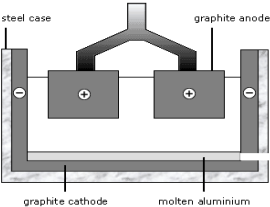
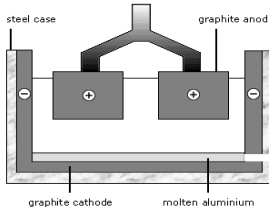
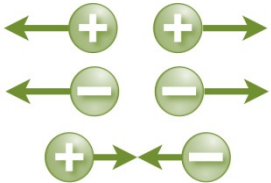
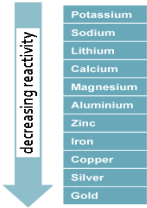
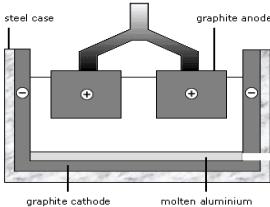





H	1	2	3	4	5	6
1	Ionic compound	Bauxite	Used to make soap and paper	Opposite charges attract	Explain why electrolysis of $\text{KCl}_{(l)}$ yields $\text{K}_{(l)}$ and $\text{Cl}_{2(g)}$ at the electrodes, but $\text{KCl}_{(aq)}$ yields $\text{H}_{2(g)}$ and $\text{Cl}_{2(g)}$ instead	$\text{Al}^{3+} + 3e^- \rightarrow \text{Al}$
2	Anode	$\text{O}^{2-} \rightarrow \text{O}_2 + 4e^-$	Will not pass electric current in solid state	Used to sterilise drinking water and in plastics manufacture		Reduction
3	Metal extraction	Cryolite	Anode must be periodically replaced	Cathode	Saves a large amount of energy	E.g. improves the appearance of an object or improves its resistance to corrosion
4	H_2 , Cl_2 and NaOH	Cathode half equation for electrolysis of molten lead bromide?	Anode half equation for the electrolysis of molten zinc chloride?	Products from electrolysis of copper sulfate solution?	Extraction of Al from its ore	Supplies electrons
5	Describe how to electroplate a nickel bracelet with silver metal. Why is this useful?	OILRIG		Downside of electrolysis	Used to make margarine and burned as a fuel	Electrolyte
6	Oxidation	Electrostatic attractions	Half equation	How is copper purified using electrolysis?	Electrons are removed here	$2\text{H}^+_{(g)} + \text{O}_2 \rightarrow \text{H}_2\text{O}$

H	1	2	3	4	5	6
1	Ionic compound	Bauxite	Used to make soap and paper	?	Explain why electrolysis of $\text{KCl}_{(l)}$ yields $\text{K}_{(l)}$ and $\text{Cl}_{2(g)}$ at the electrodes, but $\text{KCl}_{(aq)}$ yields $\text{H}_{2(g)}$ and $\text{Cl}_{2(g)}$ instead	$\text{Al}^{3+} + 3e^- \rightarrow \text{Al}$
2	Anode	$\text{O}^{2-} \rightarrow \text{O}_2 + 4e^-$	Will not pass electric current in solid state	Used to sterilise drinking water and in plastics manufacture		?
3	Metal extraction	Cryolite	?	Cathode	Saves a large amount of energy	E.g. improves the appearance of an object or improves its resistance to corrosion
4	?	cathode half equation for electrolysis of molten lead bromide?	Anode half equation for the electrolysis of molten zinc chloride?	Products from electrolysis of copper sulfate solution?	Extraction of Al from its ore	Supplies electrons
5	Describe how to electroplate a nickel bracelet with silver metal	OILRIG		Downside of electrolysis	?	Electrolyte
6	Oxidation	?	Half equation	How is copper purified using electrolysis?	Electrons are removed here	$2\text{H}^+_{(g)} + \text{O}_2 \rightarrow \text{H}_2\text{O}$

F	1	2	3	4	5	6
1	Ionic compound	Aluminium ore, primary source of Al_2O_3	Used to make soap and paper		Explain why electrolysis of molten potassium chloride produces potassium metal and chlorine gas at the electrodes, but an aqueous solution of potassium chloride produces hydrogen and chlorine gas instead	<i>Inert electrodes</i>
2	Anode	O_2 gas produced at the anode reacts to form CO_2	Will not conduct electricity when solid	Used to sterilise drinking water and in plastic manufacture		Al^{3+} ions gain $3e^-$ to make Al metal
3	Metal extraction	<i>Cryolite</i>	Why do calcium ions move to the negative electrode?	Cathode	<i>Saves a large amount of energy</i>	<i>E.g. improves the appearance of an object or improves its resistance to corrosion</i>
4	Cl ⁻ ions lose an electron to form Cl atoms		Product at the anode in the electrolysis of molten zinc	Products from electrolysis of copper sulfate solution?	Extraction of Al from its ore	<i>Supplies electrons</i>
5	Describe how to electroplate a nickel bracelet with silver	OILRIG		Downside of electrolysis	Will conduct electricity if molten or in solution	<i>Electrolyte</i>
6	<i>Oxidation</i>	Products of electrolysis of molten magnesium chloride?	When the potassium ions reach the negative electrode they turn into potassium ____?	How is copper purified using electrolysis?	<i>Electrons are removed here</i>	<i>Name the 2 types of positive ion in sodium chloride solution</i>

F	1	2	3	4	5	6
1	Ionic compound	Aluminium ore, primary source of Al_2O_3	?		Explain why electrolysis of molten potassium chloride produces potassium metal and chlorine gas at the electrodes, but an aqueous solution of potassium chloride produces hydrogen and chlorine gas instead	<i>Inert electrodes</i>
2	Anode	O_2 gas produced at the anode reacts to form CO_2	Will not conduct electricity when solid	Used to sterilise drinking water and in plastic manufacture		Al ions gain 3e^- to make Al metal
3	?	<i>Cryolite</i>	Why do calcium ions move to the negative electrode?	Cathode	<i>Saves a large amount of energy</i>	?
4	Cl^- ions lose an electron to form Cl atoms	?	Product at the anode in the electrolysis of molten zinc	Products from electrolysis of copper sulfate solution?	Extraction of Al from its ore	<i>Supplies electrons</i>
5	Describe how to electroplate a nickel bracelet with silver	OILRIG		?	Will conduct electricity if molten or in solution	<i>Electrolyte</i>
6	<i>Oxidation</i>	Products of electrolysis of molten magnesium chloride?	When the potassium ions reach the negative electrode they turn into potassium ____?	How is copper purified using electrolysis?	?	<i>Name the 2 types of positive ion in sodium chloride solution</i>

Chemistry 4.4.3 / Science Trilogy 5.4.3 Electrolysis revision checklist

Can you...			
a) define ' <i>electrolysis</i> ' and state the requirements for the process to take place			
b) predict the products of the electrolysis of binary ionic compounds in the molten state			
c) describe the use of electrolysis of molten compounds in the extraction of metals			
d) explain how aluminium is extracted, in detail, and explain why the anode must be continually replaced			
e) predict the products of the electrolysis of aqueous solutions containing a single ionic compound			
f) represent the relevant reactions at the electrodes, for a given process, as half equations (HT only)			

Also important:

(Chemistry) Required practical 3: investigate what happens when aqueous solutions are electrolysed using inert electrodes. This should be an investigation involving developing a hypothesis. AT skills covered by this practical activity: 3, 7 and 8

(Science Trilogy) Required practical 3: investigate what happens when aqueous solutions are electrolysed using inert electrodes. This should be an investigation involving developing a hypothesis. AT skills covered by this practical activity: 3 and 7