

# Science

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**Curriculum Intent:** To ensure students maintain and develop their curiosity and excitement about the natural world. To develop all to be 'scientists' by embedding a culture of confidence and mastery underpinned by scientific enquiry. To develop their ability to see connections between science subject areas and become aware of some of the big ideas for understanding the world and to provide a high challenge, high quality science education for all our learners

	Core Knowledge	Procedural Knowledge
<b>Autumn</b>	<p><b>Topics:</b></p> <p><b>Biology:</b> Animal, plant and bacterial cells. Microscopes. DNA.</p> <p><b>Chemistry:</b> The particle model. Atomic structure. The periodic table.</p> <p><b>Physics:</b> The particle model. Atomic structure, density, energy, temperature and changes of state. Electrical current.</p>	<p><b>Students will:</b></p> <p>Select, plan, and carry out the most appropriate scientific enquiries to test predictions. Identify independent, dependent and control variables. Use appropriate techniques, apparatus and materials during field work and lab work, paying attention to health and safety. Pay attention to objectivity and concern for accuracy, precision, repeatability, reproducibility. Explain data in relation to predictions and hypotheses. Understand that scientific theories are modified to take account of new evidence. Understand importance of publishing results and peer review.</p>
<b>Spring</b>	<p><b>Topics:</b></p> <p><b>Biology:</b> Enzymes. Biological molecules. Respiration.</p> <p><b>Chemistry:</b> Purity and separation of chemicals.</p> <p><b>Physics:</b> Electrical circuits. Resistance and power.</p>	<p><b>Students will:</b></p> <p>Select, plan, and carry out the most appropriate scientific enquiries to test predictions. Identify independent, dependent and control variables. Use appropriate techniques, apparatus and materials during field work and lab work, paying attention to health and safety. Pay attention to objectivity and concern for accuracy, precision, repeatability, reproducibility Explain data in relation to predictions and hypotheses. Understand that scientific theories are modified to take account of new evidence Understand importance of publishing results and peer review.</p>

<b>Summer</b>	<p><b>Topics:</b></p> <p><b>Biology:</b> Photosynthesis. Transport across cell membranes.</p> <p><b>Chemistry:</b> Identifying certain products formed during a chemical reaction.</p> <p><b>Physics:</b> Magnetism and pressure in solids, liquids and gases.</p>	<p><b>Students will:</b></p> <p>Select, plan, and carry out the most appropriate scientific enquiries to test predictions. Identify independent, dependent and control variables. Use appropriate techniques, apparatus and materials during field work and lab work, paying attention to health and safety. Pay attention to objectivity and concern for accuracy, precision, repeatability, reproducibility Explain data in relation to predictions and hypotheses. Understand that scientific theories are modified to take account of new evidence. Understand importance of publishing results and peer review.</p>
<p><b>Homework:</b> Students will receive homework for every six hours that they are taught. Their homework tasks will be set on Satchel:One. Homework will comprise of a variety of tasks that complement the learning in class.</p>		
<p><b>Assessment:</b> To assess learning students will have in class multiple choice question assessments. There will be two more formal assessments. Autumn Term: TSAT Assessment on the content covered in Biology, Chemistry and Physics so far. Summer Term: TSAT exam on all Biology, Chemistry and Physics content covered in Year 9.</p>		
<p><b>Links to Personal Development:</b> Enabling students to recognise risks to their own wellbeing. Social development: Practise using a range of social skills in different situations. Confidence, Resilience and Knowledge: Mentally healthy, physically healthy, active lifestyle, healthy relationships.</p>		
<p><b>How is my knowledge developed further at GCSE?</b> The Science curriculum is a spiral. Every topic is revisited and built upon. All ultimate knowledge from one year or key stage becomes the proximal knowledge for the next year or Key Stage.</p>		