

Year 13 Chemistry Overview 2023-24

	Term 1	
Unit Title	Year 13 Chemistry	
Approximate Number of Lessons	28	
Curriculum Content	<ol style="list-style-type: none"> Thermodynamics <ol style="list-style-type: none"> Born Haber cycles Gibbs free-energy change Entropy change Properties of period 3 elements and their oxides Transition Metals <ol style="list-style-type: none"> General properties Substitution reactions Shapes of complex ions Formation of coloured ions Variable oxidation states Catalysts Reactions of Aqueous Ions <ol style="list-style-type: none"> Required Practical 11 	<ol style="list-style-type: none"> Acids and bases <ol style="list-style-type: none"> Bronsted-Lowry acid-base equilibria in aqueous solution Definition and determination of pH Ionic product of water Weak acids and bases pH curves, titration and indicators Buffer action Required Practical 9 K_p for homogenous systems Electrochemical series <ol style="list-style-type: none"> Electrode potentials and cells Commercial applications of electrochemical cells Required Practical 8
Links to prior learning	GCSE Chemistry Units: C4 Chemical Changes Year 12 Units: Energetics, Kinetics, Intro to Organic, Organic Analysis	
Cultural Capital Opportunities	Article – https://theconversation.com/covid-19-kids-are-using-soft-drinks-to-fake-positive-tests-ive-worked-out-the-science-and-how-to-spot-it-163739 Website - https://www.compoundchem.com/	Challenge: https://sjcinspire.com/category/chemistry+questions/
Assessment Focus	<ol style="list-style-type: none"> Thermodynamics Transition Metals, Aqueous Ions and Period 3 Oxides Acids and bases K_p and Electrochemical Series 	
Name of Knowledge Organiser/Link to Organiser	Year 13 Chem Autumn Term – Chemistry Teams	

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	Term 2	
Unit Title	Year 13 Chemistry	
Approximate Number of Lessons	24	
Curriculum Content	<p>8. Rate Equation</p> <ol style="list-style-type: none"> Rate equations Determination of rate constant Required Practical 7 <p>9. Optical Isomerism</p> <p>10. Aldehydes and ketones</p> <p>11. Carboxylic acids and their derivatives</p> <ol style="list-style-type: none"> Carboxylic acids and esters Acylation Required Practical 10 <p>12. Aromatic Chemistry</p> <ol style="list-style-type: none"> Bonding Electrophilic substitution <p>13. Amines</p> <ol style="list-style-type: none"> Preparation Base and Nucleophilic properties 	<p>14. Polymers</p> <ol style="list-style-type: none"> Condensation polymers Biodegradability and disposal of polymers <p>15. Biochemistry</p> <ol style="list-style-type: none"> Amino acids Proteins Enzymes DNA Action of anticancer drugs <p>16. Nuclear Magnetic Resonance</p> <p>17. Chromatography</p> <ol style="list-style-type: none"> Required Practical 12 <p>18. Organic Synthesis</p>
Links to prior learning	GCSE Chemistry Units: C1 Atomic Structure and the Periodic Table, C8 Chemical Analysis Year 12 Units: Organic units, Bonding, Periodicity	
Cultural Capital Opportunities	<p>Book - 'The Periodic Table' by Primo Levi.</p> <p>TED Talks – How spectroscopy could reveal alien life https://www.ted.com/talks/garik_israelian_how_spectroscopy_could_reveal_alien_life</p> <p>Website - https://www.newscientist.com/article-topic/chemistry/</p> <p>Podcasts - https://www.bbc.co.uk/programmes/b006qykl/topic</p>	
Assessment Focus	<p>5. Rate Equation</p> <p>6. Isomerism and the Carbonyl Group</p> <p>7. Aromatic, Amines, Polymers and Biochemistry</p> <p>8. NMR and Chromatography</p>	
Name of Knowledge Organiser/Link to Organiser	Year 13 Chem Spring Term – Chemistry Teams	

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	Term 3	
Unit Title	Year 13 Chemistry	
Approximate Number of Lessons	10	
Curriculum Content	Revision	Terminal Assessments
Links to prior learning	GCSE Chemistry Units: C7 Organic Chemistry, C8 Chemical Analysis.	
Cultural Capital Opportunities	Book – Molecules of Murder by John Emsley Visit – The Whipple Museum in Cambridge https://www.whipplemuseum.cam.ac.uk/ Movie – The Human Experiment (2013)	
Assessment Focus	9. Terminal Assessments <ul style="list-style-type: none"> a. Paper 1 b. Paper 2 c. Paper 3 	
Name of Knowledge Organiser/Link to Organiser		

Looking ahead:
<https://nrich.maths.org/unichem>