



Science

Long Term Plan

Curricular Goal
 To give every child a broad and balanced Science curriculum which enables them to confidently explore and discover what is around them, so that they have a deeper understanding of the world we live in.

Autumn Term 1						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Me, My School and I</p> <p>How have I changed? What do I look like? What changes do I notice in the Autumn term?</p> <p>Seasons - Autumn Name and identify body parts. Match, sort and compare.</p>	<p>Everyday Materials</p> <ul style="list-style-type: none"> • Identify and name everyday materials. • Describe simple properties of everyday materials. • Distinguish between an object and the material it is made from. • Sort objects by their properties. • Make a prediction. • Perform simple tests. 	<p>Animals Including Humans</p> <ul style="list-style-type: none"> • Say how an animal will change as it grows. • Draw an animal as a baby and then as an adult. • Name the different stages in the human timeline. • Say how an animal gets air, food and water. • Give examples of healthy and less healthy food. • Give reasons why humans need to exercise. • Give reasons why humans should keep themselves clean 	<p>Animals Including Humans</p> <ul style="list-style-type: none"> • Understand that plants and animals obtain food in different ways. • Explain what the right type and amounts of nutrition are for human beings as well as some of the consequences related to eating the wrong type of diet. • Identify the main bones in the body and how a skeleton protects, supports and helps the body to move. • Explain how pairs of muscles work together to enable movement. 	<p>Living Things and their Habitats</p> <ul style="list-style-type: none"> • Sort living things into groups. • Identify vertebrate groups. • Explain the difference between vertebrates and invertebrates. • Identify the characteristics of living things. • Create a classification key. • Use the characteristics of living things to sort them using a classification key. • Name some endangered species. • Identify dangers to wildlife in the local and wider environment. 	<p>Properties and Changes in Materials</p> <ul style="list-style-type: none"> • Identify and describe materials and their properties. • Identify materials that are soluble or insoluble in water. • Follow instructions to test a material's properties. • Identify and explain the uses of thermal and electrical conductors and insulators. • Explain and investigate dissolving. • Explain the processes used to separate mixtures. • Identify and explain irreversible changes. 	<p>Animals Including Humans</p> <ul style="list-style-type: none"> • Identify the main parts of the circulatory system. • Explain the main functions of the heart, lungs and blood vessels in the circulatory system. • Explain what constitutes a healthy lifestyle. • Describe how drugs and alcohol can impact negatively on the body. • Understand the processes of how water and nutrients are transported in the body.



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Autumn Term 2						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>What changes do I notice in Autumn?</p> <p>Seasons - Autumn</p> <p>Joining materials</p> <p>Making comparisons</p>	<p>Everyday Materials</p> <p>(Continued from Autumn 1)</p>	<p>Animals Including Humans</p> <p>(Continued from Autumn 1)</p>	<p>Rocks</p> <ul style="list-style-type: none"> Name some types of rock and give physical features of each Explain how a fossil is formed Classify rocks in a range of different ways using appropriate vocabulary e. g. by looking for grains and crystals Devise tests to explore the properties of rocks and use data to rank the rocks – using rubbing and/or immersion in water Link rocks changing over time with their properties e.g. soft rocks get worn away more easily Identify plant/animal organic matter and rocks in samples of soil and can compare different soils 	<p>Sound</p> <ul style="list-style-type: none"> Give examples of different sources of sounds Explain how sounds are produced. Explain how the pitch of a sound is linked to the features of the object that produced it (high and low). Generalise patterns between force and volume. 	<p>Animals Including Humans</p> <ul style="list-style-type: none"> Order and name the six stages of human development. Demonstrate understanding of how babies grow in height. Describe the main changes that occur during puberty in both boys and girls. Explain the main changes that take place in old age. 	<p>Evolution and Inheritance</p> <ul style="list-style-type: none"> Understand how inherited characteristics create variations in offspring and shape who we are. Explain how animals and plants adapt to suit their environment. Understand the theory of evolution. Discover how fossils provide information about pre-historic living things. Explain how humans have evolved. Describe how humans have intervened in the process of evolution.



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Spring Term 1						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Let's Explore</p> <p>What weather patterns do we notice? What is ice and how does it change? What animals live in cold places? What do we notice about animals? How do they survive? How do these environments compare to where we live? What changes do we notice in Winter?</p> <p>Contrasting environments Seasons - Winter Change of state (ice) Different types of weather</p>	<p>Animals Including Humans</p> <ul style="list-style-type: none"> Name, draw and label the basic parts of the body. Name the senses and say which body part is associated with each sense. Identify and name a range of common animals. Describe the structure of common animals, including some parts of the body that are specific to animals. Understand that animals have different diets. Understand the difference between carnivores, herbivores and omnivores. 	<p>Living Things and their Habitat</p> <ul style="list-style-type: none"> Say what is different about things that are living, dead or have never been alive. Explain some of the life processes. Describe the conditions in a habitat. Describe the characteristics of some plants and animals. Identify some plants and animals in global habitats. Identify and name minibeasts in microhabitats. Suggest how an animal is able to survive in their habitat. Explain why the animals in a habitat need the plants. Draw a simple food chain. 	<p>Plants</p> <ul style="list-style-type: none"> Identify the different parts of flowering plants. Explain the functions of the different parts of plants. Identify different parts of a flower. Identify and describe the stages of the life cycle of flowering plants. 	<p>Electricity</p> <ul style="list-style-type: none"> Identify electrical and non-electrical appliances. Explain how a circuit works. Name at least two electrical conductors and insulators. Create a simple series circuit both with and without a switch. Sort appliances based on whether they use mains or batteries. 	<p>Forces</p> <ul style="list-style-type: none"> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	<p>Living Things and their Habitat</p> <ul style="list-style-type: none"> Give reasons for the classification of animals. Sort and group animals based on their features. Classify living things based on their characteristics Name and describe the different types of micro-organisms Describe the useful and harmful effects of different micro-organisms



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Spring Term 2						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Once upon a time... How do materials feel? What are their properties? What materials are strong for building? Let's make a healthy picnic How can we keep our teeth healthy? What is climate change? How can I help look after my world? What materials can we recycle? What changes do we notice about Spring?</p> <p>Recycle and upcycle Materials Seasons -Spring</p>	<p>Plants</p> <ul style="list-style-type: none"> Label the parts of a plant. Say three things that plants and trees need to grow. Identify some common plants and trees. Label the parts of a tree. Plant a seed and/or bean. Sort leaves into groups of deciduous and evergreen. Observe how my plant changes as it grows. 	<p>Uses of Everyday Materials</p> <ul style="list-style-type: none"> Identify and name everyday materials. Identify different uses of everyday materials. Demonstrate and explain how shapes of objects made from some materials can be changed. Explain what recycling means. Compare the uses of different everyday materials. Compare the suitability of different everyday materials. Record my observations. 	<p>Plants</p> <p>(Continued from Spring 1)</p>		<p>Earth and Space</p> <ul style="list-style-type: none"> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 	<p>Light/Electricity</p> <ul style="list-style-type: none"> Explain how light travels to enable us to see. Understand that all objects reflect light. Identify the angles of incidence and reflection. Understand refraction as light bending or changing direction. Explain how a prism allows us to see the visible spectrum. Understand that colours are a result of light reflecting off an object. Explain Isaac Newton's experiments about light and colour. Understand how shadows change size. Understand that shadows are the same shape as the object that casts them.



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Summer Term 1						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Growing</p> <p>What grows in my garden?</p> <p>What does everything need to help it grow?</p> <p>Why are trees so big?</p> <p>How can I grow my own vegetables?</p> <p>Which fruits grow in our country and which don't?</p> <p>How did it become a butterfly?</p> <p>How do chicks hatch?</p> <p>How do animals change as they grow?</p> <p>What is frogspawn and how does it change?</p> <p>What are baby animals called?</p> <p>Life cycles</p> <p>Growing</p> <p>Animals and their babies</p> <p>Making observations</p> <p>Comparing similarities and difference</p>	<p>Animals Including Humans</p> <p>(Continued from Spring 1)</p>	<p>Plants</p> <ul style="list-style-type: none"> • Follow instructions to plant a seed and a bulb. • Label the main parts of plants and trees • Describe the stages in the life cycle of a plant. • Explain that plants need water, light and a suitable temperature to grow well. • Make observational drawings of plants. • Use observations to explain how we can tell that plants are living things. 	<p>Forces and Magnets</p> <ul style="list-style-type: none"> • Compare how things move on different surfaces • Notice that some forces need contact between two objects, but magnetic forces can act at a distance • Observe how magnets attract or repel each other and attract some materials and not others • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • Describe magnets as having two poles • Predict whether two magnets will attract or repel each other, depending on 	<p>Animals Including Humans</p> <ul style="list-style-type: none"> • Identify parts of the digestive system. • Match the parts of the digestive system with their functions. • Match the types and functions of teeth. • Construct and interpret a food chain. 	<p>Living Things and their Habitats</p> <ul style="list-style-type: none"> • Identify and explain the function of the parts of a flower. • Explain the difference between sexual and asexual reproduction. • Describe ways plants can be pollinated. • Identify and describe the stages in the process of sexual reproduction. • Identify and describe different types of mammals. • Identify familiar animals that undergo metamorphosis. • Order and describe the stages of the life cycles of mammals, birds, insects and amphibians. • Identify similarities and differences between the life 	<p>Scientific Enquiry</p>



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			which poles are facing.		cycles of different plants and animals.	
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Summer Term 2						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>The Great Outdoors</p> <p>What is a minibeast? Where do they live? What clothes do we need for very hot days? How can we keep safe in the sun? What changes do we notice in Summer?</p> <p>Contrasting environments Summer Minibeasts</p>	<p>Plants</p> <p>(Continued from Spring 2)</p>	<p>Plants</p> <p>(Continued from Summer 1)</p>	<p>Light</p> <ul style="list-style-type: none"> Identify light sources. Know that light travels in a straight line. Know how to protect their eyes from the Sun. Understand that a shadow is formed when a solid object blocks light. Understand why shadows change size. Understand how surfaces reflect light. Identify some parts of the eye. Identify opaque, translucent and transparent objects. 	<p>States of Matter</p> <ul style="list-style-type: none"> Sort materials into solids, liquids and gases. Describe the properties of solids, liquids and gases. Explain that melting and freezing are opposite processes that change the state of a material. Identify the melting and freezing point of several different materials. Explain that heating causes evaporation and cooling causes condensation. Explain that the higher the temperature, the quicker water evaporates. Explain what happens to water at the different stages of the water cycle. 	<p>Revisit and Review</p>	<p>Revisit and Revisit</p>



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Throughout the year - Working Scientifically						
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> • Ask simple questions to find out more • Explore the natural world to solve real problems • Notice similarities, differences and changes • Use all senses to observe closely • Create simple representations • Use simple materials and tools 	<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways • Observe closely, use simple equipment • Perform simple tests • Identify and classify • Use their observations and ideas to suggest answers to questions • Gather and record data to help answer questions. 		<ul style="list-style-type: none"> • Ask relevant questions and use different types of scientific enquiries to answer them • Set up simple practical enquiries, comparative and fair tests • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units using a range of equipment, including thermometers and data loggers • Gather, record, classify and present data in a variety of ways to help answer questions • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Report findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identify differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or to support their findings. 		<ul style="list-style-type: none"> • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • Use test results to make predictions to set up further comparative and fair tests • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • Identify scientific evidence that has been used to support or refute ideas or arguments. 	