

Curriculum Map: Year 10 Chemistry

	Half Term 1 and 2	Half Term 3 and 4	Half Term 5	Half Term 6
Topic	Chemical changes 1 Metals Acids and bases	Quantitative chemistry Amount of product Using moles	Chemical changes 2 Starts towards the end of half term 4 Electrolysis Continues into half term 6	Energy changes
Intent	<p>Students will learn: About the reactivity series. How metals are extracted and reactions of metals. About acids and bases and the reactions of acids.</p>	<p>Students will learn: The law of conservation of mass. How to balance equations. How to use mathematical formulae and the periodic table to calculate the amount of substance.</p>	<p>Students will learn: Ionic compounds can be separated using electricity be either dissolving or melting them in water. How to predict the products of electrolysis. How to represent reactions of electrolysis.</p>	<p>Students will learn: Chemical reactions involve energy changes. Energy can be absorbed or released How to draw reaction profiles.</p>
Key Knowledge	<p>Elements can be arranged according to their reactivity with water and dilute acids; this is known as the reactivity series. Reactive metals can be extracted using a variety of methods. The reactivity series helps decide how a metal can be extracted. Acids react with metals to form salts and hydrogen. Redox reactions involve the gain and loss of electrons. Acids can be neutralised by a base; this produces salts. Required practical 8 – preparing salts. The pH scale is used to measure the acidity or alkalinity of a solution.</p>	<p>The law of conservation of mass tell us that matter cannot be created or destroyed. The final combined mass of the products is equal to the starting combined mass of the reactants. When one of the products is a gas, the mass may decrease if the gas escapes. Mathematical formulae and moles can be used to calculate the mass of the product or reactant. In some chemical reactions, one of the reactants can be in excess. The concentration of a solution can also be calculated using mathematical formulae.</p>	<p>When an ionic compound is melted or dissolved in water, the ions are free to move. Ions will move to oppositely charged electrodes where electrons are gained or lost by the ions. There are two types of electrolysis, aqueous and molten. Reactive metals do not form during aqueous electrolysis; instead, hydrogen gas is formed. Carbon dioxide can form during molten electrolysis.</p>	<p>An exothermic reaction is one that transfers energy to the surroundings. An endothermic reaction is one that absorbs energy from the surroundings. Exothermic and endothermic reactions both have uses in everyday life such as hand warmers and sports' injury packs.</p>
Key Skills	<p>Analysis Recall Balancing equations Practical techniques</p>	<p>Maths Analysis Recall Draw graphs using experimental data</p>	<p>Analysis Recall Practical techniques Use of scientific vocabulary</p>	<p>Analysis Drawing graphs Practical techniques Comparative reasoning</p>

	Problem solving Use of scientific vocabulary Making accurate observations	Interpreting data from tables and graphs Use of scientific vocabulary		Use of scientific vocabulary
Key Vocabulary	Reactivity series, extraction, redox, oxidation, reduction, metal oxides, aqueous solution, hydrogen ions H ⁺ , hydroxide ions OH ⁻ , universal indicator, displace, neutralisation, pH, strong and weak/dilute acid, partially ionise, fully ionise, concentration.	Avogadro's number, moles, ratio, amount, mass, relative formula mass, mass number.	Positive electrode, negative electrode, graphite, free electrons, free ions, discharge.	Endothermic, exothermic, energy profile, absorb, release, surroundings, energy transfer.
Key Reading	BBC Bitesize CGP revision guide	BBC Bitesize CGP revision guide	BBC Bitesize CGP revision guide	BBC Bitesize CGP revision guide
End Point	Students are competent in answering structured and longer response exam style questions. Recall chemical equations. Able to structure comparative sentences. Can recall practical methods. Students are competent in answering maths, data and graph-based questions. Students can plot and analyse line graphs.	Students are competent in answering structured and longer response exam style questions. Students are competent in answering maths, data and graph-based questions. Students can plot and analyse line graphs.	Students are competent in answering structured and longer response exam style questions. Students are competent in answering maths, data and graph-based questions.	Students are competent in answering structured and longer response exam style questions. Students are competent in answering maths, data and graph-based questions. Students can plot and analyse line graphs.
Form of Assessment	Exam ready questions DC1	Exam ready questions DC2	Exam ready questions Mock/DC3	Exam ready questions
Enrichment Opportunities	As Universities start to offer science-based workshops again Y10 will be given the opportunity to take part in trips to local universities to gain insights into scientific courses and careers. Linked with Duke of Edinburgh there is an opportunity for some students to gain hands on experience in a science career with a Science technician as part of their skills or volunteering section.			
Leadership Opportunities	Year 10 provides a fantastic opportunity for a student to embrace the role of a subject leader which will meet regularly with a teacher from the subject. They will talk to other pupil about the subject and share your views with teachers. they will think about how you can make the subject even more interesting than it is already, as well as examining ways in which students learn effectively. They will tell students and other groups of people what is great about the subject! Students will also be offered to take place in open evening giving them an opportunity to show what skills and knowledge they have developed over the course. Chances to formally present within lessons and take ownership of that process. Student examples to demonstrate good quality work.			



AMBITION



RESILIENCE



COURTESY



KINDNESS