

Year 10 C5: Chemical changes. Chemistry – Science Faculty

Rationale and Context of Unit:	Core curriculum content:	Tier 2 & Tier 3 vocabulary explicitly taught:
<p>In this chapter, students will revise and develop their understanding of the reactivity series from KS3. They 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 $H^+_{(aq)}$ ion concentration and the difference between strong and weak acids.</p>	<ul style="list-style-type: none"> • The reactivity series • Displacement reaction • Extracting metals • Salts from metals • Salts from insoluble bases • Making more salts • Neutralisation and pH scale • Strong and weak acids 	<ul style="list-style-type: none"> • Reactivity • Displacement • Dilute • Concentrate • Reduction • Solute • Solution • Solvent
Challenge and Support:	World wide learning/ links to 21 st century:	Cultural capital/ Industry/ Enrichment:
<ul style="list-style-type: none"> • <i>Explaining the difference between strong and concentrated in terms of acids.</i> • <i>Conducting practical's to produce salts.</i> • <i>Predicting the names and chemical formulae of salts from different reactants.</i> 	<ul style="list-style-type: none"> • The production of salt-based fertilisers allows the population of the world to be as high as it is today. • The modern world relies on the use of numerous metals, many of which are extracted by smelting. Pupils will look at how this process occurs and understand the environmental impact it has. 	<ul style="list-style-type: none"> • Crop fertiliser production uses salts. • Various salts are used within the food industry. • Smelting/reduction of metal ores in the production of copper/iron.
Historical, Social, Moral, Spiritual, Cultural	Cross curricular links/ literacy/numeracy:	Common misconceptions:

context:		
<ul style="list-style-type: none"> Discussing the environmental impact the extraction of our materials has on both habitats and the atmosphere. Pupils should consider if we're justified continually extracting metals from their ores for our consumption. 	<ul style="list-style-type: none"> Literacy opportunities explaining the difference between strong and concentrated acids as well as why some chemicals will take the place of others in compounds during displacement reactions. 	<ul style="list-style-type: none"> A solution becomes stronger the more solute you add to it. Strong means more reactive. Alkalis are the only things that neutralise acids.
Assessment timeline:		
<ul style="list-style-type: none"> regular EPPQs end of unit test EPPQ homework task in lesson questioning and other progress checks 		
Home learning		
<ul style="list-style-type: none"> EPPQ homework booklet 		
Feedback		
<ul style="list-style-type: none"> Students self/peer mark homework booklets and set revision goals based on understanding. Feedback based on the end of the unit test. 		

Length of unit (duration indicated in lessons)

C5.1	C5.2	C5.3	C5.4	C5.5	C5.6	C5.7	C5.8	C5 test
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Unit: C5: Chemical changes, Chemistry

