



## Science Knowledge Overview

## "Sowing the seeds of tomorrow" Matthew 13: 1-23

A year 1 scientist	A year 2 scientist	A year 3 scientist	A year 4 scientist	A year 5 scientist	A year 6 scientist
<b>Working scientifically:</b> <ul style="list-style-type: none"> <li>ask simple scientific questions.</li> <li>use simple equipment to make observations.</li> <li>carry out simple tests.</li> <li>identify and classify things.</li> <li>suggest what they have found out.</li> <li>simple data to answer questions.</li> </ul>		<b>Working scientifically:</b> <ul style="list-style-type: none"> <li>ask relevant scientific questions.</li> <li>use observations and knowledge to answer scientific questions.</li> <li>set up a simple enquiry to explore a scientific question.</li> <li>set up a test to compare two things.</li> <li>set up a fair test and explain why it is fair.</li> <li>make careful and accurate observations, including the use of standard units.</li> <li>use equipment, including thermometers and data loggers to make measurements.</li> <li>gather, record, classify and present data in different ways to answer scientific questions.</li> <li>use diagrams, keys, bar charts and tables; using scientific language.</li> <li>use findings to report in different ways, including oral and written explanations, presentation.</li> <li>draw conclusions and suggest improvements.</li> <li>make a prediction with a reason.</li> <li>identify differences, similarities and changes related to an enquiry.</li> </ul>		<b>Working scientifically:</b> <ul style="list-style-type: none"> <li>plan different types of scientific enquiry.</li> <li>control variables in an enquiry.</li> <li>measure accurate and precisely using a range of equipment.</li> <li>record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>use the outcome of test results to make predictions and set up a further comparative fair test.</li> <li>report findings from enquiries in a range of ways.</li> <li>explain a conclusion from an enquiry.</li> <li>explain casual relationships in an enquiry.</li> <li>relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory.</li> <li>read, spell and pronounce scientific vocabulary accurately.</li> </ul>	
<b>Biology:</b> <ul style="list-style-type: none"> <li>name a variety of common wild and garden plants.</li> <li>name the petals, stem, leaf and root of a plant.</li> <li>name the roots, trunk, branches and leaves of a tree.</li> <li>name a variety of animals including fish, amphibians, reptiles, birds</li> </ul>	<b>Biology:</b> <ul style="list-style-type: none"> <li>identify things that are living, dead and never lived.</li> <li>describe how a specific habitat provides for the basic needs of things living there (plants and animals).</li> <li>identify and name plants and animals in a range of</li> </ul>	<b>Biology:</b> <ul style="list-style-type: none"> <li>describe the function of different parts of flowering plants and trees.</li> <li>explore and describe the needs of different plants for survival.</li> <li>explore and describe how water is transported within plants.</li> <li>describe the plant life cycle,</li> </ul>	<b>Biology:</b> <ul style="list-style-type: none"> <li>group living things in different ways.</li> <li>Use classification keys to group, identify and name living things.</li> <li>create classification keys to group, identify and name living things</li> <li>describe how changes to an environment could endanger living</li> </ul>	<b>Biology:</b> <ul style="list-style-type: none"> <li>describe the life cycle of different living things.</li> <li>describe the differences between different life cycles.</li> <li>describe the process of reproduction in plants.</li> <li>describe the process of</li> </ul>	<b>Biology:</b> <ul style="list-style-type: none"> <li>classify living things into broad groups, according to observable characteristics and based on similarities and differences</li> <li>describe how living things have been classified.</li> <li>give reasons for classifying plants and animals in a specific way.</li> </ul>



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<p>and mammals.</p> <ul style="list-style-type: none"> <li>• sort animals into the categories above.</li> <li>• classify and name animals by what they eat: (carnivore/herbivore/omnivore)</li> <li>• sort living and non-living things.</li> <li>• name the parts of the human body that they can see.</li> <li>• links the senses to the correct parts of the human body</li> </ul>	<p>habitats.</p> <ul style="list-style-type: none"> <li>• match living things to their habitat.</li> <li>• describe how animals find their food.</li> <li>• name some different sources of food for animals.</li> <li>• explain a simple food chain.</li> <li>• describe how seeds and bulbs grow into plants.</li> <li>• describe what plants need in order to grow and stay healthy.</li> <li>• explain the basic stages in a life cycle for animals, including humans.</li> <li>• describe what animals and humans need to survive.</li> <li>• describe why exercise, a balanced diet and good hygiene are important for humans.</li> </ul>	<p>especially the importance of flowers.</p> <ul style="list-style-type: none"> <li>• explain the importance of a nutritious, balanced diet.</li> <li>• explain how nutrients, water and oxygen are transported within animals and humans.</li> <li>• describe and explain the skeletal system of a human.</li> <li>• describe and explain the muscular system of a human.</li> <li>• describe the purpose of the skeleton in humans and animals.</li> </ul>	<p>things.</p> <ul style="list-style-type: none"> <li>• identify and name the parts of the human digestive system.</li> <li>• describe the functions of the organs in the human digestive system.</li> <li>• identify and describe the different types of teeth in humans.</li> <li>• describe the functions of different human teeth.</li> <li>• use food chains to identify producers, predators and prey.</li> <li>• construct food chains to identify producers, predators and prey.</li> </ul>	<p>reproduction in animals.</p> <ul style="list-style-type: none"> <li>• create a timeline to indicate stages of growth in humans.</li> <li>• identify and name the main parts of the human circulatory system.</li> <li>• describe the function of the heart, blood vessels and blood.</li> <li>• discuss the impact of diet, exercise, drugs and life style on health.</li> <li>• describe the ways in which nutrients and water are transported in animals, including humans.</li> </ul>	<ul style="list-style-type: none"> <li>• describe how the Earth and living things have changed over time.</li> <li>• explain how fossils can be used to find out about the past.</li> <li>• explain about reproduction and offspring.</li> <li>• explain how animals and plants are adapted to suit their environment.</li> <li>• link adaptation over time to evolution.</li> <li>• explain evolution.</li> </ul>
<p><b>Chemistry:</b></p> <ul style="list-style-type: none"> <li>• can distinguish between an object and the material it is made from.</li> <li>• can explain the</li> </ul>	<p><b>Chemistry:</b></p> <ul style="list-style-type: none"> <li>• identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and</li> </ul>	<p><b>Chemistry:</b></p> <ul style="list-style-type: none"> <li>• compare and group rocks based on their appearance and physical properties, giving a reason.</li> </ul>	<p><b>Chemistry:</b></p> <ul style="list-style-type: none"> <li>• group materials based on their state of matter (solid, liquid, gas).</li> <li>• describe how some materials can</li> </ul>	<p><b>Chemistry:</b></p> <ul style="list-style-type: none"> <li>• compare and group materials based on their properties.</li> <li>• describe how a material dissolves</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Chemistry:</b></li> </ul>



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<p>materials that an object is made from.</p> <ul style="list-style-type: none"><li>• can name wood, plastic, glass, metal, water and rock.</li><li>• can describe the properties of everyday materials.</li><li>• can group objects based on the materials they are made from.</li></ul>	<p>cardboard.</p> <ul style="list-style-type: none"><li>• suggest why a material might or might not be used for a specific job.</li><li>• explore how shapes can be changed by squashing, bending, twisting and stretching.</li></ul>	<ul style="list-style-type: none"><li>• describe how fossils are formed.</li><li>• describe how soil is made.</li><li>• describe and explain the difference between sedimentary and igneous rock.</li></ul>	<p>change state.</p> <ul style="list-style-type: none"><li>• explore how materials change state.</li><li>• measure the temperature at which materials change state.</li><li>• describe the water cycle.</li><li>• explain the part played by evaporation and condensation in the water cycle.</li></ul>	<p>to form a solution; explaining the process of dissolving.</p> <ul style="list-style-type: none"><li>• describe and show how to recover a substance from a solution.</li><li>• describe how some materials can be separated.</li><li>• demonstrate how materials can be separated.</li><li>• know and demonstrate that some changes are reversible and some are not.</li><li>• explain how some changes result in the formation of a new material and that this is usually irreversible.</li><li>• discuss reversible and irreversible changes.</li><li>• give evidenced reasons why materials should be used for specific purposes.</li></ul>	
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<p><b>Physics:</b></p> <ul style="list-style-type: none"> <li>• can observe and comment on changes in the seasons.</li> <li>• can name the seasons and suggest the type of weather in each season.</li> </ul>		<p><b>Physics:</b></p> <ul style="list-style-type: none"> <li>• describe what dark is.</li> <li>• explain that light is needed in order to see.</li> <li>• explain that light is reflected from a surface.</li> <li>• explain and demonstrate how a shadow is formed.</li> <li>• explore shadow size and explain.</li> <li>• explain the danger of direct sunlight and describe how to keep protected.</li> <li>• explore and describe how objects move on different surfaces.</li> <li>• explain how some forces require contact and some do not, giving examples.</li> <li>• explore and explain how objects attract and repel in relation to objects and other magnets.</li> <li>• predict whether objects will be magnetic and carry out an enquiry to test this out.</li> <li>• describe how magnets work.</li> </ul>	<p><b>Physics:</b></p> <ul style="list-style-type: none"> <li>• describe how sound is made.</li> <li>• explain how sound travels from a source to our ears.</li> <li>• explain the place of vibration in hearing.</li> <li>• explore the correlation between pitch and the object producing a sound.</li> <li>• explore the correlation between the volume of a sound and the strength of the vibrations that produced it.</li> <li>• describe what happens to a sound as it travels away from its source.</li> <li>• identify and name applications that require electricity to function.</li> <li>• construct a series circuit.</li> <li>• identify and name the components in a series circuit.</li> <li>• draw a circuit diagram.</li> <li>• predict and test whether a lamp will light within a</li> </ul>	<p><b>Physics:</b></p> <ul style="list-style-type: none"> <li>• describe and explain the movement of the Earth and other planets relative to the Sun.</li> <li>• describe and explain the movement of the Moon relative to the Earth.</li> <li>• explain and demonstrate how night and day are created.</li> <li>• describe the Sun, Earth and Moon (using the term spherical).</li> <li>• explain what gravity is and its impact on our lives.</li> <li>• identify and explain the effect of air resistance.</li> <li>• identify and explain the effect of water resistance.</li> <li>• identify and explain the effect of friction.</li> <li>• explain how levers, pulleys and gears allow a</li> </ul>	<p><b>Physics:</b></p> <ul style="list-style-type: none"> <li>• explain how light travels.</li> <li>• explain and demonstrate how we see objects.</li> <li>• explain why shadows have the same shape as the object that casts them.</li> <li>• explain how simple optical instruments work</li> <li>• explain how the number &amp; voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.</li> <li>• compare and give reasons for why components work and do not work in a circuit.</li> <li>• draw circuit diagrams using correct symbols.</li> </ul>
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		<ul style="list-style-type: none"><li>predict whether magnets will attract or repel and give a reason.</li></ul>	<p>circuit.</p> <ul style="list-style-type: none"><li>describe the function of a switch in a circuit.</li><li>describe the difference between a conductor and insulators</li></ul>	<p>smaller force to have a greater effect.</p>	
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