

## Year 13 Chemistry Sequence

	Content	Reference	Essential knowledge	Assessment	Rationale		
	Taught						
	YEAR 13 CHEMISTRY						
HT1	Thermodynamics	3.1.8	Thermodynamics	Formative Assessment:	Students use the		
		Thermodynam	Born–Haber cycles	Daily, Weekly and Monthly Reviews	skills and knowledge		
		ics	Gibbs free-energy change, ∆G,	focussing on reviewing material on	from their initial		
		3.1.8.1	and entropy change, ΔS	Essential Knowledge.	introduction in year		
		3.1.8.2			12 to allow them to		
				Use of TLaC techniques in lessons to	access further, more		
				check pupil understanding of essential	complex physical		
		3.3.7 Optical	Optical isomerism	knowledge during each lesson.	Chemistry topics. This		
	Optical	isomerism			includes		
	isomerism			Summative Assessment:	Thermodynamics and		
		3.3.8	Aldehydes and ketones	Assessment is taken in class and	rate equations which		
		Aldehydes		covers all topics studied up to this	build from energetics		
	Carbonyls	and ketones		point.	and equations.		
				Questions are taken from past exam			
		3.3.9	Carboxylic acids and	papers and graded using typical grade			
		Carboxylic	derivatives	boundaries from GCSE Chemistry			
	Derivatives of	acids and	Carboxylic acids and esters	exams.			
	carboxylic acids	derivatives		Assessment is completed in class			
	-	3.3.9.1	Reading for consolidation:	based on prior learning. Recall			
			Physical-II Detailed 1.08.	testing, homework testing and exam			
			Thermodynamics	questions form the basis of	Similarly in organic		
			(physicsandmathstutor.com)	assessment for this half term.	Chemistry, more		
					complex mechanisms		

		Organic-II Detailed 3.07.		and reactions are
		Optical Isomers		addressed with
		(physicsandmathstutor.com)		applications of
				carbonyls, the use of
		Organic-II Detailed 3.08.		benzene, amines,
		Aldehydes and Ketones		biomolecules and
		(physicsandmathstutor.com)		leading to synthetic
				pathways, linking
		Organic-II Detailed 3.09.		together all organic
		Carboxylic Acids and Esters		reactions and
		(physicsandmathstutor.com)		mechanisms into a
				concept map.
HT2	3.1.9 Rate	Rate equations	Formative Assessment:	Following this,
	equations	Determination of rate	Daily, Weekly and Monthly Reviews	identification of
	3.1.9.1	equation	focussing on reviewing material on	organic molecules
	3.1.9.2		Essential Knowledge.	with NMR,
				chromatography, and
	3.1.10	Equilibrium constant K p for	Use of TLaC techniques in lessons to	mass spectroscopy.
	Equilibriur	n homogeneous systems	check pupil understanding of essential	
	constant K	(p	knowledge during each lesson.	Finally, the students
	for			cover transition
	homogene	eous	Summative Assessment:	metal chemistry,
	systems		Cumulative assessment covers all	applying their
			topics studied up to this point.	knowledge and
			Mock exam assessment taken in the	understanding of
	3.3.9	Acylation	hall in exam conditions.	bonding and the
	Carboxylic			formation of colours
	acids and		AS Chemistry paper 1 and 2 taken,	to explain the
	derivative	S	with 30 additional marks for each	properties of
	3.3.9.2		paper from the following topics:	transition metals and
			Ontionline merion	their uses.
	3.3.10	Benzene	Carbonyle	
	Aromatic	Bonding	Carbonyis	
	chemistry	Electrophilic substitution	Derivatives of carboxylic acids.	

	2 2 4 0 4			
	3.3.10.1			
	3.3.10.2			
	3.3.11 Amines	Amines		
	3.3.11.1	Preparation		
	3.3.11.2	Base properties		
	2 2 11 2	Nucleanbilic properties		
	5.5.11.5	Nucleophilic properties		
	3.3.12.1	Condensation polymers		
	3.3.12.2	Biodegradability and disposal		
		of polymers		
		or polymers		
		Reading for consolidation:		
		Physical-II Detailed 1.09. Rate		
		Equations		
		(physicsandmathstutor.com)		
		Physical-II Detailed 1.10. The		
		Equilibrium Constant		
		(physicsandmathstutor.com)		
		Organic-II Detailed 3 09		
		Carbonulia Asida and Estara		
		Carboxylic Acius and Esters		
		(physicsandmathstutor.com)		
		Organic-II Detailed 3 10		
		Aremetia Chemistry		
		Aromatic Chemistry		
		(physicsandmathstutor.com)		
		Organic-II Detailed 3 11		
		Answer		
		Amines		
		(physicsandmathstutor.com)		
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			Organic-II Detailed 3.12. Polymerisation (physicsandmathstutor.com)	
HT3	Electrochemical cells	3.1.11 Electrode potentials and	Electrode potentials and cells Commercial applications of electrochemical cells	Formative Assessment: Daily, Weekly and Monthly Reviews focussing on reviewing material on
	Acids and bases	al cells 3.1.11.1 3.1.11.2		Use of TLaC techniques in lessons to check pupil understanding of essential knowledge during each lesson.
		3.1.12 Acids and bases 3.1.12.1 3.1.12.2 3.1.12.3	Brønsted–Lowry acid–base equilibria in aqueous solution Definition and determination of pH The ionic product of water, KW	Summative Assessment: Assessment is taken in class and covers all topics studied up to this point. Questions are taken from past exam papers and graded using typical grade boundaries from A Level Chemistry
	Biochemistry	3.3.13 Amino acids, proteins and DNA 3.3.13.1 3.3.13.2 3.3.13.3 3.3.13.4 3.3.13.5	<b>Biochemistry</b> Amino acids Proteins Enzymes DNA Action of anticancer drugs	exams. Assessment is completed in class based on prior learning. Recall testing, homework testing and exam questions form the basis of assessment for this half term. Assessment is taken in class and covers all topics studied up to this point.
	Synthetic Pathways	3.3.14 Organic synthesis	Organic synthesis	

	NMR	3 3 15 Nuclear	Nuclear magnetic resonance		
		magnetic	sportroscopy		
		magnetic	spectroscopy		
		resonance			
		spectroscopy	Reading for consolidation:		
			Physical-II Detailed 1.11.		
			Electrode Potentials and Cells		
			(physicsandmathstutor.com)		
			Organic-II Detailed 3.13.		
			Amino Acids, Proteins and		
			DNA		
			(physicsandmathstutor.com)		
			<u>(p) (p) (p) (p) (p) (p) (p) (p) (p) (p) </u>		
			Organic-II Detailed 3 14		
			Organic Synthesis		
			(physicsandmathstutor.com)		
			(physicsandinatistutor.com)		
			Organic-II Detailed 3 15		
			Nuclear Magnetic Posonance		
			(abusiness due athetute a seas)		
			(physicsandmathstutor.com)		
ШТЛ	Acids and bases	2 1 12 Acids	Acids and bases	Formative Accessment:	
114	Actus allu bases	S.I.IZ ACIUS	Actus allu bases	Pointive Assessment.	
		and bases			
		3.1.12.4			
		3.1.12.5	pH curves, titrations and	Essential Knowledge.	
			indicators		
				Use of ILaC techniques in lessons to	
	Chromatography	3.3.16	Chromatography	check pupil understanding of essential	
		Chromatograp		knowledge during each lesson.	
		hy			
	Period 3			Summative Assessment:	
		3.2.4	Period 3		
		<b>Properties of</b>			

	Period 3	Properties of Period 3	Mock exam assessment taken in the	
	elements and	elements and their oxides	hall in exam conditions. All topics	
Transition metals	their oxides		assessed.	
	3.2.5		A Level Chemistry past papers (paper	
	Transition	Transition metals	1, 2 and 3) used along with associated	
	metals	General properties of	grade boundaries. Some content	
	3.2.5.1	transition metals	removed on untaught content.	
	3.2.5.2	Substitution reactions		
	3.2.5.3	Shapes of complex ions		
		Reading for consolidation:		
		Physical-II Detailed 1.12. Acids		
		and Bases		
		(physicsandmathstutor.com)		
		In a reaction II. Detailed 2.4		
		Inorganic-II Detailed 2.4.		
		Period 3 Elements		
		(physicsandmathstutor.com)		
		Inorganic-II Detailed 2.5		
		Transition Metals		
		(physicsandmathstutor.com)		
		Organic-II Detailed 3.16.		
		Chromatography		
		(physicsandmathstutor.com)		
		Reading for breadth:		
		Separation techniques:		
		Chromatography - PMC		
		(nih.gov)		
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HT5	Acids and bases	3.1.12 Acids	Acids and bases	Formative Assessment:	
		and bases	Buffer action	Daily, Weekly and Monthly Reviews	
		3.1.12.6		focussing on reviewing material on	
				Essential Knowledge.	
	<b>Transition Metals</b>	3.2.5			
		Transition	Transition metals	Use of TLaC techniques in lessons to	
		metals	Formation of coloured ions	check pupil understanding of essential	
		3.2.5.4	Variable oxidation states	knowledge during each lesson.	
		3.2.5.5	Catalysts		
		3.2.5.6		Summative Assessment:	
				Cumulative assessment is taken in	
	Aqueous			class and covers all topics studied up	
	solutions	3.2.6	Aqueous ions	to this point.	
		Reactions of	Reactions of ions in aqueous		
		ions in	solution		
		aqueous			
		solution	Reading for consolidation:		
			Physical-II Detailed 1.12. Acids		
			and Bases		
			(physicsandmathstutor.com)		
			Inorganic-II Detailed 2.5.		
			Transition Metals		
			(physicsandmathstutor.com)		
			Inorganic-II Detailed 2.6.		
			Reaction of Metal Aqua lons		
			(physicsandmathstutor.com)		