

Year 10 C6: Electrolysis. Chemistry – Science Faculty

Rationale and Context of Unit:	Core curriculum content:	Tier 2 & Tier 3 vocabulary explicitly taught:
<p>In this chapter, students are introduced to electrolysis. They will build upon their knowledge from <i>Chapter C3</i> 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.</p> <p>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.</p>	<ul style="list-style-type: none"> • Introduction to electrolysis • Changes at the electrodes • Extraction of aluminium • Electrolysis of aqueous solutions 	<ul style="list-style-type: none"> • Electrolysis • Anode • Cathode • Electrode • Electrolyte • Preferential discharge • Aqueous
Challenge and Support:	World wide learning/ links to 21 st century:	Cultural capital/ Industry/ Enrichment:
<ul style="list-style-type: none"> • <i>Explaining why different products are produced at different electrodes using scientific language and ideas previously developed about electrostatic forces of attraction.</i> • <i>Using ideas about reactivity to predict which species will be preferentially discharged. Support is provided by using a flow diagram to help pupils who require the extra support understanding the concept.</i> • <i>Higher tier pupils will complete half-equations, showing the reactions taking place at each electrode using complex chemical symbol equations.</i> 	<ul style="list-style-type: none"> • Aluminium plays a vital role in products of the 21st century from aeroplane bodies to kitchen foil. • The copper we rely on to conduct electricity in our appliances needs to be very pure, electrolysis allows us to produce this. • Lithium, used in phone batteries is extracted from lithium compounds using electrolysis. 	<ul style="list-style-type: none"> • Electrolysis is used in many different industries including copper purification, aluminium extraction and electroplating.
Historical, Social, Moral, Spiritual, Cultural context:	Cross curricular links/ literacy/numeracy:	Common misconceptions:
<ul style="list-style-type: none"> • <i>An overview of how aluminium went from being one of the most valuable commodities on</i> 	<ul style="list-style-type: none"> • <i>Literacy opportunities explaining why different products will be discharged during electrolysis</i> 	<ul style="list-style-type: none"> • <i>Kitchen foil is made of tin.</i> • <i>'Tin cans' are made from tin.</i>

<p><i>earth, used to make jewellery more valuable than gold to a product we wrap our sandwiches in.</i></p> <ul style="list-style-type: none"> Looking at the environmental impact of aluminium extraction in electrolysis, which requires very high temperatures and lots of electricity. 	<p><i>of aqueous solutions.</i></p> <ul style="list-style-type: none"> Links with maths, balancing equations and the use of charged species (electrons and ions) where an understanding of adding and subtracting negative numbers is crucial to complete half equations successfully. 	<ul style="list-style-type: none"> Using electricity is 'good for the environment'.
<p>Assessment timeline:</p>		
<ul style="list-style-type: none"> regular EPPQs end of unit test EPPQ homework task in lesson questioning and other progress checks 		
<p>Home learning</p>		
<ul style="list-style-type: none"> EPPQ homework booklet 		
<p>Feedback</p>		
<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)

C6.1	C6.2	C6.3	C6.4	C6 test
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Unit: C6: Electrolysis, Chemistry