	Intent **To consolidate the material covered throughout Year 12 AS Level Chemistry and build upon this into the concepts covered in A2 Chemistry. To instil a passion for the subject within students and an interest in further developing their knowledge and understanding of Chemistry.**		
Chemistry Year 13	**Term 1 September to December** **Equilibrium constant K_p, Period 3 Reactions, pH, Thermodynamics**	**Term 2 January to Easter** **Transition metals, Aqueous reactions, Electrochemical cells**	**Term 3 April to June** **Revision**
Knowledge (facts, information, concepts and key terminology)	Differences between gas equilibria and concentrations. Describing patterns in reactions of period 3 elements. Properties of acids, alkalis, indicators and buffers. Definitions of key terms relating to thermodynamics. Introduction to carboxylic acids, aldehydes, ketones, esters, amines and arenes. Investigating properties and reactions of these organic compounds. Organic analysis, learn the key terminology linked to the technique's NMR and chromatography.	Learn the four key properties of transition metals. Describe the reactions of specified aqueous transition metal solutions. Define electrode potential and discover applications of them. Can define key terminology in relation of DNA and proteins. Has learnt the rate equation and can identify what the different parts represent.	Review all topics. Retrieval practice each lesson and regular use of the exam specification to encourage students to review their knowledge.
Understanding (ability to connect and synthesise knowledge within a context)	Carry out calculations in equilibria, thermodynamics and pH topics by applying definitions and methods learned. Write suitable equations for any given reaction for period 3 elements. Understand the mechanisms for the new organic compounds. Nucleophilic substitutions and electrophilic substitution and be able to apply their stages involved to different members of the same homologous series. Understand how to analyse NMR spectra and be able to deduce the structure of compounds from this. Using IR and mass spec to support findings.	Explain why transition metals exhibit certain behaviours. Explain why specified transition metal solutions react as they do. Apply facts about electrode potentials to redox systems including batteries Students should be able to apply prior knowledge about condensation reactions to explain structures of proteins. Application of knowledge about intermolecular forces also required to explain the structure of DNA. Further development of the work done in Year 12 to understand how to calculate order of reactions using data provided and application of the Arrhenius equation.	Practice all types of exam style questions. Lots of opportunities for low stakes testing and encouraging students to critically analyse whether they fully understand concepts or they have simply memorised the information.
Skills (successful application of knowledge and understanding to a specific task)	Use titration to produce pH curves. Apply mathematical principles to a wide variety of scenarios in equilibria, thermodynamics and pH. Use reflux, distillation and purification techniques to produce organic compounds.	Carry out test tube reactions to identify metal ions. Measure electrode potentials for a selection of metal pairings. Calculate electrode potentials.	Master answering all types of exam question.
Formal Assessments (those done by all/vast majority of the cohort)	End of unit tests available for all units. Formal assessments carried out following the assessment calendar.	End of unit tests available for all units. Formal assessments carried out following the assessment calendar.	End of unit tests available for all units. Formal assessments carried out following the assessment calendar.
By the end of the year students on course for at least a grade C will… Have learnt all key definitions for the different aspects of the course. Be familiar with the overwhelming majority of organic compounds covered during the course. Able to apply their understanding of organic mechanisms to unfamiliar compounds. Be able to identify the type pf enthalpy calculation required and successfully complete. Have a detailed understanding of the required practical's procedures associated risks and related data manipulation required.			