

## Subject – Science

Autumn Term	Knowledge & Understanding			Literacy Skills  Opportunities for developing literacy skills	Employability Skills [if any]	Assessment Opportunities
	Composites	Components  [includes understanding of KEY concepts & subject specific vocab]	Formal Retrieval [if any]			
HT1	Plants	<ul style="list-style-type: none"> <li>Photosynthesis</li> <li>Factors that affect Photosynthesis</li> <li>Core Practical – Light Intensity and Photosynthesis</li> <li>Transpiration &amp; Translocation.</li> <li>Absorbing Water and Minerals</li> </ul>	<ul style="list-style-type: none"> <li>KS3 Plant growth and Reproduction</li> <li>Photosynthesis review</li> <li>Trends in data</li> </ul>	<p><b>Extended writing focus:</b></p> <ul style="list-style-type: none"> <li>Evaluation – how to improve results / modify investigations – apply knowledge of CP to elodea practical.</li> <li>Explain how mineral ions are transported in plants. Explain how sucrose is transported to storage organs.</li> </ul>	<ul style="list-style-type: none"> <li>Ecologist</li> <li>Botanist</li> </ul>	
	Calculations involving masses	<ul style="list-style-type: none"> <li>Relative Formula Mass</li> <li>Empirical Formula</li> <li>Conservation of mass</li> <li>Moles</li> </ul>	<ul style="list-style-type: none"> <li>Percentage change</li> <li>Extracting Data from Periodic Table</li> </ul>	<ul style="list-style-type: none"> <li>Key terminology – explicit instruction</li> </ul>	<ul style="list-style-type: none"> <li>Chemical Technician</li> <li>Research Chemist</li> </ul>	
	Electrolytic Processes	<ul style="list-style-type: none"> <li>Electrolysis</li> <li>Core Practical – Electrolysis of Copper Sulphate Solution</li> <li>Products from Electrolysis</li> </ul>	<ul style="list-style-type: none"> <li>Ionic compounds</li> <li>Ions</li> <li>Solubility</li> </ul>	<ul style="list-style-type: none"> <li>Key terminology – explicit instruction</li> </ul>	<ul style="list-style-type: none"> <li>Electrical Engineer</li> </ul>	
	Obtaining and Using Metals	<ul style="list-style-type: none"> <li>Reactivity</li> <li>Ores</li> <li>Oxidation and Reduction</li> <li>Life Cycle and Assessment &amp; Recycling. (homestudy)</li> </ul>	<ul style="list-style-type: none"> <li>Y9 review: The Reactivity series</li> <li>Electrolysis</li> </ul>	<ul style="list-style-type: none"> <li>Collaboration – the future of recycling metals</li> <li>Evaluating biological and non-biological</li> </ul>	<ul style="list-style-type: none"> <li>Mining</li> <li>Mineral extraction</li> <li>metallurgist</li> </ul>	

				methods of metal extraction.		
	Dynamic Equilibrium	<ul style="list-style-type: none"> <li>Reversible reactions</li> <li>Dynamic Equilibrium</li> </ul>	<ul style="list-style-type: none"> <li>Electrolysis (Half equations HA)</li> </ul>	<ul style="list-style-type: none"> <li>Explaining equilibrium shifts</li> </ul>	<ul style="list-style-type: none"> <li>Mining</li> <li>Mineral extraction</li> <li>metallurgist</li> </ul>	
	Forces & Motion cont'd from Y10	<ul style="list-style-type: none"> <li>Newton's Third Law</li> <li>Momentum</li> <li>Stopping Distances</li> <li>Crash Hazards.</li> </ul>	<ul style="list-style-type: none"> <li>Resultant Forces</li> <li>Newton's Laws</li> </ul>	<ul style="list-style-type: none"> <li>Extended Writing</li> <li>Road Safety</li> </ul>	<ul style="list-style-type: none"> <li>Engineers – Car design</li> <li>Crash investigators</li> </ul>	<b>Assessment Point 1</b> B6 C9 P6
	Energy – Forces	<ul style="list-style-type: none"> <li>Work and Power</li> <li>Objects Affecting Each Other</li> <li>Vector diagrams</li> </ul>	<ul style="list-style-type: none"> <li>Forces &amp; Motion</li> </ul>			Feedback Lesson
<b>HT2</b>	Groups in The Periodic Table	<ul style="list-style-type: none"> <li>Group 1</li> <li>Group 7</li> <li>Halogen Reactivity</li> <li>Group 0 (Home study)</li> </ul>	<ul style="list-style-type: none"> <li>KS3 Review – Metals &amp; their Uses</li> <li>Dynamic Equilibrium</li> </ul>	<ul style="list-style-type: none"> <li>Scientific Research and presentations – Group 7</li> <li>Group 1 extended writing</li> <li>.</li> </ul>	<ul style="list-style-type: none"> <li>Making chemical products - Bleaches, Soaps, salts, signs, toothpaste</li> <li>.</li> </ul>	
	Homeostasis (& Animal Coordination)	<ul style="list-style-type: none"> <li>Hormones</li> <li>Hormonal control of metabolic Rate</li> <li>The Menstrual Cycle</li> <li>Hormones and the Menstrual Cycle</li> <li>Control of Blood Glucose,</li> <li>Type 2 Diabetes.</li> </ul>	<ul style="list-style-type: none"> <li>KS3 Review – Animal Reproduction</li> <li>Food &amp; Nutrition</li> <li>Drugs &amp; Diseases</li> <li>B6 Plants</li> </ul>	<ul style="list-style-type: none"> <li>Extended writing Diabetes type 2</li> </ul>	<ul style="list-style-type: none"> <li>Endocrinologist</li> <li>Midwifery</li> <li>Reproductive assistance clinic</li> <li>IVF procedures</li> <li>Phlebotomy technician</li> </ul>	

**Year 11 Curriculum Overview [2022-2023]**  
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Spring Term	Knowledge & Understanding			Literacy Skills  Opportunities for developing literacy skills	Employability Skills [if any]	Assessment Opportunities
	Composites	Components  [includes understanding of KEY concepts & subject specific vocab]	Formal Retrieval [if any]			
<b>HT3</b>	<ul style="list-style-type: none"> <li>Electricity and Circuits</li> </ul>	<ul style="list-style-type: none"> <li>Electric Circuits</li> <li>Current and Potential Difference</li> <li>Current, charge and Energy</li> <li>Resistance</li> <li>More about Resistance,</li> <li>CP- Investigating Resistance</li> <li>Transferring Energy</li> <li>Power</li> <li>Transferring Energy by Electricity</li> <li>Electrical Safety.</li> </ul>	<ul style="list-style-type: none"> <li>KS3 Electricity</li> <li>Energy</li> <li>Work done</li> <li>Power</li> </ul>	<ul style="list-style-type: none"> <li>Presenting circuit diagrams &amp; discussing limitations of resistance core practical.</li> </ul>	<ul style="list-style-type: none"> <li>Apprenticeship careers – Electrician, at the National Grid (Cadent).</li> </ul>	Review & Feedback on Year 10 Mock Assessment.  )
	<ul style="list-style-type: none"> <li>Rates of Reaction</li> </ul>	<ul style="list-style-type: none"> <li>Rates of Reaction,</li> <li>Factors affecting Rates of Reaction,</li> <li>Core Practical – Investigating Reaction Rates part 1</li> <li>Investigating rates Part 2</li> <li>Catalysts and Activation Energy</li> </ul>	<ul style="list-style-type: none"> <li>KS3 Review – Reactivity</li> <li>Groups</li> </ul>	<ul style="list-style-type: none"> <li>Oral / written explanations - how different factors affect reaction rate.</li> </ul>	<ul style="list-style-type: none"> <li>Cool Jobs – explosive pursuits</li> <li>Medicinal Chemist</li> </ul>	
	<ul style="list-style-type: none"> <li>The Particle Mode</li> </ul>	<ul style="list-style-type: none"> <li>Particles and Density</li> <li>Investigating Densities</li> <li>Energy and Changes of State</li> <li>Energy Calculations</li> <li>Melting Ice Investigation</li> </ul>	<ul style="list-style-type: none"> <li>Magnetism &amp; its Effects</li> <li>KS3 Review – Fluids</li> </ul>	<ul style="list-style-type: none"> <li>Devising experiments relating to Core Practicals</li> <li>Sentence structure</li> </ul>	<ul style="list-style-type: none"> <li>Glaciologists</li> <li>Heating systems designer</li> <li>ISS research</li> </ul>	

		<ul style="list-style-type: none"> <li>Investigating the specific heat capacity of water</li> <li>Gas Temperature and Pressure.</li> </ul>				
	<ul style="list-style-type: none"> <li>Energy Changes In Reactions</li> </ul>	<ul style="list-style-type: none"> <li>Exothermic and Endothermic Reactions,</li> <li>Energy Changes in Reactions.</li> <li>Bond Energies</li> </ul>	<ul style="list-style-type: none"> <li>KS3 Review Reactivity</li> <li>Rates of Reaction</li> <li>Metal extraction</li> </ul>	Written explanations of exothermic and endothermic reactions	<ul style="list-style-type: none"> <li>Ammunition technician</li> <li>Manufacturer of products involving chemical changes (heat / ice packs)</li> </ul>	
HT4	Animal Exchange & Transport	<ul style="list-style-type: none"> <li>Efficient transport and Exchange systems</li> <li>Circulatory System,</li> <li>Heart,</li> <li>Cellular Respiration</li> <li>Core Practical -Respiration Rates</li> </ul>	<ul style="list-style-type: none"> <li>KS3 Review - Breathing &amp; Respiration</li> <li>Drugs and Diseases</li> <li>Homeostasis</li> </ul>	<p>Oral explanations</p> <ul style="list-style-type: none"> <li>Describing route of a blood cell</li> </ul> <p>Comparing adaptations of blood vessels</p>	<ul style="list-style-type: none"> <li>Biomedical Scientist</li> <li>Heart surgeon</li> <li>Cheese or wine / beer production</li> <li>Astronaut</li> </ul>	
	Fuels	<ul style="list-style-type: none"> <li>Hydrocarbons in Crude oil and Natural Gas,</li> <li>Fractional Distillation of Crude Oil,</li> <li>The Alkane Homologous Series,</li> <li>Complete and Incomplete Combustion,</li> <li>Combustible Fuels and Pollution,</li> <li>Breaking down Hydrocarbons.</li> </ul>	<ul style="list-style-type: none"> <li>KS3 review – Combustion &amp; the Atmosphere</li> <li>Energy Changes</li> </ul>	Compare and contrast -Fractional Distillation with Cracking	<ul style="list-style-type: none"> <li>Meteorologists</li> <li>Optoelectronic Field Engineer</li> </ul>	<p><b>Assessment point 3</b></p> <p>Class Assessment Paper 2 Content</p>
	Magnetism & its Effects	<ul style="list-style-type: none"> <li>Magnets and Magnetic Fields</li> <li>Electromagnetism</li> <li>Magnetic Forces</li> <li>Transformers</li> <li>Transformers and Energy.</li> </ul>	<ul style="list-style-type: none"> <li>KS3 Review – Electricity, Forcefields and Electromagnets</li> <li>Electricity &amp; Circuits</li> </ul>	<p>Presenting work on the Reflex Arc</p> <ul style="list-style-type: none"> <li>Extended writing – specialised cells, synapses, reflex arc,</li> </ul>	<ul style="list-style-type: none"> <li>Electrical Engineer</li> <li>Electrician</li> </ul>	<p><b>Assessment Point 4</b></p> <p>Mock Examination Paper 2 in Biology, Chemistry, Physics</p>

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Summer Term	Knowledge & Understanding			Literacy Skills Opportunities for developing literacy skills	Employability Skills [if any]	Assessment Opportunities
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HT5	Ecosystems	<ul style="list-style-type: none"> <li>Ecosystems,</li> <li>Abiotic Factors and Communities,</li> <li>WS Core Practical – Quadrats and Transects,</li> <li>Biotic Factors and Communities</li> <li>Parasitism and Mutualism</li> <li>Biodiversity</li> <li>Material Cycles</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>KS3 Review = Ecosystems, Plant Growth</li> <li>Animal Exchange and Transport</li> </ul>	<ul style="list-style-type: none"> <li>Key terminology focus for cycles and Belt transects</li> </ul>	<ul style="list-style-type: none"> <li>Careers involving pollution control</li> <li>Conservationist Organic Farmers</li> </ul>	
	Earth & Atmospheric Science	<ul style="list-style-type: none"> <li>The Atmosphere (Past &amp; Present)</li> <li>Climate Change.</li> </ul>	<ul style="list-style-type: none"> <li>Fuels</li> <li>KS3 review – Combustion &amp; the Atmosphere</li> </ul>	<ul style="list-style-type: none"> <li>Extended writing:</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Meteorologists</li> <li>Geologist</li> </ul>	
	Forces & Matter	<ul style="list-style-type: none"> <li>Bending and Stretching</li> <li>Springs</li> <li>Extension and Energy Transfers.</li> </ul>	<ul style="list-style-type: none"> <li>The Particle Model</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating processes</li> </ul>	<ul style="list-style-type: none"> <li>Mechanics Engineer</li> <li>Pole Vaulter</li> </ul>	

			<ul style="list-style-type: none"> <li>• KS3 Review – Forces, Forcefields</li> </ul>			
	GCSE Preparation	<ul style="list-style-type: none"> <li>• Biology</li> <li>• Chemistry</li> <li>• Physics</li> </ul>			<ul style="list-style-type: none"> <li>• N/A</li> </ul>	GCSE Examinations
	GCSE Examinations	<ul style="list-style-type: none"> <li>• Biology</li> <li>• Chemistry</li> <li>• Physics</li> </ul>			<ul style="list-style-type: none"> <li>• N/A</li> </ul>	GCSE Examinations