

# (Science - Combined) Year 11 Long Term Plan

**Rationale (with end points):** Throughout the course, the scientific process is taught, with many opportunities to safely plan, risk assess, investigate, record, conclude and evaluate practical investigations, together with the relevant maths skills, and key subject-specific vocabulary that will enable students to be scientifically literate. In Year 11 Biology pupils learn about the topics of homeostasis and response, Inheritance, Variation and Evolution and finally ecology. In Year 11 Chemistry, we complete the course with Rates of Reaction, Hydrocarbons and Chemical Analysis, Atmosphere of the Earth and Using resources. In Year 11 Physics pupils learn about forces, waves and magnetism and electromagnetism.

Term	Topic	Knowledge	Skills	Reading /wider reading
<b>Autumn term 1</b>	<ul style="list-style-type: none"> <li>• Biology – B5 Homeostasis &amp; Response</li> <li>• Chemistry – C6 – The rate and extent of chemical change</li> <li>• Physics – P5 Forces</li> </ul>	<ul style="list-style-type: none"> <li>• Hormonal coordination in humans</li> <li>• Rate of reaction</li> <li>• Reversible reactions and dynamic equilibrium</li> <li>• Forces and their interactions</li> <li>• Work done and energy transfer</li> <li>• Forces and elasticity</li> </ul>	<ul style="list-style-type: none"> <li>• Practical Skills - Microscopes</li> <li>• Mathematical Skills - Magnification Calculations</li> <li>• Extended Writing – Experimental Method</li> </ul>	Wider Reading 1: Selected Article (Scientific Paper/Magazine)
<b>Autumn 2</b>	<ul style="list-style-type: none"> <li>• Reteach Week</li> <li>• Biology – B6 Inheritance, variation and evolution</li> <li>• Chemistry – C7 – Organic chemistry</li> </ul>	<ul style="list-style-type: none"> <li>• Reproduction</li> <li>• Variation and evolution</li> <li>• Carbon compounds as fuel and feedstocks</li> <li>• Forces and motion</li> </ul>	<ul style="list-style-type: none"> <li>• Graphical Skills – Charts, graphs and tables.</li> <li>• Analysing &amp; Evaluation Skills - Graphs &amp; Calculations</li> <li>• Extended Writing – Menstrual Cycle</li> </ul>	Wider Reading 2: Selected Article (Scientific Paper/Magazine)

	<ul style="list-style-type: none"> <li>• Physics – P5 Forces</li> </ul>	<ul style="list-style-type: none"> <li>• Newton's laws of motion</li> <li>• Forces and braking</li> <li>• Momentum</li> </ul>		
<b>Spring 1</b>	<ul style="list-style-type: none"> <li>• Reteach Week</li> <li>• Biology – B6 Inheritance, variation and evolution</li> <li>• Chemistry – C8 – Chemical analysis and C9 – Chemistry of the Atmosphere</li> <li>• Physics – P6 Waves</li> </ul>	<ul style="list-style-type: none"> <li>• Genetics and evolution</li> <li>• Classification of living organisms</li> <li>• Purity, formulations and chromatography</li> <li>• Identification of common gases</li> <li>• Composition and evolution of Earth's atmosphere</li> <li>• Greenhouse gases</li> <li>• Atmospheric pollutants</li> <li>• Waves in air, fluid and solids</li> <li>• Electromagnetic waves</li> </ul>	<ul style="list-style-type: none"> <li>• Practical Skills – Experimental Method</li> <li>• Mathematical Skills - Balancing Equations – Ratios</li> </ul>	Wider Reading 3: Selected Article (Scientific Paper/Magazine)
<b>Spring 2</b>	<ul style="list-style-type: none"> <li>• Reteach Week</li> <li>• Biology – B7 Ecology</li> <li>• Chemistry – C10 Using resources</li> </ul>	<ul style="list-style-type: none"> <li>• Adaptations, interdependence and competition</li> <li>• Organisation of an ecosystem</li> <li>• Biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Analysing &amp; Evaluating Skills – Renewable Energy resources</li> <li>• Mathematical Skills - Multi-step calculations</li> </ul>	Wider Reading 4: Selected Article (Scientific Paper/Magazine)

	<ul style="list-style-type: none"> <li>Physics – P7 Magnetism and Electromagnetism</li> </ul>	<ul style="list-style-type: none"> <li>Earths resources and Potable water</li> <li>Life cycle assessment and recycling</li> <li>Permanent and induced magnetism</li> <li>The motor effect</li> </ul>	<ul style="list-style-type: none"> <li>Graphical Skills – Describing trends</li> </ul>	
<b>Summer 1</b>	<ul style="list-style-type: none"> <li>GCSE External Exams</li> </ul>	<ul style="list-style-type: none"> <li>GCSE External Exams</li> </ul>	<ul style="list-style-type: none"> <li>Extended writing – Evaluate Bioleaching &amp; Phytomining</li> </ul>	Wider Reading 5: Selected Article (Scientific Paper/Magazine)
<b>Summer 2</b>	<ul style="list-style-type: none"> <li>GCSE External Exams</li> </ul>	<ul style="list-style-type: none"> <li>GCSE External Exams</li> </ul>	<ul style="list-style-type: none"> <li>Mathematical Skills – Wave property calculations</li> <li>Practical Skills – Angle measurements</li> <li>Practical Skills – Building Circuits and taking measurements.</li> <li>Mathematical Skills - Calculations &amp; Rearranging Formulae</li> </ul>	Wider Reading 6: Selected Article (Scientific Paper/Magazine)