Chemistry		
	Year 12	**Year 13**
Autumn 1	**Elements of Life** Atomic structure Mass Spectroscopy Nuclear fusion Wave and particle models of light Shells, subshells and orbitals Periodicity Covalent bonding and shapes of molecules A_r, M_r, percentage yield and balancing equations Bonding, structure, properties and precipitates Group1 and Group 2 chemistry	**Polymers and life** Amines, acyl chlorides and the formation of amides Hydrolysis of esters and amides Amino acids Optical stereoisomers Formation of peptide bonds Protein structure Interactions between drugs and receptor sites The structure and function of DNA and RNA Mass spectroscopy, NMR, combining all techniques
Autumn 2	**Elements of Life** Reacting masses, acids and bases, neutralisation Concentration of solutions **Developing Fuels** Thermochemistry Enthalpy cycles and Hess' law Alkanes and shapes of molecules Bond enthalpies Catalysis Electrophilic addition, sigma and pi bonds Addition polymerisation **Elements from the Sea** The halogens Oxidation states and redox Electrolysis Dynamic equilibrium and K_c Redox titrations The risks and benefits of chlorine	**The chemical industry** Nitrogen chemistry (Redox in the soil and the laboratory) Equilibrium constant and the effect of changes Measuring rates of reactions Orders of reactions The Arrhenius equation **Developing Metals** Transition metals and their oxidation states Catalytic activity Colour in transition metal compounds and complexes Electrochemical cells

Spring 1	**Developing Fuels** Combustion of fuels, gas calculations, and the ideal gas equations E/Z isomerism Polluting gases Alternative fuels **Elements from the Sea** Atom economy Hydrogen halides Le chatelier's principle	**The chemical industry** Half life method for finding order of reaction Rate equations and mechanisms Industrial processes **Developing Metals** Rusting and methods of protection Structure and properties of complexes
Spring 2	**The Ozone Story** Gas calculations PPM Interactions of radiation with matter Radical reactions Measuring rates of reactions **What's in a medicine** Reactions of alcohols The -OH group Carboxylic acids Infrared spectroscopy Mass spectroscopy for compounds	**Oceans** The dissolving process Lattice enthalpy Enthalpy change of solution The greenhouse effect Acid-base chemistry pH calculations Buffer solutions **Colour by Design** The origin of colour in organic molecules The delocalised model of benzene Naming molecules containing benzene rings Electrophilic substitution reactions Making and modifying dye molecules dye-fibre interactions Fats and oils GLC
Summer 1	**The Ozone Story** The effect of temperature on rate Catalysis Haloalkanes Intermolecular bonding Nucleophilic substitution **What's in a medicine** Synthesis of aspirin	**Oceans** Solubility products Entropy **Colour by Design** Reactions of aldehydes and ketones Planning an organic synthesis **Preparation for examinations**

	Principles of green chemistry	
Summer 2	**Polymers and life** Carboxylic acids, phenols, esters and condensation reactions The catalytic behaviour of enzymes	