YEAR 10 CURRICULUM INFORMATION – Chemistry		
	Summer 1	Summer 2
What will students be learning?	**Rates of reaction** Students will learn about the factors that affect the rate of a reaction, including temperature, surface area, concentration, and pressure. Students should be able to explain the effect of each factor on the rate of reaction using collision theory – understanding that each factor increases the *frequency* of effective collisions, not just the number of collisions. They should also be able to explain the effect of catalysts on the rate of a reaction in terms of providing an alternative reaction pathway with a lower activation energy. Students will also learn about reversible reactions and dynamic equilibrium. Students should apply their knowledge on endothermic and exothermic reactions to equilibrium reactions to be able to predict the effect of temperature changes on the reversible reactions and the position of the equilibrium. Higher-tier students should also be able to use Le Châtelier's principle to explain the effect of temperature and pressure on the position of equilibrium. **Electrolysis** Students will build upon their knowledge from *C3 Structure and bonding* to explain why ionic compounds can undergo electrolysis when molten or in solution. They should also be able to explain the movement of particles during electrolysis, and the reactions that occur at the electrodes. Students will then apply their understanding of electrolysis to the extraction of aluminium, and learn how to investigate the electrolysis of a solution. They should be able to predict the products of electrolysis and higher-tier students should be able to write balanced half equations.	**Chemical analysis** Students will learn about various techniques for analysing substances. All students should understand the difference between a pure substance, a mixture, and a formulation, and what is meant by purity. Students should also have built upon their understanding of chromatography experiments from *C1 Atomic Structure* and be able to analyse a chromatogram, both qualitatively and quantitatively using *R*f values. Students should also be able to describe the different experimental tests for gases, including both the procedure and positive result. Students should also be able to describe experimental tests for positive and negative ions, and be able to write balanced symbol equations for them. They should be able to apply their knowledge of all of the tests they have learnt to be able to plan and investigation to identify positive and negative ions. Students will also study flame emission spectroscopy, and should be able to interpret instrumental results.
How will students be assessed?	C8 (Rates of reaction) Milestone Required practical – How changes in concentration affect the rates of reactions by a method involving measuring the volume of a gas produced and a method involving a change in colour or turbidity C6 (Electrolysis) Milestone Required practical – Investigate the electrolysis of a solution	C12 (Chemical analysis) Milestone Required practical – Paper chromatography Required practical – Use of chemical tests to identify the ions in unknown single ions compounds
Literacy – What keywords will be taught?	Collision, Activation energy, Reactant, Product, Tangent, Gradient, Rate, Temperature, Concentration, Pressure, Surface area, Catalyst,	Pure, Impure, Mixture, Formulation, Component, Chromatogram, Mobile phase, Stationary phase, Retention factor, Solvent, Solute,

	Frequency, Successful, Reversible, Dynamic, Equilibrium, Endothermic, Exothermic, Le Chatelier's principle Electrolysis, Electrode, Electrolyte, Molten, Dissolved, Ore, Ion	Substance, Glowing, Burning, Compound, Flame, Precipitate, Solution, Dissolve, Spectroscopy
What employability skills are being developed?	Skills such as investigative and analytical which can lead to careers as: Explosives engineer, Chemical manufacturer, Chemical engineer, Research scientist, Gas engineer, Metal extractor, Materials Scientist, Physicist, NASA, Chemical company	Skills such as investigative and analytical which can lead to careers as: Chemical manufacturer, Chemical engineer, Criminal analyst, Pharmacologist, Toxicologist, Crime scene investigator
Wider Curriculum Links?	Biology (How different conditions impact on reactions) Food (How temperature affects food production) Maths (Interpreting and creating graphs, rearranging equations, tangents, creating and interpreting tables, fractions) DT (Production of metals)	Food (Use of food colouring dyes) Food (Use of E numbers in food) Maths (Interpreting data)
What useful websites are there for this topic?	 Free science lessons  Primrose Kitten  Seneca  BBC Bitesize	 Free science lessons  Primrose Kitten  Seneca  BBC Bitesize
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	Textbooks: AQA Chemistry for GCSE Combined Science: Trilogy (Oxford) Textbooks: AQA Chemistry for GCSE Separate Science
What else can students be doing independently to develop their understanding of this topic?	Exam questions Numeracy practice	Exam questions Numeracy practice