



## Y6 Science overview 2023-24

Science Activity	Building Skills and Disciplinary Knowledge	Approaches to Developing Skills and Disciplinary Knowledge	Building Substantive Knowledge and Understanding	Building Substantive Knowledge and Understanding	Curricula Materials	Assessed through (T1 T2 T3)		
						Scientific Enquiry Planning & Presenting Critically Observing/ Classifying/ Evaluating Scientific Knowledge		
<b>Scientific Enquiry</b>	<ul style="list-style-type: none"> <li>• Can explore and talk about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically</li> <li>• Can select the most appropriate ways to answer questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things</li> <li>• Can carry out fair tests using a wide range of secondary sources of information</li> <li>• Can draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.</li> </ul>	<ul style="list-style-type: none"> <li>• Create a topic Mind Map: evidence recall of prior knowledge and skills; evidence short-term recall of learnt skills; evidence questions to explore</li> <li>• Introduce and model practical activities involving skills of investigating, contrasting, analysing, recording</li> <li>• Make observations</li> <li>• Review of investigations against criteria</li> <li>• Out-of-classroom learning experiences to support enquiry</li> </ul>	<ul style="list-style-type: none"> <li>• Can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</li> <li>• Can give reasons for classifying plants and animals based on specific characteristics</li> <li>• Can explain that broad groupings, such as micro-organisms, plants and animals can be subdivided</li> <li>• Can understand the significance of the work of scientists such as Carl Linnaeus (pioneer of classification)</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities to recall prior learning</li> <li>• Teacher led presentations</li> <li>• Opportunities for research modelled by Teacher</li> <li>• Opportunities for children to act upon their own curiosity and research their own questions and ideas</li> <li>• Opportunities for group work and collaboration to research and investigate</li> <li>• Research opportunities through home/school learning projects</li> <li>• Planned opportunities for use of and access to varied resources</li> <li>• School visits to places and organisations related to topic and learning</li> <li>• Exploration opportunities for pupils to discover the methods that scientists use to answer questions; the different apparatus and techniques, including measurement that scientists use; the different data analysis used by scientists; and how science uses evidence to develop explanations</li> </ul>	<b>TERM1:</b> <b>Animals including Humans</b>  <b>Light</b>	Most children will be able to... (working at)	Some children will not yet be able to... (working towards)	Some children are confidently able to... (exceeding)
<b>Planning and Presenting</b>	<ul style="list-style-type: none"> <li>• Can explore different ways to test an idea and choose the best way and give a reason</li> <li>• Can vary one factor whilst keeping the others the same in an experiment. Can explain why they do this</li> <li>• Can carry out an experiment an investigation by controlling variables fairly and accurately</li> <li>• Can make a prediction with reasons</li> <li>• Can use information to make a prediction</li> <li>• Can use test results to make further predictions and set up further comparative tests</li> <li>• Can explain (in simple terms) a scientific idea and what evidence supports it</li> <li>• Can present a report for their findings through writing, display and presentation</li> <li>• Can use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher led lessons demonstrating skills of investigating, recording, analysing</li> <li>• Modelling use of scientific vocabulary in comparisons, contrasts, investigations</li> <li>• To use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences</li> <li>• Planned practical activities to engage children in above activities</li> </ul>	<ul style="list-style-type: none"> <li>• Can identify and explain the function of the organs of the human circulatory system (heart, blood, blood pressure, clotting)</li> <li>• Can identify and explain the function of the organs of the human gaseous exchange system (lungs, nose, throat, bronchi, bronchial, tubes, diaphragm, ribs, breathing)</li> <li>• Can name the major organs in the human body</li> <li>• Can locate the major human organs</li> <li>• Can create a diagram that outlines the main parts of the human body</li> <li>• Can give reasons for why living things produce offspring of the same kind</li> <li>• Can give reasons for why offspring are not identical with each other or with their parents</li> <li>• Can explain the process of evolution and describe the evidence for this</li> <li>• Can begin to appreciate that variation in offspring over time can make animals more or less able to survive particular environments</li> <li>• Can talk about the life of Charles Darwin</li> <li>• Can explain how light travels</li> <li>• Can explain how the human eye sees objects</li> <li>• Can explain how different colours of light can be created</li> <li>• Can use and explain how simple optical instruments work (periscope, telescope, binoculars, mirror, magnifying glass, Newton's first reflecting telescope)</li> <li>• To explain changes linked to light( and sound)</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities to recall prior learning</li> <li>• Teacher led presentations</li> <li>• Opportunities for research modelled by Teacher</li> <li>• Opportunities for children to act upon their own curiosity and research their own questions and ideas</li> <li>• Opportunities for group work and collaboration to research and investigate</li> <li>• Research opportunities through home/school learning projects</li> <li>• Planned opportunities for use of and access to varied resources</li> <li>• School visits to places and organisations related to topic and learning</li> <li>• Exploration opportunities for pupils to discover the methods that scientists use to answer questions; the different apparatus and techniques, including measurement that scientists use; the different data analysis used by scientists; and how science uses evidence to develop explanations</li> </ul>				
<b>Critically Observing/Classification / Evaluating</b>	<ul style="list-style-type: none"> <li>• Can explain why they have chosen specific equipment (including IT based equipment)</li> <li>• Can decide which units of measurement they need to use</li> <li>• Can record their measurements in different ways (including bar charts, tables and line graphs)</li> <li>• Can take measurements using a range of scientific equipment with increasing accuracy and precision</li> </ul>	<ul style="list-style-type: none"> <li>• Observing changes over time</li> <li>• Investigating habitats and environments</li> <li>• Learning to compare and contrast</li> <li>• Talking about what they have learnt and observed</li> <li>• Recording data in a variety of formats</li> </ul>	<ul style="list-style-type: none"> <li>• Can begin to appreciate that variation in offspring over time can make animals more or less able to survive particular environments</li> <li>• Can talk about the life of Charles Darwin</li> <li>• Can explain how light travels</li> <li>• Can explain how the human eye sees objects</li> <li>• Can explain how different colours of light can be created</li> <li>• Can use and explain how simple optical instruments work (periscope, telescope, binoculars, mirror, magnifying glass, Newton's first reflecting telescope)</li> <li>• To explain changes linked to light( and sound)</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities to recall prior learning</li> <li>• Teacher led presentations</li> <li>• Opportunities for research modelled by Teacher</li> <li>• Opportunities for children to act upon their own curiosity and research their own questions and ideas</li> <li>• Opportunities for group work and collaboration to research and investigate</li> <li>• Research opportunities through home/school learning projects</li> <li>• Planned opportunities for use of and access to varied resources</li> <li>• School visits to places and organisations related to topic and learning</li> <li>• Exploration opportunities for pupils to discover the methods that scientists use to answer questions; the different apparatus and techniques, including measurement that scientists use; the different data analysis used by scientists; and how science uses evidence to develop explanations</li> </ul>	<b>TERM2:</b> <b>Evolution and Inheritance</b>  <b>Electricity</b>	Most children will be able to... (working at)	Some children will not yet be able to... (working towards)	Some children are confidently able to... (exceeding)
<b>Scientific Knowledge</b>	<ul style="list-style-type: none"> <li>• Can find a pattern from their data and explain what it shows</li> <li>• Can use a graph to answer scientific questions</li> <li>• Can link what they have found out to other science</li> <li>• Can suggest how to improve their work and say why they think this</li> <li>• Can record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models</li> <li>• Can report findings from investigations through written explanations and conclusions</li> </ul>	<ul style="list-style-type: none"> <li>• Planned opportunities to observe, investigate and comment using scientific vocabulary based on topics and experiences</li> <li>• Opportunities for children research their own line of enquiry through research and investigations</li> <li>• To understand when and how secondary sources might help them to answer questions that cannot be answered through practical investigations</li> </ul>	<ul style="list-style-type: none"> <li>• Can begin to appreciate that variation in offspring over time can make animals more or less able to survive particular environments</li> <li>• Can talk about the life of Charles Darwin</li> <li>• Can explain how light travels</li> <li>• Can explain how the human eye sees objects</li> <li>• Can explain how different colours of light can be created</li> <li>• Can use and explain how simple optical instruments work (periscope, telescope, binoculars, mirror, magnifying glass, Newton's first reflecting telescope)</li> <li>• To explain changes linked to light( and sound)</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities to recall prior learning</li> <li>• Teacher led presentations</li> <li>• Opportunities for research modelled by Teacher</li> <li>• Opportunities for children to act upon their own curiosity and research their own questions and ideas</li> <li>• Opportunities for group work and collaboration to research and investigate</li> <li>• Research opportunities through home/school learning projects</li> <li>• Planned opportunities for use of and access to varied resources</li> <li>• School visits to places and organisations related to topic and learning</li> <li>• Exploration opportunities for pupils to discover the methods that scientists use to answer questions; the different apparatus and techniques, including measurement that scientists use; the different data analysis used by scientists; and how science uses evidence to develop explanations</li> </ul>				

<b>Maths links</b>	<ul style="list-style-type: none"> <li>• To take accurate measurements using standard units, using a range of equipment , including thermometers</li> <li>• To accurately interpret these measurements</li> <li>• To Compare objects and size</li> <li>• To record more complex data and results using scientific diagrams, classifications keys, tables, bar charts, line graphs and models</li> </ul>	<ul style="list-style-type: none"> <li>• Planned opportunities depending on topic such as deciding how to present findings via tally counting, graphs, and data analysis or measures</li> </ul>	<ul style="list-style-type: none"> <li>• Can identify and name the basic parts of a simple electric series circuit (cells, wires, bulbs, switches, buzzers)</li> <li>• Can compare and give reasons for variation in how components function, including bulb brightness, volume and o/off position of switches</li> <li>• Can explain how to make changes in circuits</li> <li>• Can explain the impact of changes in a circuit</li> <li>• Can explain the effect of changing the voltage of a battery</li> </ul>		<b>TERM3:</b>			
<b>SMSC</b>	<ul style="list-style-type: none"> <li>• Can work with others of different religious, ethnic and socioeconomic backgrounds, according to given briefs of the Y6 science curriculum</li> <li>• Can resolve conflicts and differing opinions should these arise</li> <li>• Can reflect on choices</li> <li>• Can investigate and offer views on ethical issues in topics studied</li> <li>• Can show willingness to explore and understand scientific beliefs from a variety of cultural backgrounds</li> <li>• Can study science, and investigate with a team knowledge of the wider world, including interviewing with older people, archaeologists, and museum and exhibition personnel</li> </ul>	<ul style="list-style-type: none"> <li>• Plan visits, opportunities to investigate with a group or partner</li> <li>• Plan visits in the local environment</li> <li>• Visit Parks, Museums, laboratories to explore skills in action</li> </ul>	<ul style="list-style-type: none"> <li>• Can create a classification key for given grasses</li> <li>• Can identify key characteristics of sports pitch suitable grass.</li> <li>• Can set up an investigation to determine the best conditions for turf growth.</li> <li>• Can explain how sports stadiums are lit and offer ideas as to alternative energy sources for this purpose</li> <li>• Can investigate and compare the properties of cotton and modern sports materials.</li> <li>• Can research the properties of materials used for equipment and prosthetics in Paralympian sports.</li> <li>• Understands the role of diet for an athlete.</li> <li>• Knows that muscles need to be warmed up and down to prevent injury.</li> <li>• Can identify the amount and type of exercise needed to keep the body healthy and sports fit.</li> </ul>		<b>Living Things Habitats (classification)</b>  <i>The Science of Sport</i>			