









YEAR 10 CURRICULUM INFORMATION – Chemistry

	Spring 1	Spring 2
What will students be learning?	<p><b>Chemical calculations</b></p> <p>Students will build upon their understanding of the structure of atoms and sub-atomic particles to understand relative atomic mass and relative formula mass. Students should be able to use relative atomic masses to calculate relative formula masses of compounds.</p> <p>Students will use calculations to work out how different chemicals can react together, establish patterns, and make predictions about chemicals in industry. They will be able to identify concentrations, yield, atom economy and volume of gases.</p> <p>Students will calculate concentrations in mol/dm<sup>3</sup> and calculate moles in gases. Students will also carry out a titration as part of the required practical, with higher-tier students using their results to calculate the concentration of an unknown solution.</p>	<p><b>Chemical changes</b></p> <p>Students will study the reactions of the metals potassium, sodium, lithium, calcium, magnesium, zinc, iron, and copper with water and acids and should be able to recall and describe these reactions. They will apply their understanding of the reactivity series to displacement reactions and the extraction of metals, as well as introducing higher-tier students to the concepts of oxidation and reduction as the loss and gain of electrons respectively.</p> <p>Students will also learn about salts and how they are prepared, including from metals and acids, acids and bases, and acids and carbonates. Students should be able to prepare a pure, dry sample of a salt from an insoluble metal oxide or carbonate as part of the required practical.</p> <p>Finally, students will learn about the pH scale. Higher-tier students should be able to explain how pH relates to H<sup>+</sup>(aq) ion concentration and the difference between strong and weak acids.</p>
How will students be assessed?	C4 (Chemical calculations) Milestone Required practical – Use titration to investigate reacting volumes	C5 (Chemical changes) Milestone Required practical – Prepare a salt from an insoluble metal carbonate or oxide
Literacy – What keywords will be taught?	Law of conservation of mass, reactant, product, relative formula mass, decomposition, uncertainty, moles, Avogadro’s constant, balanced, ratio, limiting reactant, concentration, atom economy, yield, theoretical, volume, pressure	Oxidation, Reduction, Reactivity, Unreactive, Electrons, Salt, Base, Insoluble, Soluble, Neutralise, Crystallise, Pure, Aqueous, Solution, pH scale, Ionised, Strong acid, Weak acid
What employability skills are being developed?	Analytical, mathematical, problem solving	Skills such as investigative and analytical which can lead to careers as: Welder, Chemical metallurgist, Metal extractor, Pharmacist, Toothpaste company, Brewer, Pool maintenance, Environmentalist

Wider Curriculum Links?	Maths (manipulating data) Physics (conservation of mass)	Physics (conservation of mass) Design technology (following instructions and food skills)
What useful websites are there for this topic?	    <p>Free science lessons    Primrose Kitten    Seneca    BBC Bitesize</p>	    <p>Free science lessons    Primrose Kitten    Seneca    BBC Bitesize</p>
What wider reading could be done for this topic?	Textbooks: AQA Chemistry for GCSE Combined Science: Trilogy (Oxford) Textbooks: AQA Chemistry for GCSE Separate Science (Oxford)	Textbooks: AQA Chemistry for GCSE Combined Science: Trilogy (Oxford) Textbooks: AQA Chemistry for GCSE Separate Science (Oxford)
What else can students be doing independently to develop their understanding of this topic?	Exam questions Numeracy practice – ratios, uncertainty Rearrangement of equations Calculator skills	Exam questions Numeracy practice – ratios Rearrangement of equations