellite, sphere, solar system, eclipse, star, universe, constellation, axis, celestial body, Moon, rotating, lunar, solar, telescope, rotation, night, day, heliocentric model, shadow, sundials,		
	<b>Skills Progression</b>							
		<p><b>Observations:</b></p> <ul style="list-style-type: none"> <li>With support, make decisions about what observations to make, what measurements to use and for how long to make them, and whether to repeat them.</li> <li>Choose the most appropriate equipment to make measurements and explain how to use it</li> </ul> <p><b>Comparative and fair test:</b></p> <ul style="list-style-type: none"> <li>State which is the change variable and which is the measurement variable in a fair test.</li> <li>Select and plan a type of scientific enquiry to use to answer scientific questions</li> </ul> <p><b>Recording and presenting:</b></p>	<p><b>Research using secondary sources:</b></p> <ul style="list-style-type: none"> <li>Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.</li> <li>Use secondary sources, e.g. internet links to research objects, events and phenomena that cannot be experienced in the classroom, e.g. planetary movements, animals from around the world.</li> </ul> <p><b>Comparative and fair test:</b></p> <ul style="list-style-type: none"> <li>With support, recognize when and how to set up comparative and fair</li> </ul>	<p><b>Research:</b></p> <ul style="list-style-type: none"> <li>Gather and record data to help in answering questions.</li> <li>Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact</li> </ul> <p><b>Recording and presenting:</b></p> <ul style="list-style-type: none"> <li>Use relevant scientific language to discuss their ideas.</li> <li>Begin to communicate findings in ways that are appropriate to different audiences.</li> <li>Answering questions</li> </ul>	<p><b>Asking questions:</b></p> <ul style="list-style-type: none"> <li>Begin to refine a scientific question so that it can be tested</li> <li>With guidance, suggest changes to questions following collection/analysis of data.</li> </ul> <p><b>Observations:</b></p> <ul style="list-style-type: none"> <li>Choose the most appropriate equipment to make measurements and explain how to use it</li> <li>Begin to recognise that some measurements or</li> </ul>	<p><b>Answering questions</b></p> <ul style="list-style-type: none"> <li>With support, ask pertinent questions.</li> <li>Begin to, explore ideas and raise different kinds of questions about scientific phenomena.</li> </ul> <p><b>Observations:</b></p> <ul style="list-style-type: none"> <li>Choose the most appropriate equipment to make measurements and explain how to use it</li> </ul>		





	<ul style="list-style-type: none"> <li>Record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing.</li> <li>With support, decide how to record and present evidence.</li> <li>Record measurements e.g. using tables, tally charts, bar charts, line graphs.</li> <li>Use relevant scientific language to discuss their ideas.</li> </ul> <p><b>Concluding:</b></p> <ul style="list-style-type: none"> <li>Begin to, discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer.</li> </ul> <p><b>Evaluating:</b></p> <ul style="list-style-type: none"> <li>Communicate findings to an audience using relevant scientific language and illustrations.</li> </ul> <p><b>Answering questions</b></p> <ul style="list-style-type: none"> <li>With support, ask pertinent questions.</li> <li>Begin to, explore ideas and raise different kinds of questions about scientific phenomena.</li> </ul>	<p>tests and explain which variables need to be controlled and why.</p> <p><b>Identify and classify:</b></p> <ul style="list-style-type: none"> <li>Independently, to use simple databases or keys to identify or classify living things, objects or events.</li> <li>Discuss reasons why living things are placed in one group and not another.</li> <li>Suggest reasons for similarities and differences.</li> <li>Use and develop keys and other information records to identify, classify and describe living things and materials.</li> </ul> <p><b>Pattern seeking:</b></p> <ul style="list-style-type: none"> <li>Look for different causal relationships in their data and identify evidence that refutes or supports their ideas</li> <li>Identify patterns that might be found in the natural environment.</li> </ul> <p><b>Recording and presenting:</b></p> <ul style="list-style-type: none"> <li>Record classifications e.g. using tables, Venn diagrams, Carroll diagrams.</li> </ul>	<ul style="list-style-type: none"> <li>In conclusions, identify causal relationships and patterns in the natural world from evidence;</li> </ul>	<p>observations may need to be repeated</p> <p><b>Comparative and fair test:</b></p> <ul style="list-style-type: none"> <li>Recognize that some variables may be more significant than others in investigations.</li> <li>Begin to justify own choice of method as being appropriate to answer investigative question.</li> <li>Use own results to identify when further tests and observations might be needed.</li> </ul> <p><b>Pattern seeking:</b></p> <ul style="list-style-type: none"> <li>Look for different causal relationships in their data and identify evidence that refutes or supports their ideas</li> <li>With support, analyse functions, relationships and interactions more systematically.</li> </ul> <p><b>Recording:</b></p> <ul style="list-style-type: none"> <li>using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing.</li> <li>Record measurements e.g. using tables, tally charts, bar charts, line graphs.</li> <li>Use relevant scientific language to discuss their ideas.</li> </ul> <p><b>Evaluating:</b></p> <ul style="list-style-type: none"> <li>Begin to use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests.</li> <li>Begin to evaluate the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.</li> </ul>	<ul style="list-style-type: none"> <li>Begin to recognise that some measurements or observations may need to be repeated</li> </ul> <p><b>Recording and presenting:</b></p> <ul style="list-style-type: none"> <li>Begin to communicate findings in ways that are appropriate to different audiences.</li> <li>With support, identify relevant evidence used to draw conclusions.</li> </ul> <p><b>Answering questions:</b></p> <ul style="list-style-type: none"> <li>Discuss how new discoveries change scientific understanding</li> <li>Begin to discuss how their scientific ideas change due to new evidence that they have gathered.</li> </ul> <p><b>Research using secondary sources:</b></p> <ul style="list-style-type: none"> <li>Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.</li> <li>Use secondary sources, e.g. internet links to research objects, events and phenomena that cannot be experienced in the classroom, e.g. planetary movements, animals from around the world.</li> </ul> <p><b>Pattern seeking:</b></p> <p>Find out about how scientific ideas have changed and developed over time as new evidence is discovered, e.g. ideas about the solar system.</p>
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Scientist	<p><b>Spencer Silver (born 1941)</b></p>  <p>He is an American scientist who together with Arthur Fry was the inventor of Post-it notes in 1974. At the time, he was working to develop new classes of adhesives.</p>	<p><b>Walter Lincoln Hawkins (1911-1992)</b></p>  <p>An American chemist and engineer widely regarded as a pioneer of polymer chemistry.</p>	<p><b>David Attenborough (born 1926)</b></p>  <p>Sir David is an English broadcaster and naturalist. He has made many famous wildlife programmes. He was knighted in 1985.</p>	<p><b>Sarah Fowler</b></p>  <p>OBE - She is the principal scientist of the Save Our Seas Foundation. Her research has identified the global threat to sharks and she shares strategies of how we can protect them.</p>	<p><b>Galileo Galilei (1564-1642)</b></p>  <p>He was an Italian scientist. He discovered that if two objects of similar shape and size were dropped, they would fall at the same rate.</p>	<p><b>Nicolas Copernicus (1473-1543)</b></p>  <p>Nicolaus was a Polish astronomer and mathematician who formulated the heliocentric model of the solar system that placed the Sun rather than the Earth at the centre of the universe.</p>	
	Enquiries	<ul style="list-style-type: none"> <li><b>Comparative test:</b> Which type of material is best for keeping tea warm?</li> <li><b>Comparative test:</b> Which kitchen towel is most absorbent?</li> <li><b>Identifying and classifying:</b> Can you group these materials based on whether they are transparent or not?</li> </ul>	<ul style="list-style-type: none"> <li><b>Ideas over time:</b> What did Stephanie Kwolek discover and why was it important?</li> <li>Observation over time                             <ul style="list-style-type: none"> <li>How does a sugar cube change when in water?</li> </ul> </li> <li>Research                             <ul style="list-style-type: none"> <li>What are micro plastics and how are they impacting our world?</li> </ul> </li> <li>Identifying and classifying: Which materials dissolve and which do not?</li> <li>Observation over time: How can we use evaporation to separate salt from water?</li> </ul>	<ul style="list-style-type: none"> <li><b>Identifying and classifying:</b> Compare the life cycles of animals (similarities and differences)</li> <li><b>Pattern seeking:</b> Is there a relationship between a mammal's size and its gestation period?</li> <li><b>Observation over time:</b> How do brine shrimp change over their lifetime?</li> </ul>	<ul style="list-style-type: none"> <li><b>Identifying and classifying:</b> Can you identify all the stages in the human life cycle?</li> <li><b>Research:</b> What is the difference between the life cycle of an insect and a mammal?</li> <li><b>Pattern seeking;</b> Are the oldest children in our school the tallest?</li> </ul>	<ul style="list-style-type: none"> <li><b>Comparative:</b> Which shape parachute takes the longest time to fall?</li> <li><b>Identifying and classifying:</b> Can you label and name all the forces acting on the objects in each of these situations?</li> <li><b>Ideas over time:</b> How have our ideas about gravity changed over time?</li> </ul>	<ul style="list-style-type: none"> <li><b>Pattern seeking:</b> Is there a pattern between the size of a planet and the time it takes to travel around the sun?</li> <li><b>Ideas over time:</b> How have our ideas about the solar system changed over time?</li> <li><b>Identifying and classifying:</b> How could you organise all the objects in the solar system into groups?</li> <li><b>Research:</b> What unusual objects did Jocelyn Bell Burnell discover?</li> </ul>
	Cross –	<p><b>Maths:</b> Measuring - -temperature and time  <b>English:</b> Writing and reading opportunities (note making, comprehension, research)</p>	<p><b>Maths</b> – Data handling  <b>Geography</b> – exploring the habitats of animals and their physical properties (extreme environments)</p>	<p><b>Maths:</b> Creating charts and graphs  <b>English</b> – speaking and listening (drama) acting out life cycles</p>	<p><b>DT:</b> Materials and building parachutes  <b>History:</b> Discussing past ideas and people's views on the world  <b>English</b> – writing activities linked to science focus</p>	<p><b>English</b> – research and sharing findings through speeches / Drama  <b>Educational visit:</b> to Jodrell bank  <b>DT</b> – creating models of the solar system</p>	



		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Y		Life in Tudor Times	Heart Beaters	Brazil, Biomes and Urbanisation	Amazon Rainforest	The Transatlantic Slave Trade	Sustainability	
		Living Things and their Habitats	Animals Including Humans	Electricity	Light		Evolution and Inheritance	
	<b>National Curriculum</b>							
		<ul style="list-style-type: none"> <li>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.</li> <li>Give reasons for classifying plants and animals.</li> </ul>	<ul style="list-style-type: none"> <li>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</li> <li>Recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions</li> <li>Knows and can describe the way in which nutrients and water are transported within animals, including humans</li> </ul>	<ul style="list-style-type: none"> <li>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position</li> <li>Use recognised symbols when representing a simple circuit in a diagram</li> </ul>	<ul style="list-style-type: none"> <li>Recognise that light appear to travel in straight lines</li> <li>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</li> <li>Explain that we see things because light travels from light source to our eyes or from light source to objects then to our eyes</li> <li>Use the idea that light travels in straight lines to explain why shadows have the same shape as the object that cast them</li> </ul>	<ul style="list-style-type: none"> <li>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>		
	<b>Vocabulary</b>							
		Organism, microorganism, fungus, mushrooms, classification keys, environment, fish, amphibians, reptiles, birds, vertebrates, invertebrates, name some of these, arachnid, mollusc, insect, crustacean	Circulatory system, heart, blood, blood vessels, pumps, oxygen, carbon dioxide, lungs, nutrients, water, diet, exercise, drugs, lifestyle,	Electricity, appliance, device, electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, positive, negative, terminal, connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch, buzzer, volume, motor, conductor, insulator, voltage, current, resistance	Light, light source, darkness, reflect, reflective, shadow, block, absorb, direction, transparent, opaque, translucent	Evolution, suited, suitable, environment, adaptation, adapted, offspring, characteristics, vary, variation, inherit, inheritance, fossils		






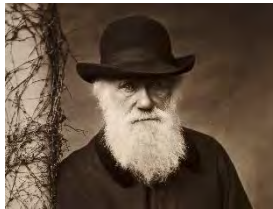


**Progression of Skills**

		<ul style="list-style-type: none"> <li>Independently, discuss reasons why living things are placed in one group and not another.</li> <li>Suggest reasons for similarities and differences.</li> <li>Understand that broad groupings, such as micro-organisms, plants and animals can be subdivided</li> <li>Identify the positive aspects and limitations of some forms of classification.</li> <li>Use and develop keys and other information records to identify, classify and describe living things and materials.</li> <li>Create more complex forms of classification tools, e.g. databases, branching keys</li> <li>Create and use a variety of sources to identify and classify living things, objects and phenomena</li> <li>Report on findings from enquiries, including oral and written explanations, displays of results</li> <li>Discuss how new discoveries change scientific understanding</li> <li>Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.</li> <li>Use secondary sources, e.g. internet links to research objects, events</li> </ul>	<ul style="list-style-type: none"> <li>Use scientific language and illustrations to communicate and justify your ideas</li> <li>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys tables, scatter graphs and / or bar and line graphs</li> <li>Research and present your findings</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments</li> <li>Plan different types of scientific enquiries to answer questions</li> <li>Take measurements, using a range of scientific equipment, with increasing accuracy and precision</li> <li>Make own decisions about what observations to make, what measurements to use and for how long to make them, and whether to repeat them</li> <li>Choose the most appropriate equipment to make measurements and explain how to use it accurately</li> <li>Begin to communicate findings in ways that are appropriate to different audiences.</li> <li>Find out about how scientific ideas have changed and developed over time as new evidence is discovered</li> <li>Justify own choice of method as being appropriate to answer their investigative question.</li> </ul>	<ul style="list-style-type: none"> <li>Use relevant scientific language to discuss their ideas.</li> <li>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys tables, scatter graphs and / or bar and line graphs</li> <li>Begin to communicate findings in ways that are appropriate to different audiences.</li> <li>With support, identify relevant evidence used to draw conclusions.</li> <li>Identifying scientific evidence that has been used to support or refute ideas or arguments</li> <li>Plan different types of scientific enquiries to answer questions, including recognizing and controlling variables where necessary</li> <li>Communicate findings to an audience using relevant scientific language and illustrations.</li> <li>Find out about how scientific ideas have changed and developed over time as new evidence is discovered</li> </ul>	<ul style="list-style-type: none"> <li>Answer own and others' questions based on observations made, measurements taken or information gained from secondary sources.</li> <li>Taking measurements, recording data and identifying trends</li> <li>Recognise that some measurements or observations may need to be repeated</li> <li>Repeat observations or measurements appropriately.</li> <li>Making and recording observations</li> <li>Discuss how their scientific ideas change due to new evidence that they have gathered.</li> <li>Systematically investigate the relationship between phenomena, e.g. light and shadows.</li> <li>Look for different causal relationships in their data and identify evidence that refutes or supports their ideas</li> <li>Analyse functions, relationships and interactions more systematically.</li> <li>Evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used</li> <li>Communicate findings to an audience using relevant scientific language and illustrations</li> <li>Discuss how new discoveries change scientific understanding</li> </ul>	<ul style="list-style-type: none"> <li>Identify scientific evidence that has been used to support or refute ideas or arguments</li> <li>Ask pertinent questions.</li> <li>Understand that some scientific questions cannot be answered by a particular investigation.</li> <li>Communicate findings to an audience using relevant scientific language and illustrations</li> <li>Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.</li> <li>Use secondary sources, e.g. internet links to research objects, events and phenomena that cannot be experienced in the classroom, e.g. planetary movements, animals from around the world.</li> <li>Gather and record data to help in answering questions.</li> </ul>
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	Scientist	<p><b>Carl Linnaeus (1707-1778)</b></p>  <p>Carl Linnaeus was a Swedish scientist who developed the modern system of classifying and naming organisms. Before this the names of living things were often very long. He gave them a two-part name.</p>	<p><b>William Harvey (1578-1657)</b></p>  <p>William Harvey was an English physician and the first person to correctly describe blood's circulation in the body. He showed that arteries and veins form a complete circuit.</p>	<p><b>Nicholas Tesla (1856-1943)</b></p>  <p>Nicholas Tesla was a Serbian American engineer and physicist. He invented the first alternating current (AC) motor and developed AC generation and transmission technology.</p>	<p><b>Abu Ali al-Hasan (Alhazen) (965-1040)</b></p>  <p>Alhazan was an Iranian mathematician, astronomer and physicist. He was the pioneer of modern optics. He carried out experiments with pinhole cameras and candles and explained how the image is formed by rays of light travelling in straight lines.</p>	<p><b>Dr Patricia Bath</b></p>  <p>Laser cataract surgery. She discovered and invented a new device and technique for cataract surgery known as laserphaco.</p>	<p><b>Charles Darwin (1809-1882)</b></p>  <p>Charles Robert Darwin was born in Shrewsbury and was an English naturalist and biologist. His scientific theory of evolution by natural selection became the foundation of modern evolutionary studies.</p>
	Enquiries	<p><b>Identify and Classify</b> – How would you make a classification key for vertebras, invertebrates or micro-organisms?  <b>Observation over time</b> – What happens to a piece of bread if you leave it on the windowsill for two weeks?  <b>Research</b> – What do different types of micro-organism do? Are they always harmful?</p>	<p><b>Comparative/Fair Test</b> – How does the length of time we exercise for affect our heart rate?  <b>Identify and Classify</b> – Which organs of the body make up the circulatory system and where are they found?  <b>Research</b> – How have our ideas about medicine and disease changed over time?</p>	<p><b>Comparative/Fair Test</b> – Static properties of materials  <b>Identify and Classify</b> – Conductors and Insulators  <b>Research</b> - William Gilbert (Tudors)  <b>Pattern Seeking and Relationship</b> – Electricity over time</p>	<p><b>Comparative/Fair Test</b> – Which material is most reflective?  <b>Observation over time</b> – How does my shadow change over the day?  <b>Research</b> – How do our eyes adapt to different conditions?</p>		<p><b>Comparative/Fair Test</b> – What is the most common eye colour in our class?  <b>Identify and Classify</b> – Compare the skeletons of apes, humans, and Neanderthals – how are they similar and different?  <b>Pattern Seeking</b> – Is there a pattern between the size and shape of a bird's beak and the food it will eat?  <b>Observation over time</b> - How has the skeleton of the horse changed over time?</p>
	Cross-	<p><b>Writing/Reading:</b> Research an animal – own choice  <b>Art</b> – create microbes using playdough  <b>Reading</b> – Giraffes text with focus questions about what causes it? Why did the Tudor sailors suffer from it? What advice would you give them?</p>	<p><b>English Writing:</b> Anti-smoking poster  <b>Art:</b> Draw and label a heart  <b>Maths:</b> Line Graph, bar chart - amount of sugar in drinks; pulse during exercise  <b>PSHE:</b> Healthy Eating</p>	<p><b>History:</b> Research William Gilbert, timeline card with electrical inventions  <b>English Writing:</b> Report on importance of generating a light source in different situations  <b>Reading: Comprehension</b> – Biography of M. Faraday and B. Franklin</p>	<p><b>English Writing Explanation:</b> Explain how a periscope work  <b>D.T:</b> Build periscopes  <b>Art:</b> Draw and label an eye  <b>Maths:</b>  <b>Reading: Comprehension: History:</b> Light Through time, The Eye – Information Text</p>		<p><b>English Writing:</b> Biography – Charles Darwin  <b>Art:</b> Sketch and make fossils using different materials  <b>Reading: Comprehension: Information text</b> - Evolution, Diary of Darwin</p>