

Chemistry Year 13 Curriculum Overview

What is the Year 13 Chemistry curriculum aiming to achieve?

What do we want our Year 13 Chemists to be like?	How are we building on prior learning?	How can parents/carers support their child's learning?
<p>Be excited, enthusiastic and curious about the scientific world around us.</p> <p>To be competent and confident in a variety of practical, mathematical and problem-solving skills through Required Practicals.</p> <p>Be resilient when challenged with new and more complex ideas.</p> <p>To be well equipped and knowledgeable in a range of skills techniques and concepts in Chemistry</p> <p>Adept at processing new information and committing it to long term memory and have good recall.</p>	<ul style="list-style-type: none"> Rate of reaction builds on rates taught at GCSE and kinetics unit in year 12. Acids, bases and pH links to topics taught from year 7-12 with the pH scale. It is also taught as part of the chemical changes unit in year 10. Thermodynamics build on energetics taught in year 12 and Energy in reactions in GCSE. 	<ul style="list-style-type: none"> Check their understanding of key terms Talk to the pupils about what they are learning about in lessons

How are we organising the Year 13 Chemistry curriculum?

Teacher 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	Rates of reactions Equilibrium Acids, Bases, and pH	Acids, Bases and pH continued Buffers and Neutralisation Dec PPE	Enthalpy and Entropy Redox and electrode potentials	Redox and electrode potentials continued Transition elements	Revision programme	
Threshold Concepts	Reactions may occur in several steps. Rate equations give the mathematical relationship between rate of reaction and concentration. The logarithmic scale pH is used to measure acidity.	Buffers resist changes in pH are are very useful in biological systems.	Understanding why chemical reactions happen. REDOX reactions take place in electrochemical cells where electrons are transferred. This creates a potential difference.	Transition metals form coloured compounds due to their variable oxidation states.		
Skills	PAG 9 continuous monitoring method PAG 10 initial rates method	PAG 11 pH measurement	PAG 8 Electrochemical cells	PAG 12 Research Skills	Catch up PAGs	
Teacher 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	Aromatic Chemistry Carbonyls and carboxylic acids Amines	Amino Acids and chirality Polymerisation. Organic synthesis	Further synthetic routes (practical techniques) Chromatography and spectroscopy introduction	NMR spectroscopy Combined analysis techniques	Revision programme	
Threshold Concepts	Aldehydes, ketones, carboxylic acids and their derivatives all contain the carbonyl group which is attacked by nucleophiles. Amines are compounds based on ammonia	Aromatic chemistry looks at the structure of the benzene ring and its substitution reactions. Includes their reactions as nucleophiles.	The formation of new organic compounds by multi-step syntheses using reactions	NMR spectroscopy is added to mass spectrometry and infrared spectroscopy as an analytical technique. The emphasis is on the use of analytical data to solve problems.		

	where hydrogen atoms have been replaced by alkyl or aryl groups.					
Skills	PAG 6 synthesis of an organic Solid PAG 7 Qualitative analysis of ions	PAG 7 Qualitative analysis of ions			Catch up PAGES	
Enrichment within the curriculum	PAGs as well as other practicals will take place whenever appropriate. Personal Learning Checklists for each topic with a QR codes to YouTube videos for support Specification questions sheets for each topic					
Cross curricular links	<ul style="list-style-type: none"> • Math skills – Graphing, ratios, use of formula and algebra • Biology – organics and biochemistry • Physics – thermodynamics and electrochemistry 					
Extra-curricular opportunities	Chemistry staff are available for Chemistry Clinic drop in sessions. In addition nearer exams more formal revision sessions will take place. There has previously been opportunity to attend a variety of cutting edge research talks at Warwick University.					

What are the intended outcomes of the Year 13 (insert subject name here) curriculum?

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Opportunities to show progress (Assessments)	End of topic assessments	End of topic assessments December PPE	End of topic assessments	End of topic assessments March PPE	Easter PPE Exam	
Impact on personal development (SMSC)	<i>Rapid advances in Chemistry mean that the world and society is changing at a faster pace than ever before. Often these advancements have a positive influence, however sometimes these can cause tension within our society and moral issues can arise. Students would need to deepen their own understanding, weigh up the evidence to form independent unbiased conclusions supported with scientific facts. The developments in Chemistry are global, from the early periodic table by Russian Scientist Mendeleev, to Le Chatelier's Principle named after a French Chemist in the field of chemical equilibria. The area of Chemistry is thriving due to commitment from different cultures.</i>					
Preparation for the next stage of education	<i>The foundations built by the A-Level will prepare the students to access further education. It will enable them to undertake a variety of higher educational courses. The PAGs enable the students to partake in undergraduate labs competently.</i>					