

## Year 12 Curriculum Grid

# CHEMISTRY

Year/term	Unit	Intent
<b>Overall</b>		<ul style="list-style-type: none"> <li>Develop knowledge base, mathematical and practical skills</li> <li>Enthuse students about chemical processes</li> </ul>
<b>Autumn</b>	Amount of Substances	<ul style="list-style-type: none"> <li>Complete calculations relating to moles, concentration, gases.</li> <li>Carry out titrations and the related calculations (RP)</li> </ul>
	Atomic Structure	<ul style="list-style-type: none"> <li>Describe the use of Mass Spectrometry</li> <li>Give the electron configurations of elements in spdf notation</li> </ul>
	Bonding	<ul style="list-style-type: none"> <li>Relate a compounds chemical and physical properties to the types of chemical bonds and intermolecular forces it has</li> <li>Determine the shapes of molecules and bond angles</li> </ul>
	Organic Chemistry	<ul style="list-style-type: none"> <li>Be able to name compounds using the IUPAC and Cahn-Ingold priority rules</li> </ul>
	Alkanes	<ul style="list-style-type: none"> <li>Write equations for the combustion and chlorination of alkanes</li> </ul>
<b>Spring</b>	Haloalkanes	<ul style="list-style-type: none"> <li>Draw reaction mechanisms for elimination and nucleophilic substitution reactions</li> <li>Use equations to show their effect on the ozone layer</li> </ul>
	Alkenes	<ul style="list-style-type: none"> <li>Relate the properties of alkenes to their structure</li> <li>Draw reaction mechanisms for alkenes</li> </ul>
	Alcohols	<ul style="list-style-type: none"> <li>Compare methods of alcohol production</li> <li>Carry out the oxidation of alcohols (RP) and the elimination reaction of alcohols (RP)</li> </ul>
	Energetics	<ul style="list-style-type: none"> <li>Determine the enthalpy change of a reaction (RP)</li> <li>Use Hess' law to do calculations and calculate bond enthalpies</li> </ul>
	Kinetics	<ul style="list-style-type: none"> <li>Explain the effect of temperature, pressure, concentration changes and catalysts on reaction rates (RP)</li> </ul>
	Equilibria	<ul style="list-style-type: none"> <li>Use Le Chatelier's principle to predict the effects of changes in temperature, pressure and concentration on the yield of a reversible reaction.</li> <li>Complete calculations using the equilibrium constant <math>K_c</math></li> </ul>
<b>Summer</b>	Period 3	<ul style="list-style-type: none"> <li>Explain the trends in properties of period 3 elements</li> </ul>
	Group 2	<ul style="list-style-type: none"> <li>Explain the trends in properties of group 2 elements</li> <li>Describe the uses and reactions of some group 2 elements</li> </ul>
	Group 7	<ul style="list-style-type: none"> <li>Explain the trends of electronegativity and oxidising nature of Group 7 elements and describe related reactions</li> </ul>
	Redox	<ul style="list-style-type: none"> <li>Determine oxidation states of elements and compounds and use them to write half equations and overall redox equations</li> </ul>
	Organic Analysis	<ul style="list-style-type: none"> <li>Determine the structure of an organic sample using practical results, mass spectrometry and infrared spectroscopy (RP)</li> </ul>