

Science long term plan

Year Group	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Nursery	<ul style="list-style-type: none"> To explore and notice the natural changes going on around them 		<ul style="list-style-type: none"> To explore the natural world around them and describe what they see, hear and feel To talk about and recognise the need to respect and care for the natural environment and living things 		<ul style="list-style-type: none"> To explore the natural world around them and describe what they see, hear and feel To talk about and recognise the need to respect and care for the natural environment and living things 	
Reception	<ul style="list-style-type: none"> To explore the local environment, discuss the plants and animals that they see and changes happening 		<ul style="list-style-type: none"> Explore the natural world around them Describe what they see, hear and feel whilst outside 		<ul style="list-style-type: none"> Explore the natural world around them and understand changes they see Continue to describe what they see, hear and feel whilst outside 	
Year 1	<p><u>Animals including humans (Our bodies)</u></p> <ul style="list-style-type: none"> To name the basic parts of the human body To know which part of the human body is associated with each sense To explore different foods using different senses and classify into groups. To explore how different senses are used in the environment To know that there is variation 	<p><u>Animals including humans</u></p> <ul style="list-style-type: none"> To know the names and features of common animals To explore animals' behaviours and habitats in the local environment and look for behaviour patterns To know the difference between carnivores and herbivores To understand what camouflaged means 	<p style="text-align: center;"><u>Plants</u></p> <ul style="list-style-type: none"> To understand that most plants have the same basic structure and that these parts have specific functions To understand that wild plants grow by themselves and are not physically planted by humans To understand that garden plants are specifically planted by humans To understand that trees are a type of plant and there are two different types: deciduous and evergreen To ask simple questions To can make close observations using appropriate equipment 		<p><u>Materials</u></p> <ul style="list-style-type: none"> Know that some materials occur naturally, and some do not Know that some materials are absorbent Identify suitable materials for a given task, considering a material's properties Know that some materials are waterproof Know that wax is waterproof and so it doesn't absorb water 	<p><u>Materials</u></p> <ul style="list-style-type: none"> Identify and name a range of everyday materials Group objects in accordance with their properties Distinguish between an object and the material from which it is made Explain the differences between an object and the material from which it is made Identify and name magnetic objects Identify suitable materials for a purpose

	between humans' hair and eye colours					<ul style="list-style-type: none"> Identify suitable materials for a task
Year 2	<p><u>Materials</u></p> <ul style="list-style-type: none"> To identify and describe the properties of materials used for different balls To use their observations of the properties of a material to make a prediction on which ball will bounce the highest To identify and describe the properties of materials used for different bats To use their observations of the properties of a material to make a prediction on which bat will hit a ball the furthest To use observations of the properties of a material to make a prediction 	<p><u>Materials</u></p> <ul style="list-style-type: none"> To identify and describe the properties of different fabrics To gather and record data about a material's properties to help in deciding on the most suitable material To use observations of the properties of materials to design a product to keep children safe To apply their knowledge of the properties of materials when analysing a plan 	<p><u>Plants</u></p> <ul style="list-style-type: none"> To set up a comparative test to investigate the best conditions for growing bean seeds To describe the life cycle of a living thing To understand seeds need to be warm to germinate To understand what plants need to grow To understand how humans use plants 	<p><u>Light</u></p> <ul style="list-style-type: none"> To understand how light travels To understand that light is reflected from surface To describe the difference between opaque, translucent and transparent objects To explain how shadows are formed To understand the relationship between the distance of a torch and the size of a shadow To understand how coloured light beams mix and what it's like to look through different coloured filters 	<p><u>Living Things and their Habitats</u></p> <ul style="list-style-type: none"> Know things that are living, dead or never alive Know what a habitat is and how it is suited for different animals and plants Know how a microhabitat provides for the basic needs of different insects Identify and name a variety of plants and animals in a habitat, including microhabitats To understand what a food chain is 	<p><u>Animals including humans</u></p> <ul style="list-style-type: none"> To understand the development of a chicken in an egg To know the differences between babies, young children, adults and elderly people To know which essential provisions humans need to survive To understand what makes a healthy, balanced meal using the different food groups To know what happens to the human body during exercise
Year 3	<p><u>Animals including humans</u></p> <ul style="list-style-type: none"> To know whether an 	<p><u>Materials (rocks)</u></p> <ul style="list-style-type: none"> To group rocks in different ways according 	<p><u>Plants (seed dispersal)</u></p>	<p><u>Plants (parts of a plant)</u></p> <ul style="list-style-type: none"> Children will be able to identify 	<p><u>Forces and Magnets</u></p> <ul style="list-style-type: none"> Know that magnets attract or repel each other and some materials and not others 	

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	<p>animal is an invertebrate or vertebrate</p> <ul style="list-style-type: none"> To know the difference between bones and muscles To understand how muscles work with bones to create movement Make predictions, gather data, discuss, display and interpret findings about whether people have stronger muscles because they use them more To know the key food groups To know what types and amounts of nutrition animals and humans need 	<p>to their observable features</p> <ul style="list-style-type: none"> Devise a fair test for permeability Determine why particular rocks and man-made rocks were used for particular purposes To understand the process of fossil formation To investigate, discover and classify the different components of soil 	<ul style="list-style-type: none"> Children can identify parts of a flower Children to understand how seeds are fertilised Children to understand how seeds are dispersed in different ways Children can use key vocabulary to describe the life cycle of a plant 	<p>and describe the different parts of a flowering plant</p> <ul style="list-style-type: none"> Children will be able to describe what plants need to grow Children to understand how water is transported through a plant and investigate whether temperature affects the rate it is transported 	<ul style="list-style-type: none"> Understand how magnetic forces can act at a distance Know which forces need contact between two objects and which ones do not need any contact Understand how magnetic forces can act at a distance Understand how different surfaces can affect movement 	
Year 4	<p><u>Sound and Hearing</u></p> <ul style="list-style-type: none"> To identify how sounds are made To explain how sound travels through a medium to the ear To find patterns between the volume of a sound and the 	<p><u>Materials (states of matter)</u></p> <ul style="list-style-type: none"> To explore the properties of solids, liquids and gases To explore how solid, liquids and gases change state To understand how we can use materials 	<p><u>Electricity</u></p> <ul style="list-style-type: none"> To identify common appliances that run on electricity To construct a simple series circuit, identifying and naming the basic parts 	<p><u>Animals including humans</u></p> <ul style="list-style-type: none"> To know what a producer, predator and prey is Know how to use a food chain Know the names of different teeth and their 	<p><u>Living Things and their Habitats</u></p> <ul style="list-style-type: none"> To consider how our local environment has changed and why To consider some of the natural changes that could happen to an environment 	<p><u>Living Things and their Habitats</u></p> <ul style="list-style-type: none"> Know the seven characteristics of living things Understand that vertebrates can be grouped in a variety of ways Understand that invertebrates

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	<p>strength of the vibrations</p> <ul style="list-style-type: none"> To explore what happens to the volume of a sound as the distance from the sound increases To find patterns between the pitch of a sound and features of the object that produced it. To use their knowledge of how the pitch of an instrument can be changed 	<p>changing state to help us create a new product</p> <ul style="list-style-type: none"> To explain how water changes state To explain how water changes state in the water cycle To research the melting points of different materials 	<ul style="list-style-type: none"> To recognise some conductors and insulators, and associate metals with being good conductors To construct a simple series circuit, identifying and naming the basic parts To identify whether or not a lamp will light in a simple series circuit 	<p>functions in humans</p> <ul style="list-style-type: none"> Know how different drinks can affect teeth Understand what the digestive system is 	<ul style="list-style-type: none"> To understand the effect of a greenhouse and relate this to climate change To understand that changes to an environment can be dangerous to living things To recognise that environments can change and that this can sometimes pose dangers to living things To understand that if an environment changes it can be dangerous to living things and to explain why 	<p>can be grouped in a variety of ways</p> <ul style="list-style-type: none"> Understand that plants can be grouped in a variety of ways Use a classification key/branching data base to group, identify and name animals according to their features To know how scientists use similarities and differences as a basis for organising plants and animals
<p>Year 5</p>	<p><u>Forces</u></p> <ul style="list-style-type: none"> Identify the effects of different types of forces. Understand what gravity is Identify the effects of different types of forces Understand why unsupported objects fall 	<p><u>Earth and Space</u></p> <ul style="list-style-type: none"> <i>To know the order of the planets in our solar system</i> <i>To understand the movement of the planets in relation to the Sun</i> <i>To be able to describe the Sun, Earth and Moon as approximately spherical bodies</i> 	<p><u>Living Things and their Habitats</u></p> <ul style="list-style-type: none"> Explain the different forms and functions of the parts of a dissected flower Explain how plants disperse seeds Know how plants reproduce 	<p><u>Animals including humans</u></p> <ul style="list-style-type: none"> To discuss how you know you're getting older To know the key stages of foetal development To know what happens to the body as it gets old To know the key milestones 	<p><u>Materials</u></p> <ul style="list-style-type: none"> To know the meaning of properties of materials To understand the properties of different materials To investigate the conductivity of different materials To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat To be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 	

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	<p>towards the Earth</p> <ul style="list-style-type: none"> Investigate the impact of levers, pulleys and gears on forces Identify the effects of different types of forces 	<ul style="list-style-type: none"> To set up an investigation to demonstrate that the Earth spins on its own axis To be able to describe the movement of the Moon relative to the Earth To explain why we have day and night and how the Earth orbits the Sun 	<ul style="list-style-type: none"> Know how we can force plants to reproduce Understand the life cycle of an insect and an amphibian Understand the life cycle of a mammal, a bird and a reptile Compare the similarities and differences in the life cycles of mammals, birds and reptiles 	<p>in a human life and how they impact on the body</p> <ul style="list-style-type: none"> To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions 	<ul style="list-style-type: none"> To be able to understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution To be able to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
Year 6	<p><u>Animals including humans</u></p> <ul style="list-style-type: none"> To identify the key parts of the circulatory system in humans To understand how and where blood flows around the body and why To understand some differences between cells, tissues and muscles To understand how nutrients and water are transported around the human body To understand the impact of a healthy lifestyle 	<p><u>Electricity</u></p> <ul style="list-style-type: none"> To construct series and parallel circuits Explore electrical circuits and various effects Draw an accurate circuit diagram Investigate, design, and make a dimmer switch Explain how electrical components work Explain how a bulb or buzzer can be altered with the number and voltage of cells used in the circuit 	<p><u>Light</u></p> <ul style="list-style-type: none"> To demonstrate and understand that light travels in straight lines To investigate shadows and how they change as a result of light sources To explain why shadows have the same shape as the objects that cast them To know that objects are seen because they give out or reflect light into the eye To be able to use the idea that light travels in 	<p><u>Living Things and their Habitats</u></p> <ul style="list-style-type: none"> To understand the classification of organisms system created by Carl Linnaeus Understand how living things are classified according to specific observable characteristics that can put them into broad groups or can highlight the subtle similarities or differences between certain plants and animals 	<p><u>Evolution and inheritance</u></p> <ul style="list-style-type: none"> To identify inherited characteristics in living things To know that variation occurs within offspring as well as across a species To identify advantages and disadvantages of certain characteristics To suggest how living things are adapted to extreme environments To recognise that fossils provide information about changes over time To understand how humans have evolved over time, and how human behaviour can affect change in species over time



Enriching Lives: Unlocking Potential



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	<p>and drugs on the human body</p> <ul style="list-style-type: none">• To understand the functions of blood, blood vessels and the heart in humans		<p>straight lines to explain that objects are seen because they give out or reflect light into the eye</p> <ul style="list-style-type: none">• To understand split light (finding 'rainbows') and coloured light mixing	<ul style="list-style-type: none">• Know how to use a branching classification key to identify subtle differences between certain animals• Know how to use a branching classification key to identify broad and subtle similarities and differences between certain plants.• Know about the seven levels of the Linnaeus' system• Understand what microorganisms are and why they are important	
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