


Year 9 Science Curriculum Plan

	Key concept/ Key question	Overview of the unit	Assessment	Cross Curricular Skills	Suggested reading material and websites:
Biomimicry	<p>What is biomimicry?</p> <p>How do scientists develop ideas through biomimicry?</p> <p>What examples are there?</p> <p>What might happen in the future?</p>	<p>Transition unit: Aim to introduce some key KS4 concepts whilst enthusing students about content.</p> <p>Topics include: Forces in flight, development of the microscope and hydrophobic surfaces.</p>	<p>Assessment is based around end of topic tests – typically around 55 min. at the end of each unit.</p> <p>These tests contain a mixture of recall and application questions based on the current topic.</p> <p>Towards the end of the year students will sit papers in biology, chemistry and physics. This is to begin to prepare students for the linear exam based terminal assessment they will encounter at GCSE.</p>	<p>Literacy: Extracting information from research articles. Scientific vocabulary.</p> <p>Numeracy: Rearranging equations, Working with scale, converting units.</p> <p>Thinking Skills: Role of creativity and imagination in linking observations from nature into practical applications</p>	<p>The biomimicry unit is developed by the AQA exam board adapted from http://www.aqa.org.uk/resources/science/gcse/teach/six-week-teaching-pack-biomimicry</p> <p>GCSE</p> <p>All students have access to Kerboodle which contains a digital copy of the biology, chemistry and physics textbooks used at KS4</p>  <p>https://www.kerboodle.com/users/login</p> <p>A number of KS4 revision guides and student workbooks are available such as those from CPG and these can be helpful in supporting student learning. As</p>

<p>ALL WORK FROM OCT HALF TERM ONWARDS COVERS GCSE CONTENT – THIS WILL BE RECAPPED DURING Y10/Y11. THE FOCUS WILL BE ON THE KEY FUNDAMENTAL TOPICS. TRIPLE SPECIFIC MATERIAL WILL NOT BE COVERED IN Y9</p>			<p>Working grades will be reported as a running average showing how students have been performing in all assessments thus far.</p>	<p>this is a new specification many resources are still being developed.</p> <p>https://www.cgpbooks.co.uk/</p> <p>Useful websites to support learning.</p> <p>BBC KS4 science</p>
<p>Chemistry 1</p>	<p>Atoms and molecules</p>	<p>Structure of the Atom.</p> <p>Subatomic particles and electronic configurations. Writing chemical equations (introduction).</p> <p>Molecules, compounds and ions. Separation techniques including chromatography, distillation and filtration.</p>		

<p>Biology 1</p>	<p>Cell structure and transport.</p>	<p>Recap of basic animal and plant cell structure.</p> <p>Cell organelles.</p> <p>Prokaryotic and Eukaryotic cells.</p> <p>Specialist cells.</p> <p>Scale and the role of the microscope in visualising cells.</p> <p>Diffusion, osmosis and active transport.</p>		<p>Literacy: Complex subject specific vocabulary.</p> <p>Numeracy: Magnification and scale. Conversion of units. Rearranging magnification equation. Scale</p> <p>Thinking Skills: Models to explain diffusion, osmosis and active transport.</p>	
<p>Physics 1</p>	<p>What is energy? How can we model how energy behaves and quantify energy mathematically?</p>	<p>The energy store and energy transfer model.</p> <p>Calculation of energy stores (potential, kinetic, elastic).</p> <p>Efficiency of energy transfer and power.</p>		<p>Literacy: Extracting mathematical information from written texts – selecting appropriate equations.</p> <p>Numeracy: Range of calculations to learn and apply. Conversion of units.</p> <p>Thinking Skills: How scientists use abstract models.</p>	

<p>Chemistry 2</p>	<p>What is the periodic table – how was it discovered?</p> <p>What are the properties of groups in the periodic table?</p>	<p>Development of ideas behind the periodic table.</p> <p>The periodic table and electronic structure.</p> <p>Group 1 and Group 7 in the periodic table.</p> <p>Trends in the periodic table.</p>		<p>Literacy: Studying historical accounts about the development of the periodic table.</p> <p>Numeracy: Melting and boiling point data. Positive and negative numbers.</p> <p>Thinking Skills: Using logic to predict properties of elements based on their position in the periodic table.</p>	
<p>Biology 2</p>	<p>How do cells grow and divide?</p> <p>How do cells become specialised?</p>	<p>Cell cycle and mitosis.</p> <p>How cells grow and differentiate – animals and plants.</p> <p>Stem cells – role in development potential involvement in therapeutic cloning.</p>		<p>Literacy: Reading articles and assessing strength of science, looking for bias and validity in research.</p> <p>Thinking Skills: Ethical issues – stem cells.</p>	



<p>Physics 2</p>	<p>How is thermal energy transferred?</p> <p>Energy transfer by conduction and radiation.</p> <p>Insulation of homes as an example of controlling heat transfer.</p> <p>What sources of energy are used to generate electricity?</p>	<p>Energy transfer by conduction and radiation.</p> <p>Insulation of homes as an example of controlling heat transfer.</p> <p>Renewable and non-renewable energy resources.</p> <p>Trends in energy usage.</p> <p>Issues underlying all energy choices.</p>		<p>Literacy: Extracting mathematical information from written texts – selecting appropriate equations.</p> <p>Numeracy: Range of calculations to learn and apply. Conversion of units.</p> <p>Thinking Skills: Study of information on energy supply and demand. Considering bias in information (oil industry/environmental groups).</p>	
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