

Term	Date	Focus	Summary	Learning Outcomes
Term 2	02/01/23	Teacher 1/2: Retrieval Practice	Teacher 1/2: Physical and Inorganic Retrieval Practice	Teacher 1/2: Evaluate knowledge of all content from the AS & A-Level Physical and Inorganic Chemistry topics and apply it to different retrieval tasks.
	09/01/23	Mock Exams	Mock Exams	
	16/01/23	Mock Exams	Mock Exams	
	23/01/23	Mock Exams	Mock Exams	
	30/01/23	Teacher 1/2: Organic Chemistry Revision	Teacher 1/2: Organic Chemistry Retrieval Practice	Teacher 1/2: Evaluate knowledge of all content from the AS Organic Chemistry topics and apply it to different retrieval tasks.
	06/02/23	Teacher 1: Aldehydes and Ketones Teacher 2: Optical Isomers	Teacher 1: Oxidation of Aldehydes Reduction of Aldehydes Nucleophilic Addition of Carbonyl Compounds Teacher 2: Optical Isomerism Racemic Mixtures	Teacher 1: Write overall equations for reduction reactions using [H] as the reductant Outline the nucleophilic addition mechanism for reduction reactions with NaBH ₄ (the nucleophile should be shown as H ⁻) Write overall equations for the formation of hydroxynitriles using HCN Outline the nucleophilic addition mechanism for the reaction with KCN followed by dilute acid Explain why nucleophilic addition reactions of KCN, followed by dilute acid, can produce a mixture of enantiomers Teacher 2: Draw the structural formulas and displayed formulas of enantiomers Understand how racemic mixtures (racemates) are formed and why they are optically inactive
	13/02/23	School Break Half Term February		
	20/02/23	Teacher 1: Carboxylic Acids and Derivatives Teacher 2: Aromatics	Teacher 1: Carboxylic Acids and Esters Acylation Required Practical 10 Teacher 2: Bonding in Aromatic Compounds Electrophilic Substitution of Aromatic Compounds	Teacher 1: Recall and explain the structures of carboxylic acids and esters Outline common reactions of carboxylic acids and esters Discuss uses of carboxylic acids and esters in industry Recall and explain the structures of acid anhydrides, acyl chlorides and amides Outline the mechanism of nucleophilic addition-elimination reactions of acyl chlorides with water, alcohols, ammonia and primary amines Prepare a pure organic solid and test its purity Teacher 2: Use thermochemical evidence from enthalpies of hydrogenation to account for this extra stability in benzene rings Explain why substitution reactions occur in preference to addition reactions Outline the electrophilic substitution mechanisms of nitration and sulfonation on benzene and methylbenzene; identity of the products formed in these reactions Outline the electrophilic substitution mechanisms of acylation and alkylation using AlCl ₃ as a catalyst; identity of the products formed in these reactions Outline the free-radical attack of chlorine on benzene and methylbenzene; identity of the products formed in these reactions Explain the relative reactivities of chlorine substituted in the ring and in the side chain
	27/02/23	Teacher 1: Amines Teacher 2: NMR	Teacher 1: Preparation of Amines Base Properties of Amines Nucleophilic Properties of Amines Teacher 2: Nuclear Magnetic Resonance Spectroscopy	Teacher 1: Discuss the preparation of primary aliphatic amines and aromatic amines Explain the difference in base strength in terms of the availability of the lone pair of electrons on the N atom Outline the mechanisms for nucleophilic substitution reactions of ammonia and amines Outline the mechanisms for nucleophilic addition-elimination reactions of ammonia and primary amines with acyl chlorides Teacher 2: Explain why TMS is a suitable substance to use as a standard Use ¹ H NMR and ¹³ C NMR spectra and chemical shift data from the Chemistry data booklet to suggest possible structures or part structures for molecules Use integration data from ¹ H NMR spectra to determine the relative numbers of equivalent protons in the molecule Use the n+1 rule to deduce the spin-spin splitting patterns of adjacent, non-equivalent protons, limited to doublet, triplet and quartet formation in aliphatic compounds
	06/03/23	Teacher 1: Amino Acids and Proteins Teacher 2: Chromatography	Teacher 1: Properties of Amino Acids Structure of Proteins Action of Anticancer Drugs Teacher 2: Thin-layer Chromatography Column Chromatography Gas Chromatography	Teacher 1: Draw the structures of amino acids as zwitterions and the ions formed from amino acids in acid and in alkaline solution Draw the structure of a peptide formed from up to three amino acids Draw the structure of the amino acids formed by hydrolysis of a peptide Identify primary, secondary and tertiary structures in diagrams Explain how these structures are maintained by hydrogen bonding and S-S bonds Calculate R _f values from a chromatogram Explain why cisplatin prevents DNA replication Explain why cancer drugs can have adverse effects Teacher 2: Discuss the use of different types of chromatography Calculate R _f values from a chromatogram Compare retention times and R _f values with standards to identify different substances
13/03/23	Teacher 1: Polymers Teacher 2: Organic Synthesis	Teacher 1: Condensation Polymers Biodegradability and Disposal of Polymers Teacher 2: Synthesis of an Organic Compound Devise a Synthesis	Teacher 1: Draw the repeating unit from monomer structure(s) Draw the repeating unit from a section of the polymer chain Draw the structure(s) of the monomer(s) from a section of the polymer Explain the nature of the intermolecular forces between molecules of condensation polymers Explain why polyesters and polyamides can be hydrolysed but polyalkenes cannot Teacher 2: Explain why chemists aim to design processes that do not require a solvent and that use non-hazardous starting materials Explain why chemists aim to design production methods with fewer steps that have a high percentage atom economy Use reactions in this specification to devise a synthesis, with up to four steps, for an organic compound	
20/03/23	Teacher 1/2: Physical and Organic Chemistry Revision	Teacher 1/2: Physical and Organic Chemistry Retrieval Practice	Teacher 1/2: Evaluate knowledge of all content from the AS & A Level Physical and Organic Chemistry topics and apply it to different retrieval tasks.	