



## Curriculum Plans – Key Stage 5 Chemistry

Please find below a detailed outline of the curriculum covered in Chemistry through Year 12.

### Year 12

Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7
<p><b>Unit 1 – Moles and Equations</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Mass of Atoms</li> <li>• Accurate <math>A_r</math></li> <li>• Amounts</li> <li>• Mole calculations</li> <li>• Formula and equations</li> <li>• Concentrations</li> <li>• Gas volumes</li> </ul> <p><b>Unit 2 – Atomic Structure</b></p> <ul style="list-style-type: none"> <li>• Elements and atoms</li> <li>• Inside the atom</li> <li>• Nucleons</li> <li>• Isotopes</li> <li>• Subatomic particles</li> </ul> <p><b>Unit 3 – Electrons in atoms</b></p> <ul style="list-style-type: none"> <li>• Electronic structure</li> <li>• Subshells and orbitals</li> <li>• Configurations</li> <li>• Patterns in ionization energy</li> </ul>	<p><b>Unit 4 – Chemical Bonding</b></p> <ul style="list-style-type: none"> <li>• Types of chemical bonds</li> <li>• Ionic bonds</li> <li>• Covalent bonds</li> <li>• Molecular shape</li> <li>• Metallic bonds</li> <li>• Intermolecular forces</li> <li>• H-bonding</li> <li>• Bonding &amp; physical properties</li> </ul> <p><b>Unit 5 – States of Matter</b></p> <ul style="list-style-type: none"> <li>• States of matter</li> <li>• Gaseous state</li> <li>• Liquid state</li> <li>• Solid state</li> <li>• Lattices</li> <li>• Carbon nanoparticles</li> <li>• Conserving materials</li> </ul> <p><b>Unit 6 – Enthalpy Changes</b></p> <ul style="list-style-type: none"> <li>• Enthalpy changes</li> <li>• Standard enthalpy</li> <li>• Measuring enthalpy</li> <li>• Hess's law</li> <li>• Different types of enthalpy changes and calculations</li> </ul>	<p><b>Unit 7 – Redox Reactions</b></p> <ul style="list-style-type: none"> <li>• Redox reactions</li> <li>• Redox electron transfer</li> <li>• Oxidation numbers</li> <li>• Naming compounds</li> <li>• Name to formula</li> <li>• Balancing equations</li> </ul> <p><b>Unit 8 – Equilibrium</b></p> <ul style="list-style-type: none"> <li>• Reversible reactions and equilibrium</li> <li>• Position of equilibrium</li> <li>• Expressions and <math>K_c</math></li> <li>• Gas reactions, <math>K_p</math></li> <li>• Industry</li> <li>• Acid-base equilibria</li> </ul> <p><b>Unit 9 – Rates of Reaction</b></p> <ul style="list-style-type: none"> <li>• Reaction kinetics</li> <li>• Effect of concentration</li> <li>• Effect of temp.</li> <li>• Catalysis</li> <li>• Enzymes</li> </ul> <p><b>Unit 10 – Periodicity</b></p> <ul style="list-style-type: none"> <li>• Structure of Periodic Table</li> <li>• Physical properties</li> <li>• Chemical properties</li> <li>• Oxides of period 3</li> <li>• Chlorides of period 3</li> </ul>	<p><b>Unit 11 – Group 2</b></p> <ul style="list-style-type: none"> <li>• Physical properties</li> <li>• Reactions</li> <li>• Thermal decomposition</li> <li>• Uses of Group 2 compounds</li> </ul> <p><b>Unit 12 – Group 17</b></p> <ul style="list-style-type: none"> <li>• Physical properties</li> <li>• Reactions</li> <li>• Reactions of halide ions</li> <li>• Disproportionation</li> <li>• Uses of halogens and their compounds</li> </ul> <p><b>Unit 13 – Nitrogen &amp; Sulphur</b></p> <ul style="list-style-type: none"> <li>• Nitrogen gas</li> <li>• Ammonia and ammonium compounds</li> <li>• Uses</li> <li>• Sulfur and its oxides</li> <li>• Sulfuric acid</li> </ul> <p><b>Unit 14 – Organic Chemistry</b></p> <ul style="list-style-type: none"> <li>• Representing organic molecules</li> <li>• Functional groups</li> <li>• Naming</li> <li>• Bonding</li> <li>• Structural isomerism</li> <li>• Stereoisomerism</li> <li>• Mechanisms</li> <li>• Types of organic reactions</li> </ul>	<p><b>Unit 15 – Hydrocarbons</b></p> <ul style="list-style-type: none"> <li>• Alkanes</li> <li>• Alkenes sources</li> <li>• Reactions of alkenes</li> </ul> <p><b>Unit 16 – Halogeno-alkanes</b></p> <ul style="list-style-type: none"> <li>• Nucleophilic substitution</li> <li>• Mechanisms</li> <li>• Elimination</li> <li>• Uses of halogenoalkanes</li> </ul> <p><b>Unit 17 – Alcohol &amp; Esters</b></p> <ul style="list-style-type: none"> <li>• Alcohols</li> <li>• Reactions of alcohols</li> <li>• Carboxylic acids</li> </ul> <p><b>Unit 18 – Carbonyl Compounds</b></p> <ul style="list-style-type: none"> <li>• Aldehydes &amp; ketones</li> <li>• Preparation</li> <li>• Reduction reactions</li> <li>• Nucleophilic addition</li> <li>• Testing for aldehydes &amp; ketones</li> <li>• Tri-iodomethane</li> <li>• IR</li> </ul> <p><b>Mock Exam</b></p>	<p>Revision Lessons</p> <p>AS Exam</p>	<p>Revision Lessons</p> <p>AS Exam</p>
End of Unit Assessment	End of Unit Assessment	End of Unit Assessment	End of Unit Assessment	End of Unit Assessment	End of Unit Assessment	End of Unit Assessment
		Data Average for Autumn Report		Data Average Spring Report		Data average
Autumn			Spring		Summer	



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