Year 13 Curriculum Grid

Chemistry

Unit order will vary during 20/21 due to maternity leave

Year/Term	Unit	Intent
Curriculum purpose		To inspire students, nurture a passion for Chemistry, lay the groundwork for further study in Chemistry related courses whilst providing numerous opportunities to use practical experiences to link theory to reality and equip students with the essential practical skills they need for future scientific study
Autumn	Thermodynamics	• Use Born-Haber cycles to calculate enthalpy changes • Calculate the entropy change in reactions
	Rate Equations	• Use the mathematical relationship between rate of reaction and concentration to complete calculations
	Equilibrium	• Use the mathematical expression for the equilibrium constant K_p to complete calculations • Determine the rate of a reaction practically (RP)
	Aldehydes	• Write equations for the oxidation and reduction of aldehydes • Outline the nucleophilic addition reaction mechanisms
	Carboxylic Acids	• Recall the reactions of carboxylic acids and esters
	Aromatic Chemistry	• Describe the structure of the benzene ring and the substitution reactions it undertakes
	Period 3	• Recall the reactions of period 3 elements with water and oxygen • Explain the chemical and physical properties of period 3 oxides
	Transition Metals	• Describe the properties and reactions of the transition metals • Explain the formation and shapes of complex ions
	Optical Isomers	• Draw the structural and displayed formulas of enantiomers • Explain their effect on polarised light
Spring	Electrode Potentials	• Use $E^{\ominus}$ values to predict the direction of simple redox reactions • Calculate EMF of a cell (RP) • Describe commercial applications of electrochemical cells
	Acids and Bases	• Calculate the pH, $[H^+]$, $[OH^-]$ of solutions • Investigate how the pH changes in reactions (RP)
	Reactions of Ions in Aqueous Solutions	• Carry out simple test-tube reactions to identify transition metal ions in aqueous solution (RP)
	Amines	• Relate the properties of amines to their structure • Outline the nucleophilic substitution and addition reactions
	Polymers	• Draw the repeating units of condensation polymers • Explain the biodegradability of different types of polymers
	Amino Acids, Proteins and DNA	• Describe the structure and bonding in these molecules and relate it to their properties
	Organic Synthesis	• Determine the formation of new organic compounds by multi-step syntheses
	NMR Spectroscopy	• Use data to determine the structure of unknown compounds
	Chromatography	• Understand the process of thin layer, column and gas chromatography
Summer	Revision	• Revise content from Year 12 and 13

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