











SC10 Electrolytic Processes

SC10a Electrolysis






Step	Learning outcome	Had a look	Nearly there	Nailed it!
	State the meaning of the term 'electrolyte'.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Outline what happens during electrolysis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Explain the movement of the ions during electrolysis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	H Write half equations for the reactions at the electrodes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	H Explain the meaning of oxidation and reduction in terms of the movement of electrons.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	H State the electrodes at which oxidation and reduction occur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SC10b Products from electrolysis







Step	Learning outcome	Had a look	Nearly there	Nailed it!
	Recall the products formed from the electrolysis of a variety of common compounds and solutions (copper chloride solution, sodium chloride solution, sodium sulfate solution, acidified water, molten lead bromide).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Explain the formation of the products in the electrolysis of a variety of common compounds and solutions (copper chloride solution, sodium chloride solution, sodium sulfate solution, acidified water, molten lead bromide).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Predict the products formed from the electrolysis of a molten, binary, ionic compound.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Explain how the electrolysis of copper sulfate solution using copper electrodes can be used to purify copper.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SC11 Obtaining and Using Metals






SC11a Reactivity

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 5 th	Describe the reactions of common metals with water and acids.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe the reactions of metals with salt solutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	H Explain why displacement reactions are redox reactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Deduce the order of metals in the reactivity series from their reactions with water, acids and salt solutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 th	Explain the reactivity series in terms of the tendency of different metal atoms to form cations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>






SC11b Ores

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 4 th	Recall the meaning of the term 'ore'.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 4 th	Recall some metals that are found uncombined in the Earth's crust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Explain how and why some metals are extracted from their ores by heating with carbon.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Explain how and why some metals are extracted from their ores by electrolysis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	H Describe two biological methods of metal extraction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 10 th	H Evaluate biological methods of metal extraction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SC11c Oxidation and reduction








Step	Learning outcome	Had a look	Nearly there	Nailed it!
 9 th	H Explain why reactions occurring at the electrodes during electrolysis are redox reactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Describe the meanings of oxidation and reduction in terms of oxygen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 9 th	Explain which substance has been oxidised and which substance has been reduced in a reaction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Recall that all metals are extracted by reduction of their ores.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Explain how the position of a metal in the reactivity series is related to its resistance to oxidation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SC11d Life cycle assessment and recycling

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 4 th	State the advantages and disadvantages of recycling a metal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe a process where a material or product is recycled for a different use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Evaluate the advantages and disadvantages of recycling a material or product to decide whether recycling is a viable option.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	Describe the four stages in carrying out a life cycle assessment (LCA) of a material or product.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Evaluate data from a life cycle assessment of a material or product.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





SC12 Reversible Reactions and Equilibria

SC12a Dynamic equilibrium





Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 th	Describe what happens in reversible reactions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Explain the use of the symbol \rightleftharpoons in chemical equations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Explain what is meant by dynamic equilibrium.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Describe the formation of ammonia.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 5 th	State the conditions used for the Haber process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	 Describe how changing the temperature, pressure and concentration all affect the relative amount of substances in an equilibrium mixture.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SC13 Transition Metals, Alloys and Corrosion





SC13a Transition metals

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 th	Describe the position of the transition metals in the periodic table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Describe some general physical properties of transition metals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Describe some general chemical properties of transition metals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Explain why iron has the typical properties of a transition metal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





SC13b Corrosion

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 th	Describe corrosion of metals as the result of oxidation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Describe how rusting of iron occurs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Explain how rusting can be prevented by excluding oxygen and/or water.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Explain how sacrificial protection works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>




SC13c Electroplating

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 6 th	Recall what electroplating is.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Recall some common examples of electroplating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 7 th	Explain why metal objects may be electroplated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Explain how electroplating is carried out.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SC13d Alloying

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 4 th	Recall the name of a common alloy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 4 th	Describe what alloys are.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Explain why iron is alloyed with other metals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 8 th	Explain why alloys are often stronger than the metals they contain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SC13e Uses of metals and their alloys

Step	Learning outcome	Had a look	Nearly there	Nailed it!
 3 rd	Recall common uses for aluminium, copper and gold.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 4 th	Recall the names and compositions of common alloys containing aluminium or copper.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 6 th	Explain why different metals and their alloys have different uses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>