



## Chemistry Curriculum Overview - Year 12 - Teacher A

	Unit	Details
Autumn One	<b>Atomic Structure</b>	This section builds directly from GCSE Science, starting with basic atomic structure and isotopes.
Autumn Two	<b>Electrons and Bonding</b>	This unit introduces the concept of atomic orbitals and develops a deeper understanding of electron configurations linked to the periodic table. The central role of electrons in ionic and covalent bonding is then studied. The important role of molecules is studied, including an explanation of polarity and intermolecular forces and using this to explain the molecules properties such as why ice floats and why water is a liquid.
Spring One	<b>Rate and chemical equilibria</b>	Reaction rates builds on the GCSE concepts of how changing conditions affects the rate of reaction and position of equilibrium. Chemists then develop their idea of particle energy to produce the Boltzmann distribution. Reversible reactions are then studied, including the dynamic nature of chemical equilibrium and the influence of conditions upon the position of equilibrium. Finally, the integrated roles of enthalpy changes, rates, catalysts and equilibria are considered as a way of increasing yield and reducing energy demand, improving the sustainability of industrial processes.
Spring Two	<b>Chemical Energetics</b>	This topic builds on exothermic and endothermic reactions studied at GCSE. Pupils will focus on enthalpy changes and their determination from the experimental results and data tables. This is primarily done by chemists carrying out their own experiments and using their data to perform the calculations.
Summer One	<b>Haloalkanes</b>	Haloalkanes consider the importance of the carbon-halogen bond in reactions like hydrolysis. Environmental issues surrounding the disposal of haloalkanes are also studied.
Summer Two	<b>Spectroscopy</b>	In this topic the important techniques of infrared spectroscopy and mass spectrometry are used to illustrate instrumental analysis as a valuable tool for identifying organic compounds.