

Science

To support the children's scientific enquiry skills, KS1 and KS2 will be focusing on a different strand weekly.

These strands are: observing over time, classifying, pattern seeking, comparative/fair testing and researching.

The focus of study will be at the discretion of the class teacher as it will be based on the needs of the class using previous assessment as well as reviewing and refreshing the previous knowledge taught.

Science		Autumn	Spring	Summer
Reception		<p>All About Me- Who are my Family? Things I like- Anthony Browne</p> <ul style="list-style-type: none"> Classify, compare Observe <ul style="list-style-type: none"> Talk about members of their immediate family and community. Name and describe people who are familiar to them. <p>Farming- What are the tractors doing? Farmer Duck- Martin Waddell</p> <ul style="list-style-type: none"> Weather and seasons, changes in the world around us, growing crops/harvest time <ul style="list-style-type: none"> Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them. 	<p>Space- Is the moon made of cheese? Whatever Next!- Jill Murphy</p> <ul style="list-style-type: none"> The planets, the moon, the sun and stars, space travel and discovery <ul style="list-style-type: none"> Recognise some environments that are different to the one in which they live. <p>Minibeasts- Which creatures are in our garden? The Very Hungry Caterpillar- Eric Carle</p> <ul style="list-style-type: none"> Minibeast hunting, naming, describing, life cycles 	<p>Changes -Why isn't it always sunny? Sun, Rain, Storm, Snow- Sam Usher</p> <ul style="list-style-type: none"> weather and seasons mixing <p>In the Garden- How do plants grow? Jack and the Beanstalk- Nick Sharratt</p> <ul style="list-style-type: none"> Growing plants, how do they grow well, simple naming of plant species, parts of a plant. <ul style="list-style-type: none"> Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. <p>Zoo- What is your favourite animal? This Zoo is Not for You- Ross Collins</p> <ul style="list-style-type: none"> Naming different animals, animal features, habitats
Year 1 & 2	Year A	<p>All About Me <u>Animals include Humans</u> Human body, senses</p>	<p>Trains, Planes and Automobiles</p>	<p>Medicine <u>Animals including Humans</u> Exercise food and hygiene</p>

		<ul style="list-style-type: none"> • Know the name of parts of the human body that can be seen • Know the basic stages in a life cycle for animals, including humans <p>Sci Enquiry -</p> <p>Toys</p> <p><u>Everyday materials and their properties</u> Use of materials and their properties</p> <ul style="list-style-type: none"> • Know about the properties of everyday materials • Know the name of the materials an object is made from • Know why a material might or might not be used for a specific job • Know how materials can be changed by squashing, bending, twisting and stretching 	<p><u>Everyday materials and their properties</u> The suitability of materials for their use.</p> <p>Describing properties</p> <ul style="list-style-type: none"> • Know the name of the materials an object is made from • Know about the properties of everyday materials • Know why a material might or might not be used for a specific job • Know how materials can be changed by squashing, bending, twisting and stretching <p>Rainforests</p> <p><u>Plants</u> structure of flowering plants</p> <ul style="list-style-type: none"> • Know and name the petals, stem, leaves and root of a plant • Know and name the roots, trunk, branches and leaves of a tree • Know and explain how seeds and bulbs grow into plants • Know what plants need in order to grow and stay healthy (water, light and suitable temperature) <p><u>Animals including humans</u> Identify and name animals, carnivores, herbivores and omnivores, basic needs</p> <ul style="list-style-type: none"> • Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds • Know and classify animals by what they eat (carnivore, herbivore and omnivore) • Classify things by living, dead or never lived 	<ul style="list-style-type: none"> • Name some different sources of food for animals • Know why exercise, a balanced diet and good hygiene are important for humans <p>Zoo</p> <p><u>Animals including Humans</u> reptiles, fish, amphibians, birds, mammals, carnivores, herbivores, omnivores, life cycles and offspring.</p> <ul style="list-style-type: none"> • Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds • Know and classify animals by what they eat (carnivore, herbivore and omnivore) • Know how to sort by living and non living things • Classify things by living, dead or never lived • Match living things to their habitat • Know the basic stages in a life cycle for animals, including humans <p>Sci Enquiry - Classifying</p> <p>Olympics</p> <p><u>Animals including humans</u> body parts, exercise, importance of food</p> <ul style="list-style-type: none"> • Know the name of parts of the human body that can be seen • Name some different sources of food for animals • Know why exercise, a balanced diet and good hygiene are important for humans <p>Sci Enquiry – Observe over time</p>
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	<p>Year B</p>	<p>Farming <u>Plants</u> identifying and naming, basic structure, plant requirements</p> <ul style="list-style-type: none"> • Know and name the petals, stem, leaves and root of a plant • Know and name the roots, trunk, branches and leaves of a tree • Know and explain how seeds and bulbs grow into plants • Know what plants need in order to grow and stay healthy (water, light and suitable temperature) <p><u>Living things and their habitats</u> suitability for plant growth</p> <ul style="list-style-type: none"> • Know how a specific habitat provides for the basic needs of things living there (plants and animals) • Name some different sources of food for animals <p>Sci Enquiry – Observe over time, Pattern seeking, researching</p>	<p>Minibeasts <u>Animals including Humans</u> Naming identifying, comparing</p> <ul style="list-style-type: none"> • Know how to sort by living and non living things • Classify things by living, dead or never lived • Know the basic stages in a life cycle for animals, including humans <p><u>Living things in their habitats</u> Micro-habitats</p> <ul style="list-style-type: none"> • Know how a specific habitat provides for the basic needs of things living there (plants and animals) • Match living things to their habitat • Name some different sources of food for animals • Know about and explain a simple food chain <p>Sci Enquiry - Classifying</p> <p>Changes <u>Seasonal changes</u> weather, day and night, seasons</p>	<p>In the Garden <u>Plants</u> Identify, name, structure, how things grow</p> <ul style="list-style-type: none"> • Know and name a variety of common wild and garden plants • Know and name the petals, stem, leaves and root of a plant • Know how a specific habitat provides for the basic needs of things living there (plants and animals) • Know and explain how seeds and bulbs grow into plants • Know what plants need in order to grow and stay healthy (water, light and suitable temperature) <p>Sci Enquiry – pattern seeking</p> <p>Journey through the ages Sci Enquiry – Classifying</p>

		<p>Design <u>Everyday materials and their properties</u> name materials describe properties</p> <ul style="list-style-type: none"> • Know the name of the materials an object is made from • Know about the properties of everyday materials <p><u>Uses of everyday materials</u> compare, suitability</p> <ul style="list-style-type: none"> • Know why a material might or might not be used for a specific job • Know how materials can be changed by squashing, bending, twisting and stretching <p>Sci Enquiry – Comparative/fair testing</p> <p>Space <u>Uses of everyday materials</u> Suitability and changing materials</p> <ul style="list-style-type: none"> • Know why a material might or might not be used for a specific job • Know how materials can be changed by squashing, bending, twisting and stretching 	<ul style="list-style-type: none"> • Name the seasons and know about the type of weather in each season <p>Sci Enquiry – Observe over time, researching</p>	
Year 3 & 4	Year A	<p>All About Me <u>Animals include Humans</u> Skeletons and muscles, Digestive system, teeth</p> <ul style="list-style-type: none"> • Know about the importance of a nutritious, balanced diet • Know how nutrients, water and oxygen are transported within animals and humans 	<p>Trains, Planes and Automobiles <u>Electricity</u> Circuits, switches, conductors, insulators <u>Forces</u> friction</p> <ul style="list-style-type: none"> • Know about and describe how objects move on different surfaces • Know how some forces require contact and some do not, giving examples 	<p>Medicine <u>States of matter</u> Solids, liquids and gases, changing state, heating and cooling.</p> <ul style="list-style-type: none"> • Group materials based on their state of matter (solid, liquid, gas) • Know about and explore how some materials can change state • Know the temperature at which materials change state

		<ul style="list-style-type: none"> • Know about the skeletal and muscular system of a human • Identify and name the parts of the human digestive system • Know the functions of the organs in the human digestive system • Identify and know the different types of teeth that humans have • Know the functions of different human teeth <p>Sci Enquiry - Researching</p> <p>Toys</p> <p><u>Forces and Magnets</u> Magnets and springs</p> <ul style="list-style-type: none"> • Know how some forces require contact and some do not, giving examples • Know about and explain how objects attract and repel in relation to objects and other magnets • Predict whether magnets will attract or repel and give a reason <p>Sci Enquiry – Comparative fair testing, researching</p>	<ul style="list-style-type: none"> • Identify and name appliances that require electricity to function • Construct a series circuit • Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) • Predict and test whether a lamp will light within a circuit • Know the function of a switch in a circuit • Know the difference between a conductor and an insulator, giving examples of each <p>Sci Enquiry - Classifying</p> <p>Rainforests</p> <p><u>Plants</u> different parts requirements for growth and life cycles, transportation of water</p> <ul style="list-style-type: none"> • Know the function of different parts of flowing plants and trees • Know how water is transported within plants • Know the plant life cycle, especially the importance of flowers • Know how nutrients, water and oxygen are transported within animals and humans • Know how changes to an environment could endanger living things <p>Sci Enquiry – Researching, observing over time</p>	<p>Sci Enquiry – Classifying, comparative fair testing</p> <p>Treasure</p> <p><u>Rocks</u> Classify rocks, formation of fossils, soil</p> <ul style="list-style-type: none"> • Compare and group rocks based on their appearance and physical properties, giving a reason • Know how soil is made and fossils formed • Know about and explain the difference between sedimentary, metamorphic and igneous rock <p>Sci Enquiry – Classifying, comparative fair testing</p> <p>Zoo</p> <p><u>Animals including Humans</u> Food chains animal skeletons</p> <ul style="list-style-type: none"> • Know how nutrients, water and oxygen are transported within animals and humans • Living things and their habitats Classification • Use classification keys to group, identify and name living things • Use and construct food chains to identify producers, predators and prey <p>Sci Enquiry – classifying, researching</p>
	Year B	Farming	Angry Planet	In the Garden

		<p><u>Plants</u> Growing requirements including climates</p> <ul style="list-style-type: none"> • Know the function of different parts of flowering plants and trees • Know how water is transported within plants • Know the plant life cycle, especially the importance of flowers • Know how nutrients, water and oxygen are transported within animals and humans <p>Sci Enquiry – Pattern seeking</p> <p>Space</p> <p><u>Light</u> Reflection, sources, shadows</p> <ul style="list-style-type: none"> • Know what dark is the absence of light • Know that light is needed in order to see and is reflected from a surface • Know and demonstrate how a shadow is formed and explain how a shadow changes shape • Know about the danger of direct sunlight and describe how to keep protected <p>Sci Enquiry – Classifying, comparative fair testing</p> <p><u>Sounds</u> Vibration, ear, pitch, volume</p> <ul style="list-style-type: none"> • Know how sound is made associating some of them with vibrating • Know how sound travels from a source to our ears • Know the correlation between pitch and the object producing a sound • Know the correlation between the volume of a sound and the strength of the vibrations that produced it 	<p><u>Living things and their habitats</u> Dangers, environmental changes</p> <ul style="list-style-type: none"> • Know about and explain the difference between sedimentary, metamorphic and igneous rock • Know how changes to an environment could endanger living things <p>Sci Enquiry - researching</p> <p>Minibeasts</p> <p><u>Living things and their habitats</u> classification</p> <ul style="list-style-type: none"> • Use classification keys to group, identify and name living things <p><u>Animals include Humans</u> food chains and life cycles</p> <ul style="list-style-type: none"> • Use and construct food chains to identify producers, predators and prey <p>Sci Enquiry – classifying, researching</p> <p>Changes</p> <p><u>States of matter</u> Solid, liquids and gases, states of matter</p> <ul style="list-style-type: none"> • Group materials based on their state of matter (solid, liquid, gas) • Know the part played by evaporation and condensation in the water cycle • Know about and explore how some materials can change state • Know the temperature at which materials change state <p>Sci Enquiry – Classifying, researching</p>	<p><u>Animals, including humans</u> Nutrition, digestion, teeth</p> <ul style="list-style-type: none"> • Know about the importance of a nutritious, balanced diet • Identify and name the parts of the human digestive system • Know the functions of the organs in the human digestive system • Identify and know the different types of teeth that humans have • Know the functions of different human teeth <p>Sci Enquiry - Classifying</p>
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Year 5 & 6	Year A	<p>All About Me <u>Animals include Humans</u> Growth and development</p> <ul style="list-style-type: none"> Create a timeline to indicate stages of growth in humans <p>Sci Enquiry – Researching (develop questions for health visitor)</p> <p><u>Evolution and Inheritance</u> Reproduction</p> <ul style="list-style-type: none"> Know the process of reproduction in animals Know how the Earth and living things have changed over time Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) Link adaptation over time to evolution Know about evolution and can explain what it is <p>Sci Enquiry – Pattern seeking</p> <p>Discovery <u>Evolution and inheritance</u> Fossils</p> <ul style="list-style-type: none"> Know how fossils can be used to find out about the past 	<p>Trains, Planes and Automobiles <u>Forces</u> – air resistance, friction and gravity</p> <ul style="list-style-type: none"> Know what gravity is and its impact on our lives Identify and know the effect of air and water resistance Identify and know the effect of friction <p>Sci Enquiry – Comparative/Fair testing</p>	<p>Medicine <u>Animals including Humans</u> impact of drugs on the body, circulatory system, nutrients</p> <ul style="list-style-type: none"> Identify and name the main parts of the human circulatory system Know the function of the heart, blood vessels and blood Know the impact of diet, exercise, drugs and lifestyle on health Know the ways in which nutrients and water are transported in animals, including humans <p>Sci Enquiry – Observing over time Pattern seeking</p> <p><u>Living things and their habitats</u> Microorganisms</p> <p>Zoo <u>Living things and their habitats</u> Life cycle, reproduction, classification</p> <ul style="list-style-type: none"> Know the life cycle of different living things, e.g. mammal, amphibian, insect bird Know the differences between different life cycles Know the process of reproduction in animals

		<p>Toys <u>Forces</u> Levers, pulleys and gears</p> <ul style="list-style-type: none"> Explain how levers, pulleys and gears allow a smaller force to have a greater effect <p>Sci Enquiry – Research Rube Goldberg machines</p>		<ul style="list-style-type: none"> Classify living things into broad groups according to observable characteristics and based on similarities and differences Know how living things have been classified Give reasons for classifying plants and animals in a specific way <p>Sci Enquiry – Researching Pattern seeking</p>
Year B		<p>Design <u>Electricity</u> circuits, symbols, variation of functions</p> <ul style="list-style-type: none"> Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets Compare and give reasons for why components work and do not work in a circuit Draw circuit diagrams using correct symbols Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer <p>Sci Enquiry – Comparative/Fair Testing</p> <p>Space</p>	<p>Minibeasts <u>Living things and their habitats</u> classification</p> <ul style="list-style-type: none"> Classify living things into broad groups according to observable characteristics and based on similarities and differences Know how living things have been classified Give reasons for classifying plants and animals in a specific way <p>Sci Enquiry - Classifying</p> <p><u>Evolution and inheritance</u> adaptation</p> <ul style="list-style-type: none"> Know how the Earth and living things have changed over time Know how animals and plants are adapted to suit their environment 	<p>In the Garden <u>Living things and their habitats</u> reproduction, seed dispersal</p> <ul style="list-style-type: none"> Know the process of reproduction in plants <p>Sci Enquiry – Observing over time</p>

		<p><u>Earth and Space</u> Movement of Earth and moon, sun, rotation, solar/lunar eclipse</p> <ul style="list-style-type: none"> • Know about and explain the movement of the Earth and other planets relative to the Sun • Know about and explain the movement of the Moon relative to the Earth • Know and demonstrate how night and day are created • Describe the Sun, Earth and Moon (using the term spherical). • Know what gravity is and its impact on our lives <p>Sci Enquiry – Observing over time</p> <p><u>Light</u> Light travelling, sources, shadows, reflection</p> <ul style="list-style-type: none"> • Know how light travels • Know and demonstrate how we see objects • Know why shadows have the same shape as the object that casts them • Know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc <p>Comparative/Fair testing</p>	<ul style="list-style-type: none"> • Link adaptation over time to evolution <p>Sci Enquiry - Researching</p> <p>Changes</p> <p><u>Properties and changes of materials</u> dissolve, solid liquid gases, reversible and irreversible changes</p> <ul style="list-style-type: none"> • Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets • Know how a material dissolves to form a solution; explaining the process of dissolving • Know and show how to recover a substance from a solution • Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) • Know and can demonstrate that some changes are reversible and some are not • Know how some changes result in the formation of a new material and that this is usually irreversible <p>Sci Enquiry – Comparative/Fair testing Observing over time</p>	
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