





## Curriculum Overview for Science Year 8

<p><b>Half Term 5 : IOL12 (photosynthesis) , BBI5 (Inheritance) , IOI13 (Interdependence)</b></p> <p><b>Substantive Knowledge:</b></p>		<p>Reading of key terms from the unit</p>
<ul style="list-style-type: none"> <li>▪ The reactants in, and products of photosynthesis and a word summary of photosynthesis</li> <li>▪ The dependence of almost all life on earth on the ability of photosynthesis organisms such as algae to use photosynthesis to build organic molecules that are an essential energy store and maintain levels of oxygen and carbon dioxide</li> <li>▪ The adaptations of leaves for photosynthesis.</li> <li>▪ The role of stomata in gas exchange for plants</li> <li>▪ Plants making carbohydrates in their leaves by photosynthesis and gains mineral nutrients and water from their roots.</li> <li>▪ Heredity as the process by which genetic information is transmitted from one generation to the next.</li> <li>▪ A simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model.</li> <li>▪ Differences between species.</li> </ul>		<p>Stomata Xylem Guard cells Endothermic Genome Chromosome Gene DNA Natural Selection Evolution Biodiversity Conservation Interdependence Population Community Ecosystem Species Food Web Decomposer Food Security Bioaccumulation</p>
<ul style="list-style-type: none"> <li>▪ The variation between species being continuous of discontinuous, to include measurement and graphical representation of variation.</li> </ul>		<p>End of unit assessment</p>
<ul style="list-style-type: none"> <li>▪ The variation between species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection.</li> <li>▪ Changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction.</li> </ul>		<p>Homework booklet that is weekly set which includes revision cards and exam questions</p>







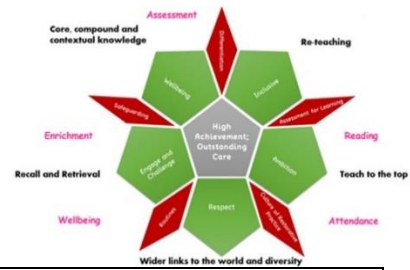
- The importance of maintaining biodiversity and the use of gene banks to preserve hereditary material.
- The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops
- Differences between species
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- the importance of plant reproduction through insect pollination in human food security
- how organisms affect, and are affected by, their environment, including the accumulation of toxic material
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**Disciplinary Knowledge:**

- Identify anomalous results and suggest ways to reduce their effect
- Providing a straightforward explanation for differences in repeated values
- Suggesting how uncertainty can be reduced
- Making estimations
  
- Identify simple ethical or moral issues linked to scientific or technological developments.
- identify data as categoric, discrete or continuous.
- Use appropriate sampling techniques/ and or scientific procedures to collect data
- Construct a frequency table, identifying appropriate headings/values
- Construct and interpret histograms
- plot two variables from experimental data
- Identify scientific evidence that is being used to support or refute ideas or arguments.



<ul style="list-style-type: none"> <li>Identify simple ethical or moral issues linked to scientific or technological developments</li> <li>Understand and use the symbols &lt;&lt; &gt;&gt;</li> </ul>		
<p><b>Half Term 6: BOM9 (periodic table), CR5 (The reactivity series)</b></p> <p><b>Substantive Knowledge:</b></p>		<p>Reading of key terms from the unit</p>
<ul style="list-style-type: none"> <li>The principles underpinning the Mendeleev periodic table.</li> <li>The periodic table; periods and groups; metals and non-metals</li> <li>How patterns in reactions can be predicted with reference to the periodic table</li> <li>The properties of metals and non-metals</li> <li>The chemical properties of metal and non-metal oxides with respect of acidity</li> <li>The order of metals and carbon in the reactivity series</li> <li>The use of carbon in obtaining metals from metal oxides</li> <li>What catalysts do</li> <li>Properties of ceramics, polymers and composites (qualitative)</li> <li>Introduction to symbol equations</li> </ul>		<p>Ductile Malleable Sonorous Groups Periods Periodicity Atomic Weight Toxic Inert Sub-atomic Proton Extraction Catalyst Polymer Ceramic Composite</p>
		<p>End of unit assessment</p>
<p><b>Disciplinary Knowledge:</b></p> <ul style="list-style-type: none"> <li>Draw straight forward conclusions from data presented</li> <li>Identify scientific evidence that is being used to support or refute ideas or arguments.</li> <li>Formulate a prediction based on learnt science</li> </ul>		<p>Homework booklet that is weekly set which includes revision cards and exam questions</p>



<ul style="list-style-type: none"> <li>• Use appropriate sampling techniques/ and or scientific procedures to collect data</li> <li>• Recognise the importance of new evidence on the ideas/laws/theories of science and their real world application (WS)</li> <li>• Construct scientific plans to make observations, test hypotheses or explore phenomena.</li> <li>• Use straight forward scientific evidence to answer questions, or to support their findings.</li> <li>• Draw straight forward conclusions from data presented.</li> <li>• Give specific examples of scientific or technological development, stating the purpose.</li> <li>• Formulate a prediction based on learnt science.</li> <li>• Use ratios.</li> </ul>		
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