

Progression in Science

Curriculum Drivers: Well-being, Diversity & Inclusion, Real-life experiences, Oracy, Vocabulary Development

Early Years	Autumn		Spring		Summer	
	<p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> • I know how to ask questions about the world using my senses – feeling, hearing and seeing. • I know some important processes and changes in the natural world around them, including the seasons and changing states of matter. <p>Changing states – Ice (seasons see Geography)</p> <p>Change materials by heating and cooling (cooking)</p> <p><u>Animals</u></p> <ul style="list-style-type: none"> • I know about life cycle of a human. 		<p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> • I know about aspects of my familiar world such as the natural world, making observations and drawing pictures. • I know and can talk about forces I feel. <p><u>Animals</u></p> <ul style="list-style-type: none"> • I know how to care for animals. • I know some of the features of my own immediate environment and how they might vary from one another (farm/zoo). <p><u>Plants</u></p> <ul style="list-style-type: none"> • I know how to care for growing plants. • I know about the life cycle of a plant. • I know about growth, decay and changes over time. • I know some similarities and differences in relation to living things. <p><u>Space</u></p> <ul style="list-style-type: none"> • Gravity 		<p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> • I know why things happen and how things work. • I know some similarities, differences, patterns and change in relation to people. <p><u>Animals</u></p> <ul style="list-style-type: none"> • I know I need to respect and care for the natural environment and all living things. <p><u>Everyday Materials</u></p> <ul style="list-style-type: none"> • I know some similarities and differences in relation to materials and can sort/group them using sorting rings and tick sheets. <p><u>Floating and Sinking</u></p> <ul style="list-style-type: none"> • Which material will create the best boat? <p><u>Growing</u></p> <ul style="list-style-type: none"> • Lifecycles and body parts 	
	<p><u>Cultural Capital Experiences</u></p> <p>Visits from local nurse and dentist</p> <p>Children have opportunities to observe the life cycle of ducklings, tadpoles and caterpillars</p> <p>Visit to Farm</p>					
Cultural Capital Experiences (clubs, visitors, trips)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Morden Hall Park	Morden hall Park Sutton Ecology Centre	Science Museum Morden Hall Park	Science Museum Morden Hall Park	Science Museum Morden Hall Park	Morden Hall Park Link with DT topics (Science Museum) Outdoor Learning

SUBSTANTIVE KNOWLEDGE

Topics and key vocabulary	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Animals inc. humans (Biology)</p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<p>Notice that animals, including humans, have offspring which grow into adults.</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>Understand 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>Understand that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify the different types of teeth -incisor, canine, pre-molar, molar in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>Describe the changes as humans develop to old age.</p> <p><i>Non statutory</i> <i>Pupils should draw a timeline to indicate stages in the growth and development of humans. They should learn about the changes experienced in puberty.</i></p>	<p>Identify and name the main parts of the human circulatory system, and describe the functions of 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>Plants (Biology)</p>	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Identify and describe the functions of different parts of flowering plants: 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>N/A</p>	<p>N/A</p>	<p>N/A</p>
<p>Living things and their habitats (Biology)</p>	<p>N/A</p>	<p>Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>Identify that most living things live in habitats to which they</p>	<p>N/A</p>	<p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including</p>

		<p>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 and name a variety of plants and animals in their habitats, including microhabitats.</p> <p>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.</p>		<p>local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>		<p>microorganisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p>
<p>Evolution and inheritance (Biology)</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>Recognise that living things have changed over time and that fossils provide information about living things that 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>

						Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution .
Seasonal change (Physics)	Observe changes across the four seasons . Observe and describe weather associated with the seasons and how day length varies.	N/A	N/A	N/A	N/A	N/A
Light (Physics)	N/A	N/A	Recognise that we need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Find patterns in the way that the size of shadows change.	N/A	N/A	Recognise that light appears to travel in straight line . 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. 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.

			Recognise that shadows are formed when the light from a light source is blocked by a solid object .			Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Forces (Physics)	N/A	N/A	<p>Compare how things move on different surfaces.</p> <p>Notice that some forces need contact between two 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>Describe magnets as having two poles.</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 material.</p>	N/A	<p>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 effect.</p>	N/A

			Predict whether two magnets will attract or repel each other, depending on which poles are facing.			
Sound (Physics)	N/A	N/A	N/A	<p>Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds 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>Recognise that sounds get fainter as the distance from the sound source increases.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p>	N/A	N/A

Electricity (Physics)	N/A	N/A	N/A	<p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and 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 some common conductors and insulators and associate metals with being good conductors a simple series.</p>	N/A	<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>
Earth and Space (Physics)	N/A	N/A	N/A	N/A	Describe the movement of the Earth , and other planets , relative to the	N/A

					<p>Sun in the solar system.</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Describe the movement of the Moon relative to the Earth.</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>Everyday Materials/ States of matter (Chemistry)</p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of</p>	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>N/A</p>	<p>Compare and group materials together, according to whether they are solids, liquids or gases.</p> <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 (°C) identify the part played by evaporation and condensation in the water cycle and associate the rate of</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>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p>	<p>N/A</p>

	<p>everyday materials on the basis of their simple physical properties.</p>			<p>evaporation with temperature.</p>	<p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</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>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>	
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Rocks (Chemistry)	N/A	N/A	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter.</p>	N/A	N/A	N/A
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