

Chemistry Year 11 Curriculum Overview Combined

	Autumn				Spring			Summer
	Learning Cycle 1				Learning Cycle 2			Learning Cycle 3
Topic	Review of Rates	Review of Electrolysis	Review of periodic table and Bonding	Review of Quantitative	Review of Reactions of metals	Review of Energy	Review of Required Practicals	Review of all topics
Critical Prior Knowledge	Particle theory	Ionic Bonding, extraction of Aluminium	Atomic structure Bonding Periodic table	KS3: Atoms and elements, mixtures and solubility, Periodic Table Y9 Atomic structure and formulae	KS3 Reactions of metals and acids Y9 Bonding	Y9 Bonding Y10 Chemical changes and energy in reaction	Practical skills developed through doing the required practical during the previous 2 years	
Overall Intent (Big ideas and key concepts)	The effect of temperature, concentration, pressure, surface area and catalysts on the rate of reaction. Measuring and interpreting the rate of reaction.	Electrolysis of melts and solutions. Half equations. Oxidation and reduction. Applications of electrolysis.	The structure of the atom, including a nucleus containing protons and neutrons, surrounded by electrons within electron shells. Explaining the bonding and properties of ionic, covalent	The law of conservation of mass. Mole calculations including reacting mass. Calculating yield and atom economy in reactions.	pH, ions and ionic equations, neutralisation, reactions of acids, strong and weak acids. Electrolysis of melts and solutions. Half equations. Oxidation and reduction. Applications of electrolysis.	Exothermic and endothermic reactions. Energy level diagrams. Bond energy calculations.	Understand the 8 key practicals which could be described in the exam	

			and metallic substances. The bonding in giant covalent substances.					
Essential Knowledge milestones (What students must master)	Understand that variables t can be manipulated in order to speed up or slow them down chemical reactions. In industry, chemists and chemical engineers determine the effect of different variables on reaction rate and yield of product.	Students will build on previous understanding of reactions involving acids and they will be introduced to electrolysis. In electrolysis students will draw on knowledge of ionic compounds	To explain physical and chemical properties of materials. Scientists use this knowledge of structure and bonding to engineer new materials with desirable properties. The properties of these materials may offer new applications in a range of different technologies.	A fundamental part of chemistry to be able to calculate mass of substances required and formed in chemical reactions. Students will be introduced to moles. This will build on understanding of mass of atoms developed in atomic structure.	Knowing about different chemical changes mean that scientists can predict exactly what new substances will be formed and this can be used to develop a range of different materials and processes. Students will build on previous understanding of reactions involving acids	Energy changes are an important part of chemical reactions. The interaction of particles often involves transfers of energy due to the breaking and formation of bonds. This can produce heating or cooling effects that are used in a range of everyday applications.	Students are able to describe in detail the methods needed to perform the 8 required practicals which are asked about in the two final papers	
Cultural Capital	Moral capital-Green chemistry and	Moral capital-Green chemistry and		Moral Capital-Atom economy in industry	Moral capital-Green chemistry and	Practical techniques, health and	Practical techniques, health and	

