

Year 13 Chemistry – Outline Programme of Study

	Term 1	Term 2	Term 3	Term 4	Term 5
Big Ideas/ topics	Equilibrium (5.1.3)	Acids Bases and buffers (5.1.3)	Lattice enthalpy (5.2.1)	Enthalpy and entropy (5.2.2)	Spectroscopy (6.3.2)
Key Knowledge	Using the equilibrium constant K_c to determine equilibrium mixtures and how equilibria respond to changes. Using the equilibrium constant K_p to determine equilibrium mixtures and how equilibria respond to changes.	Defining Brønsted-Lowry acids and bases and identification of conjugate acid/base pairs. Reactions of acids. Use of the pH scale and calculating with $[H^+]$. Use of the acid dissociation constant K_a to calculate the pH of weak monoprotic acids and buffer solutions. Explaining how Buffer solutions function. Use of K_w to calculate pH of strong monobases. Interpreting pH titration curves and how to select appropriate indicators.	Definitions of enthalpy changes of solution, hydration and lattice. To construct Born-Haber cycles to calculate unknown enthalpy changes that are associated with these changes.	Gibbs free energy, the use of entropy to determine whether reactions are feasible at given temperatures.	A investigation into NMR, TLC and GC how they work as analytical methods and how to process the results of the tests to identify unknown compounds.
Big Ideas/ topics	Module 6 – Organic chemistry and analysis	Module 6 – Organic chemistry and analysis	Module 5 – Physical chemistry and transition elements	Module 5 – Physical chemistry and transition elements	A level content from past 2 years
Key Knowledge	Aromatic compounds – describing the structure of benzene Nitration and halogenation of benzene reaction mechanisms Carbonyl compounds – naming and testing for these	Formation of esters Nitrogen compounds Addition and condensation polymerisation reactions Organic synthesis pathways	Definition of a transition element Reactions of transition elements with sodium hydroxide Ligand substitution reactions Redox equations	Redox titration Electrode potentials	Revision and preparation for A level exams

Further information and reading list

- OCR A H432
- Allery Chemistry video tutorials <https://www.youtube.com/playlist?list=PLX4e2DxFRGQK2hBRarrpaEdnPq>
- Exam papers and mark schemes organised into topics <https://studymind.co.uk/resource/ocr-a-level-chem>
- Recommended student textbook https://www.amazon.co.uk/Level-Chemistry-OCR-Student-Book/dp/0198351976/ref=sr_1_2?crid=3FK63AIMHO7RZ&keywords=OCR+A+Chemistry+textbook&qid=2



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All lesson resources available on google classroom

- <https://www.ocr.org.uk/qualifications/as-and-a-level/chemistry-a-h032-h432-from-2015/> Specification and
- Oxford University Chemistry open days