



**The Sultan's School**  
**Primary Science Progression of Skills 2021-22**



Strands	Early Years	
<b>Communication and language (Understanding)</b>	<b>40 – 60+ months</b>	<ul style="list-style-type: none"> <li>• Listens and responds to ideas expressed by others in conversation or discussion.</li> </ul>
	<b>ELG 02</b>	<ul style="list-style-type: none"> <li>• Understanding: children follow instructions involving several ideas or actions.</li> <li>• They answer 'how' and 'why' questions about their experiences and in response to stories or events.</li> </ul>
<b>Physical development (Health &amp; Self Care)</b>	<b>40 – 60+ months</b>	<ul style="list-style-type: none"> <li>• Eats a healthy range of foodstuffs and understands need for variety in food.</li> <li>• Shows some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health.</li> <li>• Shows understanding of the need for safety when tackling new challenges, and considers and manages some risks.</li> <li>• Shows understanding of how to transport and store equipment safely.</li> <li>• Practices some appropriate safety measures without direct supervision.</li> </ul>
	<b>ELG 05</b>	<ul style="list-style-type: none"> <li>• Health and self-care: children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.</li> <li>• They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.</li> </ul>
<b>Understanding the world (The World)</b>	<b>40 – 60+ months</b>	<ul style="list-style-type: none"> <li>• Looks closely at similarities, differences, patterns and change.</li> </ul>
	<b>ELG 14</b>	<ul style="list-style-type: none"> <li>• Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.</li> <li>• They make observations of animals and plants and explain why some things occur, and talk about changes.</li> </ul>
<b>Expressive arts and design (Exploring and using media and materials)</b>	<b>40 – 60+ months</b>	<ul style="list-style-type: none"> <li>• Manipulates materials to achieve a planned effect.</li> <li>• Constructs with a purpose in mind, using a variety of resources.</li> <li>• Uses simple tools and techniques competently and appropriately.</li> <li>• Selects appropriate resources and adapts work where necessary.</li> <li>• Selects tools and techniques needed to shape, assemble and join materials they are using.</li> </ul>
	<b>ELG 16</b>	<ul style="list-style-type: none"> <li>• Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> </ul>

Working Scientifically					
Strands	Early Years	Year 1	Year 2	Year 3 and 4	Year 5 and 6
<b>Observe</b>	<ul style="list-style-type: none"> <li>• General sensory observations of animals and plants.</li> <li>• Simple descriptions of the world around them.</li> </ul>	<ul style="list-style-type: none"> <li>• For 2020-2021 following the Early Years Working Scientifically strands.</li> <li>• Objectives for 2021-2022 will be developed in Term 3, 2021</li> </ul>	<ul style="list-style-type: none"> <li>• Can observe closely, using simple equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Can make systematic and careful observations.</li> </ul>	
<b>Research</b>	<ul style="list-style-type: none"> <li>• Looking at objects and pictures and discussing what they can see.</li> </ul>			<ul style="list-style-type: none"> <li>• Can identify differences, similarities or changes related to simple scientific ideas and processes.</li> </ul>	



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<b>Question</b>	<ul style="list-style-type: none"> <li>Asks questions about aspects of their familiar world.</li> </ul>		<ul style="list-style-type: none"> <li>Can ask simple questions and recognising that they can be answered in different ways.</li> </ul>	<ul style="list-style-type: none"> <li>Can ask relevant questions and using different types of scientific enquiries to answer them.</li> </ul>	
<b>Plan</b>	<ul style="list-style-type: none"> <li>Generating a variety of ideas for testing (not always realistic/appropriate)</li> </ul>		<ul style="list-style-type: none"> <li>Can perform simple tests.</li> </ul>	<ul style="list-style-type: none"> <li>Can set up simple practical enquiries, comparative and fair tests.</li> </ul>	<ul style="list-style-type: none"> <li>Can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> </ul>
<b>Predict</b>	<ul style="list-style-type: none"> <li>Simple guess - what might happen?</li> </ul>				<ul style="list-style-type: none"> <li>Can use test results to make predictions to set up further comparative and fair tests.</li> </ul>
<b>Measure</b>	<ul style="list-style-type: none"> <li>Measure by direct comparison.</li> <li>Using non-standard units of measurement.</li> <li>Use of simple comparative vocabulary – bigger, smaller.</li> </ul>		<ul style="list-style-type: none"> <li>Can gather and recording data to help in answering questions.</li> </ul>	<ul style="list-style-type: none"> <li>Can make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> </ul>	<ul style="list-style-type: none"> <li>Can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> </ul>
<b>Report</b>	<ul style="list-style-type: none"> <li>Talking about objects and events.</li> <li>Simple recording – pictures/images/videos</li> </ul>		<ul style="list-style-type: none"> <li>Can identify and classify phenomena.</li> </ul>	<ul style="list-style-type: none"> <li>Can gather, record, classify and present data in a variety of ways to help in answering questions.</li> <li>Can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</li> </ul>	<ul style="list-style-type: none"> <li>Can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> </ul>
<b>Interpret</b>	<ul style="list-style-type: none"> <li>Noticing 'which worked best' – simple comparative statements.</li> <li>Answer initial question simply.</li> </ul>		<ul style="list-style-type: none"> <li>Can use their observations and ideas to suggest answers to questions.</li> </ul>	<ul style="list-style-type: none"> <li>Can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</li> </ul>	<ul style="list-style-type: none"> <li>Can 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.</li> </ul>
<b>Evaluate</b>				<ul style="list-style-type: none"> <li>Can use results to draw simple conclusions, make predictions for new values, suggest</li> </ul>	<ul style="list-style-type: none"> <li>Can identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>



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				improvements and raise further questions. • Can use straightforward scientific evidence to answer questions or to support their findings.	
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Knowledge and Skills						
Strands	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Biology	Plants		<ul style="list-style-type: none"> <li>Know that plants have roots, leaves, stems and flowers.</li> <li>Explain observations that plants need water and light to grow.</li> <li>Know that water is taken in through the roots and transported through the stem.</li> <li>Know that plants need healthy roots, leaves and stems to grow well.</li> <li>Know that plant growth is affected by temperature.</li> </ul>		<ul style="list-style-type: none"> <li>To discuss the factors that affect plant growth.</li> <li>To identify, label and explain the function of the different parts of a plant.</li> <li>To explain how plants can disperse seeds in different ways.</li> <li>To carry out a fair test in which only one factor changes.</li> <li>Draw conclusions and relate these to scientific knowledge and understanding.</li> <li>Present observations and measurements using tables and charts.</li> </ul>	
Biology	Humans & Animals		<ul style="list-style-type: none"> <li>Know life processes coming to humans and animals.</li> <li>Describe differences between living and non-living things using</li> </ul>	<ul style="list-style-type: none"> <li>Explain the functions of a skeleton.</li> <li>Locate and name bones in human body.</li> <li>Explain changes in human body.</li> </ul>		<ul style="list-style-type: none"> <li>Use scientific names for some major organs of body systems.</li> <li>Identify the position of major organs in the body.</li> </ul>



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		<ul style="list-style-type: none"> <li>• Recognise and describes special times or events for family or friends.</li> <li>• Knows some of the things that make them unique and can talk about the similarities and difference in relation to friends and family.</li> <li>• Is able to discuss different occupations and ways of life.</li> <li>• To learn that the five senses are to see, hear, smell, touch and taste.</li> <li>• To understand that food and drink have different tastes.</li> <li>• To understand that materials feel different.</li> <li>• To understand that different materials and food products have different smells.</li> <li>• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul>		<p>knowledge of life processes.</p> <ul style="list-style-type: none"> <li>• Explore and research exercise and the adequate, varied diet needed to keep healthy.</li> <li>• Know that some foods can be damaging to health, e.g. very sweet and fatty foods.</li> <li>• Explore human senses and the ways we use them to learn about our world.</li> <li>• Sort living things into groups, using simple features and describe rationale for groupings.</li> </ul>	<ul style="list-style-type: none"> <li>• Explain how human skeletons differ from animals.</li> <li>• Describe and understand joint and muscles movement.</li> </ul>		<ul style="list-style-type: none"> <li>• Describe the main functions of the major organs of the body.</li> </ul>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Living Things in Their Environments</p>		<ul style="list-style-type: none"> <li>• Can talk about some of the things they have observed such as plants, animals, natural and found objects.</li> <li>• Understand that we can group living things in different ways.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify similarities and differences between local environments and know about some of the ways in which these affect the animals and plants that are found there.</li> </ul>		<ul style="list-style-type: none"> <li>• List the characteristics of living things.</li> <li>• Explain why organisms live in particular habitats.</li> <li>• Identify organisms within a habitat.</li> <li>• Use an identification key.</li> </ul>		<ul style="list-style-type: none"> <li>• Explore how humans have positive and negative effects on the environment.</li> <li>• Explore a number of ways of caring for the environment.</li> </ul>



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		<ul style="list-style-type: none"> <li>• Talk about why things happen and how they work.</li> <li>• Show care and concern for living things and the environment.</li> <li>• Develop an understanding of growth, decay and changes over time.</li> <li>• Looks closely at similarities, differences and patterns and change.</li> <li>• Understand that animals and insects have a life cycle.</li> <li>• Understand that the babies of some animals go through different stages.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand ways to care for the environment.</li> <li>• Observe and talk about their observation of the weather, recording reports of weather data.</li> </ul>				<ul style="list-style-type: none"> <li>• Know how food chains can be used to present relationships in a habitat.</li> <li>• Know that food chains begin with a plant, which uses energy from the sun.</li> <li>• Understand the terms producer, consumer, predator and prey.</li> </ul>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Physics</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Electricity &amp; Magnetism</p>		<ul style="list-style-type: none"> <li>• Recognise the components of simple circuits involving cells (batteries)</li> <li>• Know how a switch can be used to break a circuit.</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate the different types of materials that magnets attract</li> <li>• Know these types of materials are called magnetic materials</li> <li>• Understand that magnets can be different shapes and sizes</li> </ul>	<ul style="list-style-type: none"> <li>• Construct electrical circuits to make devices work.</li> <li>• Recognise components in a circuit diagram from symbols.</li> <li>• Describe electrical conductors and insulators.</li> <li>• Identify that magnets exert pushing and pulling forces that attract or repel each other</li> <li>• Like poles repel and opposite poles attract</li> <li>• Investigate which metals are attracted to magnets.</li> <li>• Know iron and steel are magnetic. Aluminium,</li> </ul>		<ul style="list-style-type: none"> <li>• Construct a series circuit from a circuit diagram, recognising circuit diagram symbols.</li> <li>• Discuss the need for a circuit to be complete for it to work.</li> <li>• Identify changes that take place when components are added or removed.</li> </ul>



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				copper and gold are non-magnetic metals.		
<b>Forces &amp; Motion</b>	<ul style="list-style-type: none"> <li>• Understand that a force makes things move.</li> <li>• Understand that forces can make things speed up and change direction.</li> <li>• Understand that forces can make things slow down.</li> <li>• Compare how things move on different surfaces.</li> <li>• Understand that it is important to talk about what might happen when we carry out an investigation.</li> <li>• Show findings from investigations in simple ways.</li> </ul>		<ul style="list-style-type: none"> <li>• Know that pushes and pulls are examples of forces and that they can be measured with force meters.</li> <li>• Explore how forces can make objects start or stop moving.</li> <li>• Explore how forces can change the shape of objects.</li> <li>• Explore how forces, including friction, can make objects move faster or slower or change direction.</li> </ul>			<ul style="list-style-type: none"> <li>• Describe friction, including air resistance and understand it is a force which opposes movement.</li> <li>• Draw diagrams to show forces acting in different directions.</li> <li>• Understand that when forces are balanced an object will not speed up, slow down or change direction.</li> <li>• Make accurate observations and measurements.</li> <li>• Understand the need to repeat observations and measurement.</li> </ul>
<b>Light &amp; Sound</b>		<ul style="list-style-type: none"> <li>• Identify different light sources including the Sun.</li> <li>• Know that darkness is the absence of light.</li> <li>• Be able to identify shadows.</li> </ul>		<ul style="list-style-type: none"> <li>• Know that sounds are made when objects vibrate.</li> <li>• How to measure sound.</li> <li>• Explore how the pitch of a sound can be changed.</li> <li>• Explore how sounds are made when objects, materials or air vibrate.</li> <li>• Plan an investigation.</li> <li>• Make accurate observations and measurements.</li> </ul>	<ul style="list-style-type: none"> <li>• Know that shadows are formed when light travelling from a source is blocked.</li> <li>• Know that shadows change in length and position throughout the day.</li> <li>• Explore how opaque materials do not let light through and transparent materials let a lot of light through.</li> <li>• Know that we see light sources because light</li> </ul>	



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						<p>from a source enters our eyes.</p> <ul style="list-style-type: none"> <li>• Explore why a beam of light changes direction when reflected from a surface.</li> </ul>	
	Earth & Space		<ul style="list-style-type: none"> <li>• Explore how the Sun appears to move during the day and how shadows change.</li> <li>• Model how the spin of the Earth leads to day and night, e.g. with different sized balls and a torch</li> </ul>			<ul style="list-style-type: none"> <li>• Day and night. The sun does not move. Its apparent movement is caused by the Earth's rotation on its axis every 24 hrs.</li> <li>• Know that the Earth takes a year to orbit the Sun.</li> <li>• Know the seasons are caused by the Earth's tilt and its orbit around the sun.</li> <li>• Research the lives and discoveries of scientists who explored the Solar System and Stars.</li> <li>• Know that gravity is a pull force which keeps the planets orbiting the sun.</li> </ul>	
Chemistry	Materials		<ul style="list-style-type: none"> <li>• Recognise some types of rocks and the uses of different rocks.</li> <li>• Know that some materials occur naturally and other are manufactured.</li> <li>• Know how the shapes of some materials can be changed by squashing, bending,</li> </ul>	<ul style="list-style-type: none"> <li>• Know that every material has specific properties, e.g. hard, soft, shiny.</li> <li>• Sort materials according to their properties.</li> <li>• Explore how some materials are magnetic but many are not.</li> </ul>			



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			<p>twisting and/or stretching.</p> <ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss why materials are chosen for specific purposes on the basis of their properties.</li> </ul>			
States of Matter (Material Changes)			<ul style="list-style-type: none"> <li>• Explore and describe the way some everyday materials change when they are heated or cooled.</li> </ul>			<ul style="list-style-type: none"> <li>• Know that matter can be solid, liquid or gas.</li> <li>• Know that evaporation occurs when a liquid turns into a gas.</li> <li>• Know that condensation occurs when a gas turns into a liquid and that it is the reverse of evaporation.</li> <li>• Connect evaporation and condensation to the water cycle.</li> <li>• Know that the boiling point of water is 100°C and freezing point is 0°C.</li> <li>• Know that when water evaporates from a solution a solid is left behind.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand how properties of materials in a mixture may be used to separate them.</li> <li>• Understand that dissolving and evaporation are reversible and inverse reactions.</li> <li>• Understand the difference between a mixture and a solution.</li> <li>• Explain how to separate solids from liquids by filtering and evaporation.</li> <li>• Learn how to plan and set up a fair test.</li> <li>• Learn how to discuss, evaluate, adapt and overcome difficulties.</li> <li>• Describe changes that take place when materials are mixed and identify reversible and irreversible changes.</li> <li>• Know that new materials can be made by mixing chemicals.</li> </ul>

Non-science objectives

Objectives from another strand