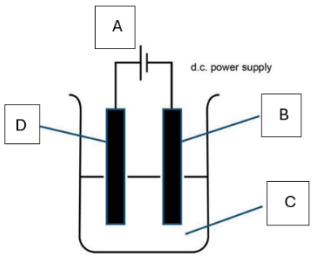
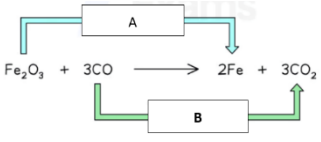
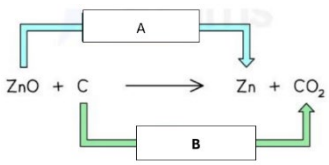
breakdown of ionic compound when molten or in aqueous solution by the passage of electricity	meaning of aqueous, (aq)	name given to a solution or liquid that can conduct electricity	type of substance made up of ions + cations and - anions
electrolysis	dissolved in water	electrolyte	ionic substance
meaning of molten, (l)	name / charge for metal ions	name / charge for nonmetal ions	
melted / liquid	cations / + ions	anions / - ions	A = cell B = cathode C = electrolyte D = anode
forms @ the anode when molten lead bromide $PbBr_2(l)$ is electrolysed	material used as an inert (unreactive) electrode	what is needed for electrolysis?	forms @ the cathode when molten lead bromide $PbBr_2(l)$ is electrolysed
bromine(l) & (g)	platinum metal or carbon (graphite)	power supply, electrolyte, electrodes & wires	lead (metal)
Pb^{2+} **+ 2e-** → Pb (gain of electrons = ...)	$2Br^-$ → Br_2 **+ 2e-** (loss of electrons = ...)	LEO the lion says 'GER' helps us to remember... 	..... forms @ the cathode when brine / conc NaCl(aq) is electrolysed
reduction	oxidation	loss electrons – oxidation, gain electrons - reduction	hydrogen gas, $H_2(g)$

..... forms @ the anode when brine / conc NaCl(aq) is electrolysed	what could hydrogen, made by electrolysis of brine, be used to manufacture?	what could the sodium hydroxide, made by electrolysis of brine, be used to manufacture?	when brine, conc NaCl(aq) is electrolysed, what chemical is formed in solution?
chlorine gas, $Cl_2(g)$	margarine	soaps and detergents	sodium hydroxide, NaOH(aq)
positive test for hydrogen gas, $H_2(g)$	positive test for chlorine gas, $Cl_2(g)$	..... forms @ the cathode when dilute sulfuric acid, $H_2SO_4(aq)$ is electrolysed	..... forms @ the anode when dilute sulfuric acid, $H_2SO_4(aq)$ is electrolysed
burns with a (squeaky) pop with a lighted splint	bleaches damp blue litmus paper blue → red → white	hydrogen gas, $H_2(g)$	oxygen gas, $O_2(g)$
positive test for oxygen gas, $O_2(g)$	@ anode when dilute H_2SO_4 is electrolysed $4OH^-(aq) \rightarrow 2H_2O(l) + \mathbf{O_2}(g) + 4e^-$ (loss of electrons = ...)	@ cathode when dilute H_2SO_4 is electrolysed $2H^+(aq) + 2e^- \rightarrow \mathbf{H_2}(g)$ (gain of electrons = ...)	METAL EXTRACTION name of ore that aluminium is extracted from
it will relight a glowing splint	oxidation	reduction	bauxite
METAL EXTRACTION aluminium, Al, is extracted form alumina (from bauxite) by....	METAL EXTRACTION electric current is passed through the molten cryolite and aluminium oxide mixture – what happens at the anode?	METAL EXTRACTION electric current is passed through the molten cryolite and aluminium oxide mixture – what happens at the cathode?	METAL EXTRACTION 
electrolysis	Oxide ions (O^{2-}) are attracted to anode, lose electrons & are oxidised to $O_2(g)$	Aluminium ions (Al^{3+}) are attracted to cathode, gain electrons & are reduced to liquid aluminium, Al(l).	A = reduction (loss of O), B = oxidation (gain of O)

METAL EXTRACTION  	trend shown by the elements across a complete period of the Periodic Table, from left to right	properties of metals	properties of non-metal elements
A = reduction (loss of O), B = oxidation (gain of O)	metals → nonmetals	conduct heat & electricity, are malleable & ductile, high density and high melting point	do not conduct heat & electricity, brittle, low density & low melting point
METAL EXTRACTION how iron (Fe) is extracted from hematite (iron(III) oxide)	METAL EXTRACTION name and formula of the ore that iron is extracted from	what is meant by a redox reaction?	METAL EXTRACTION in the Blast furnace, symbol equation for burning of carbon (coke)
by reduction of iron(III) oxide in the blast furnace	hematite / iron(III) oxide, Fe_2O_3	reaction where oxidation & reduction take place together in the same reaction	$C + O_2 \rightarrow CO_2$
METAL EXTRACTION in the Blast furnace, symbol equation for reduction of carbon dioxide CO_2 by carbon (coke)	METAL EXTRACTION in the Blast furnace, symbol equation for reduction of iron(III) oxide by carbon monoxide, CO	METAL EXTRACTION chemical name and formula for hematite	METAL EXTRACTION in the Blast furnace, word equation for reduction of iron(III) oxide by carbon monoxide, CO
$C + CO_2 \rightarrow 2CO$	$Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$	iron(III) oxide Fe_2O_3	iron(III) oxide + carbon monoxide → iron + carbon dioxide
METAL EXTRACTION the factor that determines the ease in obtaining metals from their ores is	METAL EXTRACTION which metal is more reactive, iron, Fe or aluminium, Al?		
position in the metal reactivity series	aluminium		