



Marshland Primary Academy

Science Long Term Plan

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Science						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Rising Threes	<p>Development Matters – Understanding the World Birth to three – babies, toddlers and young children will be learning to:</p> <ul style="list-style-type: none"> - Repeat actions that have an effect. - Explore materials with different properties. - Explore natural materials, indoors and outside. - Explore and respond to different natural phenomena in their setting and on trips. 					
Nursery	<p>Development Matters – Understanding the World 3 and 4 year olds will be learning to:</p> <ul style="list-style-type: none"> - Use all their senses in hands-on exploration of natural materials. - Explore collections of materials with similar and/or different properties. - Talk about what they see, using a wide vocabulary. - Explore how things work. - 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. - Explore and talk about different forces they can feel. - Talk about the differences between materials and changes they notice. 					
Reception	<p>Understanding the World ELG: Past and Present Children at the expected level of development will:</p> <ul style="list-style-type: none"> - Explore the natural world around them, making observations and drawing pictures of animals and plants; - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 					
Key Stage One	<p>Working Scientifically During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> - asking simple questions and recognising that they can be answered in different ways 					



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	<ul style="list-style-type: none"> - observing closely, using simple equipment - performing simple tests - identifying and classifying - using their observations and ideas to suggest answers to questions - gathering and recording data to help in answering questions. 					
Year 1	Seasonal Change Observe changes across the four seasons Observe and describe weather associated with the seasons and how the day length varies. (Unit plan to be in place with evidence in floor book)					
	Humans Body Parts and Senses Identify, name, draw and label the basic parts of the human body and say which part is associated with each sense.	Animals Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibian, reptiles, birds and mammals including pets).	Plants over two half-terms with a focus on outdoor learning	Plants Identify and name a variety of wild and common garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees	Everyday Materials Identifying materials Distinguish between an object and the material it is made from. Identify and name a variety of every day materials including wood, plastic, glass, metal, water and rock.	Everyday Materials Properties of materials Describe the physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties.
	Year 2	Humans Describe the importance for humans of exercise, eating the right amounts of different food types	Uses of Everyday Materials Identify and compare the suitability of a variety of materials	Animals Life of an Animal Notice that animals, including humans, have	Plants Observe and describe how seeds and bulbs grow into mature plants.	Living things and their Habitats Explore and compare the differences between things that are living,

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	and the importance of hygiene.	including: wood, metal, plastic, glass, rock, brick, paper, cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting, stretching.	offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food, air).	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. <i>Some of the above may need to be started before the unit in order to make observations of growth from seed to fully grown plant.</i>	dead and things that have never been alive. 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. Identify a variety of plants and animals in their habitats.	food chains and identify and name sources of food.
Lower Key Stage Two	<p>Working Scientifically</p> <p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> - asking relevant questions and using different types of scientific enquiries to answer them - setting up simple practical enquiries, comparative and fair tests - making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - identifying differences, similarities or changes related to simple scientific ideas and processes - using straightforward scientific evidence to answer questions or to support their findings. 					
Year 3	Plants Identify and describe the functions of different parts of a	Rocks and Fossils Compare and group together different kinds of rocks on the basis of	Humans, including humans Nutrition	Humans, including humans Skeletal system	Light Recognise that they need light in order to see things	Magnets and Forces Compare how things move on different surfaces.



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	<p>flowering plant; roots, stem/trunk, leaves and flowers.</p> <p>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.</p> <p>Investigate the way in which water is transported within plants.</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	<p>their appearance, and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within a rock.</p> <p>Recognise that soils are made from rocks and organic matter.</p>	<p>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.</p>	<p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<p>and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Find patterns in the way that the size of shadows change.</p>	<p>Notice that some forces need contact between 2 objects but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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.</p> <p>Describe magnets as having two poles.</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>
Year 4	<p>States of Matter</p> <p>Compare and group materials together according to whether they are solids, liquids or gases.</p>	<p>Living Things and their Habitats Classification</p> <p>Recognise that living things can be grouped in a variety of ways.</p>	<p>Humans Teeth & Eating</p> <p>Describe the simple functions of the basic parts of the digestive systems in humans</p>	<p>Animals Food Chains</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>Electricity</p> <p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit,</p>	<p>Sounds</p> <p>Identify how sounds are made, associating some of them with something vibrating.</p>



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	<p>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.</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Identify the different types of teeth in humans and their simple functions.</p>		<p>identifying and naming its basic parts, including cells, wires, bulbs, switches, buzzers.</p> <p>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.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Recognise that some common conductors and insulators and associate metals with being good conductors.</p>	<p>Recognise that vibrations travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p>
Upper Key Stage Two	<p>Working Scientifically</p> <p>During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> - planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - using test results to make predictions to set up further comparative and fair tests - reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations - identifying scientific evidence that has been used to support or refute ideas or arguments. 					

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<p>Year 5</p>	<p>Earth and Space Describe the movement of the Earth and other planets relative to the sun in the solar system.</p> <p>Describe the movement of the moon relative to the Earth.</p> <p>Describe the sun, Earth and moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p>Materials Properties of materials</p> <p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.</p> <p>Give reasons based on evidence from comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic.</p>	<p>Living Things and their Habitats Describe the differences in the life cycles of a mammal, an amphibian, an insect, a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Animals including Humans Describe the changes as humans develop to old age.</p>	<p>Forces Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater impact.</p>	<p>Materials Changing States</p> <p>Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to describe how mixtures might be separated through, including through filtering, sieving and evaporating.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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.</p>
<p>Year 6</p>	<p>Light Recognise that light appears to travel in straight lines.</p>	<p>Electricity Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit.</p>	<p>Living Things and their Habitats Describe how living things are classified into broad groups according to common observable</p>	<p>Animals Including Humans Identify and name the main parts of the human circulatory system, and describe the functions of</p>	<p>Evolution and Inheritance Recognise that living things have changed over time and that fossils provide information about living things that</p>	<p>Study of key people linked to evolution and inheritance here – career-related learning</p>



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	<p>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.</p> <p>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p>Compare and give reasons for the variations in how components function, including the brightness of bulbs, loudness of buzzers and the on/off position of switches.</p> <p>Use the recognised symbols when representing a simple circuit in a diagram.</p>	<p>characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p>	<p>the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>inhabited the Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaption may lead to evolution.</p>	
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