Curriculum map – Year 11 Combined chemistry

YEAR 11	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC(s)	**Quantitative chemistry**	**Quantitative chemistry and Chemical changes**	**Chemical changes**	**Chemical changes**	Exam preparation	GCSE exams
What students will know	Whenever a measurement is made there is always some uncertainty in the result obtained. Using equipment with a higher resolution reduces the uncertainty.	In a reaction, one of the reactants will be the limiting reactant and the other will be added in excess Reversible reactions reach equilibrium. Position of equilibrium can be changed by the temperature, pressure, concentration Changing the equilibrium can increase yield and efficiency, and profitability in industry. Reactivity series of metals, more reactive elements can displace less reactive elements.	Oxidation is the loss of electrons, reduction is the gain of electrons, REDOX reactions occur when reduction and oxidation take place in the same reaction, carbonates, bases and alkalis neutralise acids, alkalis are soluble, bases are insoluble, neutral solutions have an equal concentration of H+ and OH- ions Strong acids are fully ionised Weak acids are partially ionised If the hydrogen ion concentration in a solution increases by a factor of 10, the pH of the solution decreases by 1 General word equations for reactions with metals and acids Metal + oxygen → metal oxide Metal + acid → salt + hydrogen Acid + alkali → salt + water Acid + base → salt + water Acid + carbonate → salt + water + carbon dioxide	Electrolysis can be used to break down ionic compounds as long as they are in solution or molten, the test and result for different gases (oxygen, chlorine, hydrogen and carbon dioxide)		

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What students will be able to do	Calculate uncertainties, calculate the percentage by mass of a substance. Calculate the number of moles, rearrange the moles equation to calculate relative atomic mass and mass	Calculate the gradient of a line Draw the tangent on a curve Calculate the mass of a product using information about a different reactant or product, calculate the mass of a solute, identify the limiting reactant	Write word equations, predict the products of a reaction, identify what has been reduced and what has been oxidised, identify the reactants needed to make a salt, make their own salt using a displacement reaction, filtration and crystallisation,	Electroplate a metal item, predict the products in the electrolysis of a molten ionic compound and when the ionic compound is in solution. Identify unknown gases using chemical tests		
Beyond the classroom (Wider reading / Trips)			Carry out this simple investigation and compare (state the similarities and differences) between making salts as we have in school and making salts in this investigation https://saltersinstitute.org/wp-content/uploads/2022/08/FINAL-Creating-Crystals.pdf			