


Department Name: Science

Department's vision: Students will be able to use practical, analytical and mathematical skills to apply their scientific knowledge to a range of new contexts, allowing them to evaluate information and make informed decisions about the world around them.

Year Group	Topic One	Topic Two	Topic Three	Topic Four	Topic Five	Topic Six
<b>Year 7</b>	Chemistry 1: Matter Physics 1: Forces and Motion	Biology 1: Cells & Systems	Physics 2: Light & Space Chemistry 2: Reactions	Biology 2: Inheritance	Physics 3: Electricity and magnetism	Scientific skills
<b>What will students know by the end of the topic...</b>	1) Chemical particles and how to separate them. 2) Types of forces and how objects move.	1) How cells, organs and systems function. How food is digested and what makes a balanced diet.	1) How light behaves and how this affects our Solar System 2) Different types of chemical reactions	1) Reproduction, what makes us all different and how characteristics are inherited.	1) The affects of electrical components and what magnetism is.	How to plan, safely carry out and analyse scientific investigations
<b>Year 8</b>	Physics 4: Energy and Energy Resources Biology 3: Healthy Body	Chemistry 3: The Earth	Physics 5: Particles & Matter Chemistry 4: Periodic table	Physics 6: Sound and Waves	Biology 4: Organisms and their environment	Scientific skills
<b>What will students know by the end of the topic...</b>	1) How energy is stored & transferred.. Renewable and non-renewable energy. 2) What is health. How we stay healthy.	1) The structure of the Earth, using the Earth's resources and pollution.	1) What are pressure and density. 2) Atomic structure and the periodic table.	1) What are waves, how they behave and how sound travels.	1) How species interact in ecosystems. How plants photosynthesise. How and why organisms evolve.	How to plan, safely carry out and analyse scientific investigations
<b>Year 9</b>	B1) Cell Biology C1) Atomic Structure & the Periodic table	P1) Energy P3) Particles	C2) Bonding, Structure & the Properties of Matter	B2) Organisation of Living Organisms	P4) Atoms & radiation	Required Practicals
<b>What will students know by the end of the topic...</b>	B1) Specialisations of cells & cell growth C2) How elements are organised	P1) Energy stores and changes P3) How particles behave	C2) How atoms are held together by bonding	B2) Organisation of cells into tissues & organs in plants and animals	P4) Types & properties of ionising radiation	Identify & control variables. Safely manipulate equipment. Analyse, interpret & evaluate data.
<b>Year 10</b>	B4) Bioenergetics C4) Chemical Changes P2) Electricity	B3) Infection & Response. C5) Energy Changes P7) Magnests and electromagnitism	C3) Quantitive Chemistry P6) Waves B5) Homeostasis	C9) The composition & evolution of our atmosphere B7) Ecology	C10) Using resources P5) Forces	Required Practicals
<b>What will students know by the end of the topic...</b>	B4) Detail of respiration & photosynthesis C4) Different types of chemical reactions P2) The flow of electricity in a circuit	B3) Disease transmission & prevention C5) Energy changes in chemical reactions P7) Uses of magnets and electromagnets	C3) How to calculate the outcomes of chemical reactions P6) Properties of different waves B5) Control systems in the body	C9) The composition & evolution of our atmosphere B7) How species interact with their environment	C10) The Earth's natural resources P5) Types of forces and their effects and how this affects moving objects	Identify & control variables. Safely manipulate equipment. Analyse, interpret & evaluate data.
<b>Year 11</b>	B6) Inheritance, Variation & Evolution C6) Rate of Chemical Change	C7) Organic Chemistry C8) Chemical Analysis	P5) Motion	Exam Preparation	Exam Preparation	Required Practicals
<b>What will students know by the end of the topic...</b>	B6) How characteristics are inherited and how evolution occurs C6) What affects a chemical reaction	C7) The structure, properties and reactions of carbon compounds C8) Tests to detect specific chemicals	P5) Newton's Laws and how to measure movement			Identify & control variables. Safely manipulate equipment. Analyse, interpret & evaluate data.
<b>Year 12</b>	<u>Biology (A Level)</u> Biological Molecules, Cells, Exchange of substances, Genetic Information	<u>Chemistry (A Level)</u> Physical, Inorganic & Organic	<u>Physics (A Level)</u> Mechanics, Light, Materials, Electrical Circuits, Working as a Physicist	<u>Applied Science (BTEC Extended Certificate)</u> Unit 1: Principles & Applications of Biology, Unit 2: Principles & Applications of Chemistry, Unit 3: Principles & Applications of Physics		
<b>Year 13</b>	<u>Biology (A Level)</u> Energy transfers, Responses, Evolution & Ecosystems, Gene Expression	<u>Chemistry (A Level)</u> Physical, Inorganic & Organic	<u>Physics (A Level)</u> Mechanics, Fields, Space, Nuclear & Particle Physics, Thermodynamics	<u>Applied Science (BTEC Extended Certificate)</u> Unit 1: Principles & Applications Unit 2: Practical Procedures & Tech-		
<b>Key Stage Four Specification Link</b> <a href="#">Combined Science: Trilogy</a>				<b>Key Stage Five Specification Link</b> <a href="#">Biology</a> <a href="#">Chemistry</a> <a href="#">Physics</a> <a href="#">Applied Science</a>		

The following trips run through this subject...

<p><b>What will students see in their books or folders?</b></p> <ul style="list-style-type: none"> <li>Theory notes</li> <li>Annotated diagrams</li> <li>Model answers</li> <li>Worked examples</li> <li>Extended answers</li> <li>Self, peer &amp; teacher assessed work</li> <li>Quizzing</li> </ul>	<p><b>This subject supports students' reading and literacy through...</b></p> <ul style="list-style-type: none"> <li>Emphasis on the correct use of subject specific vocabulary</li> <li>The development of extended writing</li> <li>Reading articles about familiar and unfamiliar scientific topics</li> <li>Summarising material that has been read</li> </ul>	<p><b>This subject supports students' numeracy through...</b></p> <ul style="list-style-type: none"> <li>Using mathematical skills to process data e.g. calculating means and rates of reaction</li> <li>Plotting &amp; interpreting graphs including determining slope and intercept</li> <li>Using &amp; rearranging equations</li> <li>Using angular measurement</li> <li>Calculating area, surface area, volume</li> </ul>	<p><b>This subject promotes the following revision strategies as the most effective means of retaining content...</b></p> <ul style="list-style-type: none"> <li>Flash cards</li> <li>Mind maps</li> <li>Look, say, cover, write, check</li> <li>Practising past exam questions</li> </ul>	<p><b>Opportunities for exploring this subject further are available through ...</b></p> <ul style="list-style-type: none"> <li>STEM activities</li> <li>Science club</li> <li>Recommended websites</li> <li>Science in the News</li> <li>Biology Twitter feed</li> </ul>	
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