

Curriculum Sequencing Grid: **Trilogy Combined Science**

Year 10	Term 1	Term 2	Term 3
Unit (Tablet in 39 week plan)	<ul style="list-style-type: none"> <li>B4.1 – Cells</li> <li>B4.2 – Organisation</li> <li>C5.2 - Bonding</li> <li>P6.2 - Electricity</li> </ul>	<ul style="list-style-type: none"> <li>C5.3 – Quantitative Chemistry</li> <li>P6.5 – Forces</li> <li>P6.3 – Particles of Matter</li> <li>C5.4 – Chemical Changes</li> <li>C5.5 – Energy Changes</li> </ul>	<ul style="list-style-type: none"> <li>C5.6 – Rates of Reaction</li> </ul>
<b>Key Retainable Knowledge (Required for Y11/13)</b> <ul style="list-style-type: none"> <li>What... How.... Why....</li> </ul>	<ul style="list-style-type: none"> <li>Cellular structure and organelles</li> <li>Mitosis</li> <li>Movement of substances</li> <li>Adaptations of cells</li> <li>Cells, Tissues and Organs</li> <li>Respiration and photosynthesis</li> <li>Enzymes</li> <li>Bonding types and properties</li> <li>Atomic structure</li> <li>Polymers</li> <li>Use of symbols</li> <li>Circuit diagrams</li> <li>Generating electricity, renewable/non-renewable resources</li> <li>Evaluating skills</li> <li>Required practical skills</li> </ul>	<ul style="list-style-type: none"> <li>Mathematical skills and calculations</li> <li>Remembering and application of formulae/units</li> <li>Relative formula mass</li> <li>Graph skills</li> <li>Distance, speed and velocity</li> <li>Required practical skills</li> <li>Specific heat capacity</li> <li>Particle motion in gases</li> <li>Particle theory</li> <li>Word and symbol equations</li> <li>Reactions and products</li> <li>Writing and reading formulae</li> <li>Everyday reactions</li> </ul>	<ul style="list-style-type: none"> <li>Graph analysis</li> <li>Particle theory</li> </ul>

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<b>Key Technical Vocabulary (To be modelled and deliberately practiced in context.)</b>	<ul style="list-style-type: none"> <li>• Organelles, cell, microscope, magnification, adaptation, diffusion, osmosis</li> <li>• Ionic, Covalent, Metallic, Lattice, Monomer, Polymer</li> <li>• Symbol, component, current, resistance, potential difference, renewable and non-renewable</li> </ul>	<ul style="list-style-type: none"> <li>• Moles, Relative formula mass, yield</li> <li>• Force, Newton, gravity, mass, weight, distance, speed, velocity, vector, scalar, extension, resultant force, <b>pressure</b></li> <li>• Specific heat capacity, gases, density, volume, mass</li> <li>• Reaction, Reactants, Products, Reversible, Equilibrium</li> <li>• Neutralisation, displacement, exothermic, endothermic</li> </ul>	<ul style="list-style-type: none"> <li>• Temperature, Surface area, catalyst, concentration, equilibrium, rate</li> </ul>
<b>Opportunities for Reading</b>	<ul style="list-style-type: none"> <li>• Newly discovered enzymes in nature</li> <li>• Research Iceland as a country for nuclear energy</li> <li>• Research regions that only use renewable energy</li> </ul>	<ul style="list-style-type: none"> <li>• Researching different types of engineering jobs and how these links to different parts of this topic</li> <li>• Newton's Laws</li> </ul>	<ul style="list-style-type: none"> <li>• Uses and dangers of EMS</li> </ul>
<b>Developing Cultural Capital (exposure to very best- essential knowledge and skills of educated citizens – appreciation of human creativity and achievement.)</b>	<ul style="list-style-type: none"> <li>• Job Links = pathologist, histologist, electrical engineering, telecommunications, energy</li> </ul>	<ul style="list-style-type: none"> <li>• Job Links = chemical analyst, chemical engineering, mechanical engineering</li> <li>• Appreciation of human creativity and achievement = Newton, Hooke, Avogadro's discoveries</li> </ul>	<ul style="list-style-type: none"> <li>• Job Links =chemical engineer</li> </ul>

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<b>Cross Curricular Links (Authentic Connections)</b>	<ul style="list-style-type: none"> <li>Maths – formula: application of formula and units, rearranging formula</li> <li>Maths – line graphs: drawing and interpreting</li> </ul>	<ul style="list-style-type: none"> <li>Maths – formula: application of formula and units, rearranging formula</li> <li>Maths – line graphs: drawing and interpreting</li> </ul>	<ul style="list-style-type: none"> <li>Maths – formula: application of formula and units, rearranging formula</li> <li>Maths – line graphs: drawing and interpreting</li> </ul>
<b>Key Assessment</b>	<ul style="list-style-type: none"> <li>End of Unit Tests</li> </ul>	<ul style="list-style-type: none"> <li>End of Unit Tests</li> </ul>	<ul style="list-style-type: none"> <li>End of Unit Tests</li> <li>Y10 Mock</li> </ul>
<b>How Science Work Skills in Science</b>	<ul style="list-style-type: none"> <li>These skills will continuously throughout the year, some or all of which will be covered within each topic               <ul style="list-style-type: none"> <li>Variables</li> <li>Equipment</li> <li>Risk assessments</li> <li>Writing a method</li> <li>Presenting data (bar charts and line graphs)</li> <li>Interpreting data</li> <li>Types of error (measuring, systematic, random)</li> <li>Equations, calculations and units</li> <li>Evaluating</li> <li>Models</li> </ul> </li> </ul>		

<b>Year 11</b>	<b>Term 1</b>	<b>Term 2</b>	<b>Term 3</b>
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<b>Unit</b> (Tablet in 39 week plan)	<ul style="list-style-type: none"> <li>• C5.8 – Chemical Analysis</li> <li>• P6.6 – Waves</li> <li>• C5.10 – Resources</li> <li>• C5.6 – Rates of Reaction</li> </ul>	<ul style="list-style-type: none"> <li>• B4.7 – Ecology</li> <li>• P6.7 – Magnets and Electromagnets</li> </ul>	<ul style="list-style-type: none"> <li>• Revision</li> </ul>
<b>Key Retainable Knowledge</b> (Required for Y11/13) <ul style="list-style-type: none"> <li>• What... How.... Why....</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical formulae</li> <li>• Common gases</li> <li>• Electromagnetic waves</li> <li>• Remembering and application of formulae</li> <li>• Required practical skills</li> <li>• Graph analysis</li> <li>• Particle theory</li> </ul>	<ul style="list-style-type: none"> <li>• Forces in electromagnets</li> <li>• Motor effect</li> <li>• Transformers</li> <li>• Abiotic</li> <li>• Biotic</li> </ul>	<ul style="list-style-type: none"> <li>• EVERYTHING!</li> </ul>
<b>Key Technical Vocabulary</b> (To be modelled and deliberately practiced in context.)	<ul style="list-style-type: none"> <li>• chromatography, spectroscopy</li> <li>• Longitudinal, transverse, wavelength, frequency, wave speed, peak, trough, amplitude, electromagnetic spectrum, infrared radiation</li> <li>• Temperature, Surface area, catalyst, concentration, equilibrium, rate</li> </ul>	<ul style="list-style-type: none"> <li>• Quadrat, Transect, Variation, Population, Ecosystem, Interdependence,</li> <li>• Attract, repel, electromagnet, core, field, solenoid, Fleming's Left Hand Rule, motor effect</li> </ul>	
<b>Opportunities for Reading</b>	<ul style="list-style-type: none"> <li>• Hydrogen fuel cell cars</li> </ul>	<ul style="list-style-type: none"> <li>• Conservation of snow leopard, Successful breeding of Giant Pandas in Edinburgh zoo</li> <li>• Professor Brian Cox</li> </ul>	

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<b>Developing Cultural Capital</b> (exposure to very best- essential knowledge and skills of educated citizens – appreciation of human creativity and achievement.)	<ul style="list-style-type: none"> <li>• Job Links = chemical analyst, telecommunications, communications</li> </ul>	<ul style="list-style-type: none"> <li>• Job Links = ecologist, conservationist, environmental engineering, meteorologist, oil engineer, geologist, nuclear scientist, astrophysicist, energy, telecommunications, National Grid</li> <li>• Appreciation of human creativity and achievement = William Sturgeon, Faraday, Doppler</li> </ul>	
<b>Cross Curricular Links</b> (Authentic Connections)	<ul style="list-style-type: none"> <li>• Maths – formula: application of formula and units, rearranging formula</li> <li>• Maths – line graphs: drawing and interpreting</li> </ul>	<ul style="list-style-type: none"> <li>• Maths – formula: application of formula and units, rearranging formula</li> <li>• Maths – line graphs: drawing and interpreting</li> </ul>	
Key Assessment	<ul style="list-style-type: none"> <li>• End of Unit Tests</li> <li>• Paper 1 Y11 Mocks</li> </ul>	<ul style="list-style-type: none"> <li>• End of Unit Tests</li> <li>• Paper 2 Y11 Mocks</li> </ul>	<ul style="list-style-type: none"> <li>• Real Exams!!!</li> </ul>
<b>How Science Work Skills in Science</b>	<ul style="list-style-type: none"> <li>• These skills will continuously throughout the year, some or all of which will be covered within each topic               <ul style="list-style-type: none"> <li>○ Variables</li> <li>○ Equipment</li> <li>○ Risk assessments</li> <li>○ Writing a method</li> <li>○ Presenting data (bar charts and line graphs)</li> <li>○ Interpreting data</li> <li>○ Types of error (measuring, systematic, random)</li> <li>○ Equations, calculations and units</li> <li>○ Evaluating</li> </ul> </li> </ul>		

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	<ul style="list-style-type: none"><li>○ Models</li></ul>
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