

<p><b>Overview of the year:</b> This year students will continue to build on the knowledge from previous years, by continuing to study topics relating to the three Big Ideas in each Science.</p> <table border="1"> <tr> <td><b>Biology Big Ideas</b></td> <td><b>Chemistry Big Ideas</b></td> <td><b>Physics Big Ideas</b></td> </tr> <tr> <td><b>B1</b> Cells and cellular processes</td> <td><b>C1</b> Particles and Substances</td> <td><b>P1</b> Forces, Fields and Space</td> </tr> <tr> <td><b>B2</b> Biological systems for life</td> <td><b>C2</b> Chemical Changes</td> <td><b>P2</b> Energy and Waves</td> </tr> <tr> <td><b>B3</b> Organisms, interactions with the environment</td> <td><b>C3</b> Earth and its atmosphere</td> <td><b>P3</b> Matter and Materials</td> </tr> </table> <p>There is a stronger emphasis on mathematical skills in Science in year 9 than in previous years.</p>			<b>Biology Big Ideas</b>	<b>Chemistry Big Ideas</b>	<b>Physics Big Ideas</b>	<b>B1</b> Cells and cellular processes	<b>C1</b> Particles and Substances	<b>P1</b> Forces, Fields and Space	<b>B2</b> Biological systems for life	<b>C2</b> Chemical Changes	<b>P2</b> Energy and Waves	<b>B3</b> Organisms, interactions with the environment	<b>C3</b> Earth and its atmosphere	<b>P3</b> Matter and Materials	<p><b>Ways to consolidate and extend your learning in Science:</b> Keep up to date with the latest discoveries and improve your scientific literacy by regularly reading articles from <a href="http://www.sciencenewsforstudents.org">www.sciencenewsforstudents.org</a>. There are also Science books to borrow from the school reading rooms. Watch scientific documentaries – there are loads on BBC iPlayer as well as on TV channels such as BBC 1 and Channel 4. Visit museums and scientific centres. Particularly useful places to visit (all with <b>free entry</b>) are; The Science Museum, National History Museum, Wellcome Collection, Faraday Museum, Anaesthesia Heritage Centre, Kirkaldy Testing Museum, and Horniman Museum.</p>
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Half Term	Unit title	Knowledge	Skills	Assessment
1	Forces and Motion calculations ( <b>P1</b> ) Moving by Forces ( <b>P1</b> ) Floating and Sinking ( <b>P3</b> )	Equation triangles Forces and moving, relative motion Density, floating and sinking	Rearranging equations Using key words to write explanations	Test at end of half term (October)
2	Atoms and Bonding ( <b>C1</b> ) Reproduction ( <b>B2</b> )	Atoms, subatomic particles, types of bonding Sexual reproduction and contraception	Using diagrams to represent atoms	Test at end of half term (December)
3	Energy ( <b>P2</b> ) Heating and Cooling ( <b>P2</b> ) Acids and alkalis ( <b>C1/C2</b> ) Separation ( <b>C1</b> )	Energy calculations Thermal energy and transferring heat Chemical hazards Acids and alkalis Separating substances experiments	Using prefixes Accuracy and precision Evaluating risks	Test at end of half term (February)
4	Inheritance and Evolution ( <b>B3</b> )	Heredity and genetic information Structure and function of genome Changes in species and evolution	Understanding the scientific method Hypotheses and theories	Test at end of half term (March)
5	Space ( <b>P1</b> ) Electric Circuits ( <b>P2/P3</b> ) Conservation of Mass ( <b>C2</b> )	Days, seasons, the stars, the solar system Types of circuits and circuit calculations Mass in chemical reactions	Random and systematic errors	Test at end of half term (May)
6	Groups in Periodic Table ( <b>C1</b> ) Classification ( <b>B3</b> ) Biodiversity ( <b>B3</b> )	Comparing periodic table groups Identifying and classifying organisms. Food chains and food webs	Identifying patterns Using flow charts	End of year exam on all topics (June/July)