

Year 13 - OCR A-level (H432) Chemistry

Timing	Unit Title	Key Question	Knowledge	Assessing understanding
Autumn Term 1	Module 6 Chapter 26 Carbonyls and carboxylic acids	What are the key reactions in carbonyl chemistry?	<ul style="list-style-type: none"> • Properties and reactions of aldehydes and ketones • Testing for aldehydes and ketones • Mechanism of nucleophilic addition • Properties and reactions of carboxylic acids • Synthesis of acyl chlorides and esters • Reactions of esters, acyl chlorides and acid anhydrides 	<p>How understanding is assessed Students will be assessed on their ability to:</p> <ul style="list-style-type: none"> • Recall the knowledge covered • Explain the chemical phenomena • Interpret graphical and experimental data • Make connections between different areas of understanding. <p>Skills</p> <ul style="list-style-type: none"> • Description • Explanation • Evaluation • Comparison • Planning and carrying out investigations • Chemical calculations <p>Assessment point information</p> <ul style="list-style-type: none"> • Written test • Teacher continuous assessment • Required Practical Activity 9.2 Measuring rate • Required Practical Activity 10.1 Rate and mechanism • Required Practical activity 10.3 Arrhenius plot • Required Practical activity 7.3 (part 1) Identifying organic compounds
	Module 5 Chapter 18 Rate of reaction	How can we measure how fast a reaction will go?	<ul style="list-style-type: none"> • Rate equations, rate constants and order of reaction • Experimental determination of rate equations • Graphical analysis of rate data • Half life • Rate determining step and reaction mechanism • The effect of temperature on rate • Arrhenius plots 	
	Module 5 Chapter 18 Energy and entropy	What determines if a reaction will go?	<ul style="list-style-type: none"> • Lattice enthalpy and Born Haber cycles • Enthalpy changes in solution and predicting solubility • Entropy • Gibbs Free Energy and feasibility 	

	Module 5 Chapter 20 Acids, bases and pH	How can we explain the properties of a range of acids and bases?	<ul style="list-style-type: none"> • Acids bases and pH • K_a and K_w • Titrations and indicators • Buffers and buffer calculations, 	
Autumn Term 2	Module 6 Chapter 29 Analytical techniques	How can we determine the structure of organic molecules?	<ul style="list-style-type: none"> • Chromatography • ^{13}C NMR nuclear magnetic resonance spectroscopy • Proton NMR • Combined techniques 	<p>How understanding is assessed Students will be assessed on their ability to:</p> <ul style="list-style-type: none"> • Recall the knowledge covered • Explain the chemical phenomena • Interpret graphical and experimental data • Make connections between different areas of understanding. <p>Skills</p> <ul style="list-style-type: none"> • Description • Explanation • Evaluation • Comparison • Planning and carrying out investigations • Chemical calculations <p>Assessment point information</p> <ul style="list-style-type: none"> • Written test • Teacher continuous assessment • Required Practical activity 11.2 pH curves • Required Practical activity 7.3 (part 2) Chromatography
	Module 5 Buffers and neutralisation Chapter 21	How do buffers work to control pH?	<ul style="list-style-type: none"> • Neutralisation • What is a buffer solution • Calculating pH of buffers • Buffer solutions in the body 	

Spring Term 1	Mock Exams		<ul style="list-style-type: none"> Mock exams will cover all of the Chemistry learned during Year 12 and the Autumn Term of Year 13 	<p>How understanding is assessed Students will be assessed on their ability to:</p> <ul style="list-style-type: none"> Recall the knowledge covered Explain the chemical phenomena Interpret graphical and experimental data Make connections between different areas of understanding. <p>Skills</p> <ul style="list-style-type: none"> Description Explanation Evaluation Comparison Planning and carrying out investigations Chemical calculations <p>Assessment point information</p> <p>Based on two written mock examination papers:</p> <ul style="list-style-type: none"> Physical and Inorganic chemistry Organic Chemistry and Analytical techniques
	Module 5 Chapter 23 Redox	How can we use an understanding of redox in titrimetric analysis and in predicting reactions?	<ul style="list-style-type: none"> Oxidation number Reaction stoichiometry and redox titrations Measuring E^0 Predicting feasibility and extent of reactions 	
	Module 6 Chapter 27 Nitrogen chemistry	How is DNA bonded? What other molecules are similar?	<ul style="list-style-type: none"> Reactions of aliphatic and aromatic amines Amides Amino acids, polypeptides and proteins Chirality Polyesters and polyamides e.g. nylon. 	

Spring Term 2	Module 6 Chapter 28 Organic synthesis	How can we make useful organic products in the laboratory?	<ul style="list-style-type: none"> Review of practical skills and activities Synthetic routes Practical processes for synthesis 	How understanding is assessed Students will be assessed on their ability to: <ul style="list-style-type: none"> Recall the knowledge covered Explain the chemical phenomena Interpret graphical and experimental data Make connections between different areas of understanding. Skills <ul style="list-style-type: none"> Description Explanation Evaluation Comparison Planning and carrying out investigations Chemical calculations Assessment point information Based on: <ul style="list-style-type: none"> Completed folders for the Practical Endorsement Required Practical activity 12 Analysing iron tablets Required Practical activity 8.1 Electrochemical cells
	Module 5 Chapter 24 Transition metals	How do transition metals react?	<ul style="list-style-type: none"> What is a transition metal and what are their characteristic properties Complex ions and stereoisomerism Ligand substitution and precipitation Redox and qualitative analysis 	
	Mock Exams and revision	What is the best preparation for your A-level exams	<ul style="list-style-type: none"> Revision and past paper practice 	

Summer Term				<p>How understanding is assessed</p> <p>Students will be assessed on their ability to:</p> <ul style="list-style-type: none">● Recall the knowledge covered● Explain the chemical phenomena● Interpret graphical and experimental data● Make connections between different areas of understanding. <p>Skills</p> <ul style="list-style-type: none">● Description● Explanation● Evaluation● Comparison● Planning and carrying out investigations● Chemical calculations <p>Assessment point information</p> <p>Based on:</p> <ul style="list-style-type: none">● Teacher assessment and written tests
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