Year 12 Curriculum intent – 2022-23						
	Autumn Term		Spring Term		Summer Term	
	1	2	1	2	1	2
Key Concepts	**Physical Chemistry (Paper 1 & 2) Atomic Structure** - The chemical properties of elements depend on their atomic structure and in particular on the arrangement of electrons around the nucleus. The arrangement of electrons in orbitals is linked to the way in which elements are organised in the Periodic Table. Chemists can measure the mass of atoms and molecules to a high degree of accuracy in a mass spectrometer. The principles of operation of a modern mass spectrometer are studied. **Amount of Substance** - When chemists measure out an amount of a substance, they use an amount in moles. The mole is a useful quantity because one mole of a	**Physical Chemistry (Paper 1 & 2) Bonding** - The physical and chemical properties of compounds depend on the ways in which the compounds are held together by chemical bonds and by intermolecular forces. Theories of bonding explain how atoms or ions are held together in these structures. Materials scientists use knowledge of structure and bonding to engineer new materials with desirable properties. These new materials may offer new applications in a range of different modern technologies. **Energetics** - The enthalpy change in a chemical reaction can be measured accurately. It is important to know this value for chemical reactions that are used	**Physical Chemistry (Paper 1 & 2) Kinetics** - The study of kinetics enables chemists to determine how a change in conditions affects the speed of a chemical reaction. Whilst the reactivity of chemicals is a significant factor in how fast chemical reactions proceed, there are variables that can be manipulated in order to speed them up or slow them down. **Equilibria** - In contrast with kinetics, which is a study of how quickly reactions occur, a study of equilibria indicates how far reactions will go. Le Chatelier's principle can be used to predict the effects of changes in temperature, pressure and concentration on the yield of a reversible reaction. This has important consequences for many	**Inorganic Chemistry (Paper 1) Group 2** - The elements in Group 2 are called the alkaline earth metals. The trends in the solubilities of the hydroxides and the sulfates of these elements are linked to their use. Barium sulfate, magnesium hydroxide and magnesium sulfate have applications in medicines whilst calcium hydroxide is used in agriculture to change soil pH, which is essential for good crop production and maintaining the food supply. **Group 7** - The halogens in Group 7 are very reactive non-metals. Trends in their physical properties are examined and explained. Fluorine is too dangerous to be used in a school	Revision Paper 1/2	Revision Paper 1/2

	substance always contains the same number of entities of the substance. An amount in moles can be measured out by mass in grams, by volume in dm3 of a solution of known concentration and by volume in dm3 of a gas. **Organic Chemistry (Paper 2)** **Introduction to Organic** - Organic chemistry is the study of the millions of covalent compounds of the element carbon. These structurally diverse compounds vary from naturally occurring petroleum fuels to DNA and the molecules in living systems. Organic compounds also demonstrate human ingenuity in the vast range of synthetic materials created by chemists. Many of these compounds are used as drugs,	as a source of heat energy in applications such as domestic boilers and internal combustion engines. **Inorganic Chemistry (Paper 1)** **Periodicity** – The Periodic Table provides chemists with a structured organisation of the known chemical elements from which they can make sense of their physical and chemical properties. The historical development of the Periodic Table and models of atomic structure provide good examples of how scientific ideas and explanations develop over time. **Organic Chemistry (Paper 2)** **Halogenoalkanes -** Halogenoalkanes are much more reactive than alkanes. They have many uses, including as refrigerants, as solvents and in	industrial processes. The further study of the equilibrium constant, Kc, considers how the mathematical expression for the equilibrium constant enables us to calculate how an equilibrium yield will be influenced by the concentration of reactants and products. **Redox** - Redox reactions involve a transfer of electrons from the reducing agent to the oxidising agent. The change in the oxidation state of an element in a compound or ion is used to identify the element that has been oxidised or reduced in a given reaction. Separate half-equations are written for the oxidation or reduction processes. These half-equations can then be combined to give an overall equation for any redox reaction. **Organic Chemistry (Paper 2)**	laboratory but the reactions of chlorine are studied. Challenges in studying the properties of elements in this group include explaining the trends in ability of the halogens to behave as oxidising agents and the halide ions to behave as reducing agents. **Organic Chemistry (Paper 2)** **Organic Analysis** - Our understanding of organic molecules, their structure and the way they react, has been enhanced by organic analysis. This section considers some of the analytical techniques used by chemists, including test-tube reactions and spectroscopic techniques.		

	medicines and plastics. Organic compounds are named using the International Union of Pure and Applied Chemistry (IUPAC) system and the structure or formula of molecules can be represented in various different ways. Organic mechanisms are studied, which enable reactions to be explained. In the search for sustainable chemistry, for safer agrochemicals and for new materials to match the desire for new technology, chemistry plays the dominant role. **Alkanes** - Alkanes are the main constituent of crude oil, which is an important raw material for the chemical industry. Alkanes are also used as fuels and the environmental consequences of this use are considered in this section.	pharmaceuticals. The use of some halogenoalkanes has been restricted due to the effect of chlorofluorocarbons (CFCs) on the atmosphere.	**Alkenes** - In alkenes, the high electron density of the carbon–carbon double bond leads to attack on these molecules by electrophiles. This section also covers the mechanism of addition to the double bond and introduces addition polymers, which are commercially important and have many uses in modern society. **Alcohols** - Alcohols have many scientific, medicinal and industrial uses. Ethanol is one such alcohol and it is produced using different methods, which are considered in this section. Ethanol can be used as a biofuel.			
Knowledge & Understanding	The AQA A Level (7405) in Chemistry content is designed to encourage students to:		The AQA A Level (7405) in Chemistry content is designed to encourage students to:		The AQA A Level (7405) in Chemistry content is designed to encourage students to:	

	• develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject • develop essential knowledge and understanding of different areas of the subject and how they relate to each other • develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods • develop competence and confidence in a variety of practical, mathematical and problem solving skills • understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society • use theories, models and ideas to develop scientific explanations • use knowledge and understanding to pose scientific questions, define scientific problems, present scientific arguments and scientific ideas • use appropriate methodology, including information and communication technology (ICT), to answer scientific questions and solve scientific problems4 • carry out experimental and investigative activities, including appropriate risk management, in a range of contexts • analyse and interpret data to provide evidence, recognising correlations and causal relationships • evaluate methodology, evidence and data, and resolve conflicting evidence • know that scientific knowledge and understanding develops over time • communicate information and ideas in appropriate ways using appropriate terminology	• develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject • develop essential knowledge and understanding of different areas of the subject and how they relate to each other • develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods • develop competence and confidence in a variety of practical, mathematical and problem solving skills • understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society • use theories, models and ideas to develop scientific explanations • use knowledge and understanding to pose scientific questions, define scientific problems, present scientific arguments and scientific ideas • use appropriate methodology, including information and communication technology (ICT), to answer scientific questions and solve scientific problems4 • carry out experimental and investigative activities, including appropriate risk management, in a range of contexts • analyse and interpret data to provide evidence, recognising correlations and causal relationships • evaluate methodology, evidence and data, and resolve conflicting evidence • know that scientific knowledge and understanding develops over time • communicate information and ideas in appropriate ways using appropriate terminology	• develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject • develop essential knowledge and understanding of different areas of the subject and how they relate to each other • develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods • develop competence and confidence in a variety of practical, mathematical and problem solving skills • understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society • use theories, models and ideas to develop scientific explanations • use knowledge and understanding to pose scientific questions, define scientific problems, present scientific arguments and scientific ideas • use appropriate methodology, including information and communication technology (ICT), to answer scientific questions and solve scientific problems4 • carry out experimental and investigative activities, including appropriate risk management, in a range of contexts • analyse and interpret data to provide evidence, recognising correlations and causal relationships • evaluate methodology, evidence and data, and resolve conflicting evidence • know that scientific knowledge and understanding develops over time • communicate information and ideas in appropriate ways using appropriate terminology

	• consider applications and implications of science and evaluate their associated benefits and risks • consider ethical issues in the treatment of humans, other organisms and the environment • evaluate the role of the scientific community in validating new knowledge and ensuring integrity • evaluate the ways in which society uses science to inform decision making.		• consider applications and implications of science and evaluate their associated benefits and risks • consider ethical issues in the treatment of humans, other organisms and the environment • evaluate the role of the scientific community in validating new knowledge and ensuring integrity • evaluate the ways in which society uses science to inform decision making.		• consider applications and implications of science and evaluate their associated benefits and risks • consider ethical issues in the treatment of humans, other organisms and the environment • evaluate the role of the scientific community in validating new knowledge and ensuring integrity • evaluate the ways in which society uses science to inform decision making. Revision for P1 and P2 A Level Preparation.	
Assessment	End of Unit Assessment	End of Unit Assessments & mock exams	End of Unit Assessment	End of Unit Assessment & mocks exams	End of Unit Assessment & AS Exams	End of Unit Assessment & AS Exams
Why this? Why now?	The following topics are taught at the beginning of the year as they are the fundamentals of A Level Chemistry allowing pupils to have a solid platform to build on prior knowledge from GCSE: **Atomic Structure:** **GCSE Chemistry** - The structure of atoms (although this is revisited here). **GCSE Physics** - The structure of atoms (although this is revisited here). - The effect of a force on moving objects. - The effect of a magnetic field on a moving, electrically charged particle (Separate Science) **Amount of Substance:** **GCSE Chemistry** - Relative atomic mass, relative molecular mass, relative formula mass (although this is revisited here). - Writing formulae (elements, common compounds and ionic compounds). - Balancing equations (although this is revisited here).		The second term content continues to build on the initial AS content and again brings in GCSE content taught prior: **Kinetics:** **GCSE Chemistry** - Reaction rates. **Equilibria:** **GCSE Chemistry** - Reaction rates. - Exothermic and endothermic reactions. - Equilibria (Separate Science but re-visited here). **AS Chemistry** - Energetics (useful to do this first, but not essential as GCSE knowledge would suffice). - Kinetics (useful to do this first, but not essential as GCSE knowledge would suffice). **Redox:** **AS Chemistry** - Writing equations (3.1.2). **Alkenes:** **AS Chemistry**		All content is complete at this stage. Revision and exam technique focus in preparation for AS Exams.	

	- Moles (although this is revisited here). - Calculations involving Masses (although this is revisited here). - Concentration of solutions (Separate Science - although this is revisited here). - Empirical and molecular formulae (although this is revisited here). **Introduction to Organic:** **GCSE Chemistry** - Some simple organic chemistry, eg alkanes and alkenes (although this is revisited here). - Empirical and molecular formulas (although this is revisited here). **Alkanes:** **GCSE Chemistry** - Some simple organic chemistry, eg alkanes and alkenes (although this is revisited here). - Fractional distillation of crude oil (although this is revisited here). - Empirical and molecular formulae (although this is revisited here). **Bonding:** **GCSE Chemistry** - Structure and bonding (re-visited here). **Periodicity:** **AS Chemistry** - Electron structure (3.1.1). - Ionisation energy (3.1.1). - Bonding (3.1.3). **Halogenoalkanes:** **AS Chemistry** - Nomenclature of organic compounds (3.3.1). - Principles of curly arrow mechanisms (3.3.1).		- *E–Z* isomerism (3.3.1). - Principles of curly arrow mechanisms (3.3.1). - Shapes of molecules (3.1.3). **Alcohols:** **GCSE Chemistry** - What are biofuels? - Production of ethanol. - Addition polymers. **AS Chemistry** - Alkenes (3.3.4). **Group 2:** **GCSE Chemistry** - Writing formulas of ionic compounds. **AS Chemistry** - Ionisation energy (3.1.1.3). - Bonding (3.1.3). **Group 7:** **AS Chemistry** - Ionisation energy (3.1.1). - Ionic equations (3.1.2). - Electronegativity (3.1.3). - Bonding (3.1.3). - Oxidation states and redox equations (3.1.7). **Organic Analysis:** **AS Chemistry** - Mass spectrometry (3.1.1). - Halogenoalkanes (3.3.3). - Alkenes (3.3.4). - Alcohols (3.3.5).		
Skills & Characteristics	• Practical Skills. • Critical Thinking. • Use of apparatus	• Practical Skills. • Critical Thinking. • Use of apparatus	• Practical Skills. • Critical Thinking. • Use of apparatus	• Practical Skills. • Critical Thinking. • Use of apparatus	• Practical Skills. • Critical Thinking.	• Practical Skills. • Critical Thinking.

	and equipment. • Independent thinking. • Use and application of scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.	and equipment. • Independent thinking. • Use and application of scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.	and equipment. • Independent thinking. • Use and application of scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.	and equipment. • Independent thinking. • Use and application of scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.	• Use of apparatus and equipment. • Independent thinking. • Use and application of scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.	• Use of apparatus and equipment. • Independent thinking. • Use and application of scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.
Aspirations & Careers	Studying Chemistry pupils have the opportunity to progress into the following degrees/careers: Medicine Dentistry Veterinary Science Biomedical Science Natural Science Chemistry Medicinal Chemistry Biochemistry Pharmacy Chemical Engineering		Studying Chemistry pupils have the opportunity to progress into the following degrees/careers: Medicine Dentistry Veterinary Science Biomedical Science Natural Science Chemistry Medicinal Chemistry Biochemistry Pharmacy Chemical Engineering		Studying Chemistry pupils have the opportunity to progress into the following degrees/careers: Medicine Dentistry Veterinary Science Biomedical Science Natural Science Chemistry Medicinal Chemistry Biochemistry Pharmacy Chemical Engineering	

	Plus many more. Chemistry also leads into many sectors that offer apprenticeships.	Plus many more. Chemistry also leads into many sectors that offer apprenticeships.	Plus many more. Chemistry also leads into many sectors that offer apprenticeships.
End points	By the end of year 12, students will acquire foundational knowledge of Paper 1 and 2. In Year 12, these include the following specification points: Physical Chemistry - 3.1.1 to 3.1.7, Inorganic Chemistry – 3.2.1-3.2.3 and Organic Chemistry – 3.3.1-3.3.6. Additionally, emphasis is placed on introducing and mastering the extensive use of subject terminology unfamiliar to the GCSE specification. Students will develop the skills involved in the first 6 required practical's in Year 12. This will include a full laboratory write up for in each line with the CPAC assessments for each practical. Year 12 students will develop the skill of applying their knowledge to exam questions.		

Year 13 Curriculum intent – 2022-23						
	Autumn Term		Spring Term		Summer Term	
	1	2	1	2	1	2
Key Concepts	**Physical Chemistry (Paper 1, 2 & 3)** **Thermodynamics** – The further study of thermodynamics builds on the Energetics section and is important in understanding the stability of compounds and why chemical reactions occur. Enthalpy change is linked with entropy change enabling the free-energy change to be calculated. **Rate Equations -** In rate equations, the mathematical relationship between rate of reaction and	**Physical Chemistry (Paper 1, 2 & 3)** **Kp –** The further study of equilibria considers how the mathematical expression for the equilibrium constant K p enables us to calculate how an equilibrium yield will be influenced by the partial pressures of reactants and products. This has important consequences for many industrial processes. **Acids & Bases –** Acids and bases are important in domestic, environmental and	**Inorganic Chemistry (Paper 1 & 3)** **Transition Metals –** The 3d block contains 10 elements, all of which are metals. Unlike the metals in Groups 1 and 2, the transition metals Ti to Cu form coloured compounds and compounds where the transition metal exists in different oxidation states. Some of these metals are familiar as catalysts. The	**Physical Chemistry (Paper 1, 2 & 3)** **Electrochemical Cells -** Redox reactions take place in electrochemical cells where electrons are transferred from the reducing agent to the oxidising agent indirectly via an external circuit. A potential difference is created that can drive an electric current to do work. Electrochemical cells have very important commercial applications as a portable supply of electricity to power electronic devices such as mobile phones, tablets and laptops. On a larger scale, they can provide energy to power a vehicle	Revision Papers 1, 2 and 3	Revision Papers 1, 2 and 3

	concentration gives information about the mechanism of a reaction that may occur in several steps. **Organic Chemistry (Paper 2 & 3)** **Optical Isomerism –** Compounds that contain an asymmetric carbon atom form stereoisomers that differ in their effect on plane polarised light. This type of isomerism is called optical isomerism. **Carbonyls -** Aldehydes, ketones, carboxylic acids and their derivatives all contain the carbonyl group which is attacked by nucleophiles. This section includes the addition reactions of aldehydes and ketones. Carboxylic acids are weak acids but strong enough to liberate carbon dioxide from carbonates. Esters occur naturally in vegetable oils and animal fats. Important	industrial contexts. Acidity in aqueous solutions is caused by hydrogen ions and a logarithmic scale, pH, has been devised to measure acidity. Buffer solutions, which can be made from partially neutralised weak acids, resist changes in pH and find many important industrial and biological applications. **Inorganic Chemistry (Paper 1 & 3)** **Period 3 Oxides -** The reactions of the Period 3 elements with oxygen are considered. The pH of the solutions formed when the oxides react with water illustrates further trends in properties across this period. Explanations of these reactions offer opportunities to develop an in-depth understanding of how and why these reactions occur	properties of these elements are studied in this section with opportunities for a wide range of practical investigations. **Reaction of ions in aqueous solutions -** The reactions of transition metal ions in aqueous solution provide a practical opportunity for students to show and to understand how transition metal ions can be identified by test-tube reactions in the laboratory. **Organic Chemistry (Paper 2 & 3)** **Amines –** Amines are compounds based on ammonia where hydrogen atoms have been replaced by alkyl or aryl groups. This section includes their	**Organic Chemistry (Paper 2 & 3)** **Amino Acids, Proteins and DNA –** Amino acids, proteins and DNA are the molecules of life. In this section, the structure and bonding in these molecules and the way they interact is studied. Drug action is also considered. **Organic Synthesis -** The formation of new organic compounds by multi-step syntheses using reactions included in the specification is covered in this section. **Organic Analysis (NMR and Chromatography) -** Chemists use a variety of techniques to deduce the structure of compounds. In this section, nuclear magnetic resonance 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 rather than on spectroscopic theory. Chromatography provides an important method of separating and identifying components in a mixture. Different types of chromatography are used depending on the		

	products obtained from esters include biodiesel, soap and glycerol.	**Organic Chemistry (Paper 2 & 3)** **Aromatics -** Aromatic chemistry takes benzene as an example of this type of molecule and looks at the structure of the benzene ring and its substitution reactions.	reactions as nucleophiles. **Polymerisation –** The study of polymers is extended to include condensation polymers. The ways in which condensation polymers are formed are studied, together with their properties and typical uses. Problems associated with the reuse or disposal of both addition and condensation polymers are considered.	composition of mixture to be separated.		
Knowledge & Understanding	The AQA A Level (7405) in Chemistry content is designed to encourage students to: • develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject • develop essential knowledge and understanding of different areas of the subject		The AQA A Level (7405) in Chemistry content is designed to encourage students to: • develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject • develop essential knowledge and understanding of different areas of the subject and how they relate to each other • develop and demonstrate a			

	and how they relate to each other • develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods • develop competence and confidence in a variety of practical, mathematical and problem solving skills • understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society • use theories, models and ideas to develop scientific explanations • use knowledge and understanding to pose scientific questions, define scientific problems, present scientific arguments and scientific ideas • use appropriate methodology, including information and communication technology (ICT), to answer scientific questions and solve scientific problems11 • carry out experimental and investigative activities, including appropriate risk management, in a range of contexts • analyse and interpret data to provide evidence, recognising correlations and causal relationships • evaluate methodology, evidence and data, and resolve conflicting evidence • know that scientific knowledge and understanding develops over time • communicate information and ideas in appropriate ways using appropriate terminology • consider applications and implications of science and evaluate their associated benefits and risks • consider ethical issues in the treatment of humans, other organisms and the environment	deep appreciation of the skills, knowledge and understanding of scientific methods • develop competence and confidence in a variety of practical, mathematical and problem solving skills • understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society • use theories, models and ideas to develop scientific explanations • use knowledge and understanding to pose scientific questions, define scientific problems, present scientific arguments and scientific ideas • use appropriate methodology, including information and communication technology (ICT), to answer scientific questions and solve scientific problems11 • carry out experimental and investigative activities, including appropriate risk management, in a range of contexts • analyse and interpret data to provide evidence, recognising correlations and causal relationships • evaluate methodology, evidence and data, and resolve conflicting evidence • know that scientific knowledge and understanding develops over time • communicate information and ideas in appropriate ways using appropriate terminology • consider applications and implications of science and evaluate their associated benefits and risks • consider ethical issues in the treatment of humans, other organisms and the environment • evaluate the role of the scientific community in validating new knowledge and ensuring integrity • evaluate the ways in which society uses science to inform decision making.	

	• evaluate the role of the scientific community in validating new knowledge and ensuring integrity • evaluate the ways in which society uses science to inform decision making.					
Assessment	End of Unit Assessment	End of Unit Assessments & mock exams	End of Unit Assessment	End of Unit Assessment & mocks exams	A Level Exam Series	A Level Exam Series
Why this? Why now?	The AS course 7404 gives students a solid foundation of knowledge to progress into A Level studies. Each topic in Y13 utilises prior knowledge from AS linked topics and progresses the pupils understanding further. **Thermodynamics –** **AS Chemistry** - 3.1.4 – Energetics. **Rate Equations –** **AS Chemistry** - 3.1.5 – Kinetics. **Optical Isomerism –** **AS Chemistry** - 3.3.1.3 – Isomerism. **A-level Chemistry** - 3.3.8 – Aldehydes and ketones (the best example of how a racemic mixture forms comes from the reaction of many aldehydes and ketones with HCN; two alternative strategies are (a) teach 3.3.7 first but teach the point about formation of racemic mixtures during 3.3.8, or (b) teach 3.3.8 before 3.3.7). **Carbonyls –** **AS Chemistry** - 3.3.1.1 – Nomenclature - 3.3.1.2 – Reaction mechanisms - 3.3.5.2 – Oxidation of alcohols - 3.3.1.1 – Nomenclature. - 3.3.1.2 – Reaction mechanisms. - 3.3.5.2 – Oxidation of alcohols. **Kp –** **AS Chemistry**		The AS course 7404 gives students a solid foundation of knowledge to progress into A Level studies. Each topic in Y13 utilises prior knowledge from AS linked topics and progresses the pupils understanding further. **Transition Metals –** **AS Chemistry** - 3.1.1 – Atomic structure (electron structure). - 3.1.7 – Oxidation, reduction and redox reactions (oxidation states, oxidation, reduction, redox equations). **Reaction of ions in aqueous solutions –** **AS Chemistry** - 3.1.7 – Oxidation, reduction and redox reactions (oxidation states, oxidation, reduction, redox equations). **A-level Chemistry** - 3.2.5 – Transition metals. **Amines –** **AS Chemistry** - 3.3.1.1 – Nomenclature. - 3.3.1.2 – Reaction mechanisms. - 3.3.3.1 – Nucleophilic substitution. **Polymerisation –** **AS Chemistry** - 3.3.1.1 – Nomenclature. - 3.3.4.3 – Addition polymers. **Electrochemical Cells –** AS Chemistry - 3.1.7 – Oxidation, reduction and redox equations.		

	- 3.1.6 – Chemical equilibria, Le Châtelier's principle and K_c **Acids & bases –** **AS Chemistry** - 3.1.6 – Chemical equilibria, Le Châtelier's principle and K_c **Period 3 Oxides –** **AS Chemistry** - 3.1.3 – Bonding. - 3.2.1 – Periodicity. **Aromatics -** **AS Chemistry** - 3.3.1.1 – Nomenclature. - 3.3.1.2 – Reaction mechanisms.		**Amino Acids, Proteins and DNA –** **AS Chemistry** - 3.1.3.7 – Forces between molecules. - 3.3.1.1 – Nomenclature. **A-level Chemistry** - 3.3.9 – Carboxylic acids. - 3.3.11 – Amines. - 3.3.16 – Chromatography (you might wish to teach this section before using it to test amino acids by thin-layer chromatography here). **Organic Synthesis –** **AS Chemistry** - All organic chemistry topics. **A-level Chemistry** - 3.3.8–3.3.13 **Organic Analysis (NMR & Chromatography) –** **AS Chemistry** - 3.3.1.1 – Nomenclature. - 3.3.6 – Organic analysis. This section could be taught before the A-level organic chemistry topics allowing the technique to be re-visited and to be part of practice questions throughout the teaching of the A-level organic topics. - 3.3.13 Amino acids, proteins and DNA (this section requires use of thin-layer chromatography for analysis of amino acids – it could be taught before or after this section)			
Skills & Characteristics	• Practical Skills. • Critical Thinking. • Use of apparatus and equipment. • Independent thinking.	• Practical Skills. • Critical Thinking. • Use of apparatus and equipment. • Independent thinking.	• Practical Skills. • Critical Thinking. • Use of apparatus and equipment. • Independent thinking. • Use and application of	• Practical Skills. • Critical Thinking. • Use of apparatus and equipment. • Independent thinking.		

	• Use and application of scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.	• Use and application of scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.	scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.	• Use and application of scientific methods and practice. • Numeracy and application of mathematical concepts. • Handling Data • Algebra • Geometry and Trigonometry. • Graphs.		
Aspirations & Careers	Studying Chemistry pupils have the opportunity to progress into the following degrees/careers: Medicine Dentistry Veterinary Science Biomedical Science Natural Science Chemistry Medicinal Chemistry Biochemistry Pharmacy Chemical Engineering Plus many more. Chemistry also leads into many sectors that offer apprenticeships.		Studying Chemistry pupils have the opportunity to progress into the following degrees/careers: Medicine Dentistry Veterinary Science Biomedical Science Natural Science Chemistry Medicinal Chemistry Biochemistry Pharmacy Chemical Engineering Plus many more. Chemistry also leads into many sectors that offer apprenticeships.			

End points	By the end of year 13, pupils will have acquired a high level of understanding of all aspects of the specification in preparation for the A Level examinations. Pupils will have mastered the extensive use of subject terminology within A Level Chemistry. Pupils will have continued to develop and consistently achieve the skills involved in all 12 required practicals in line with the CPAC criteria. This will result in a pass mark for the practical aspect of the course. The ultimate goal is for students to achieve their full potential in the Summer exam series of that year.