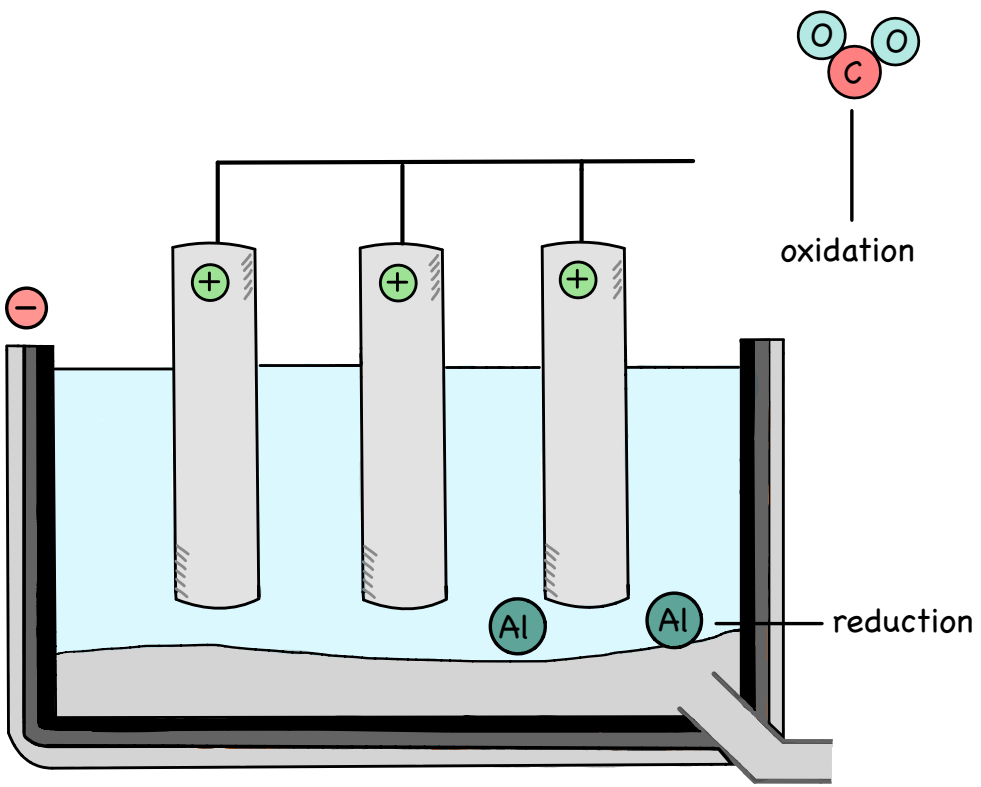
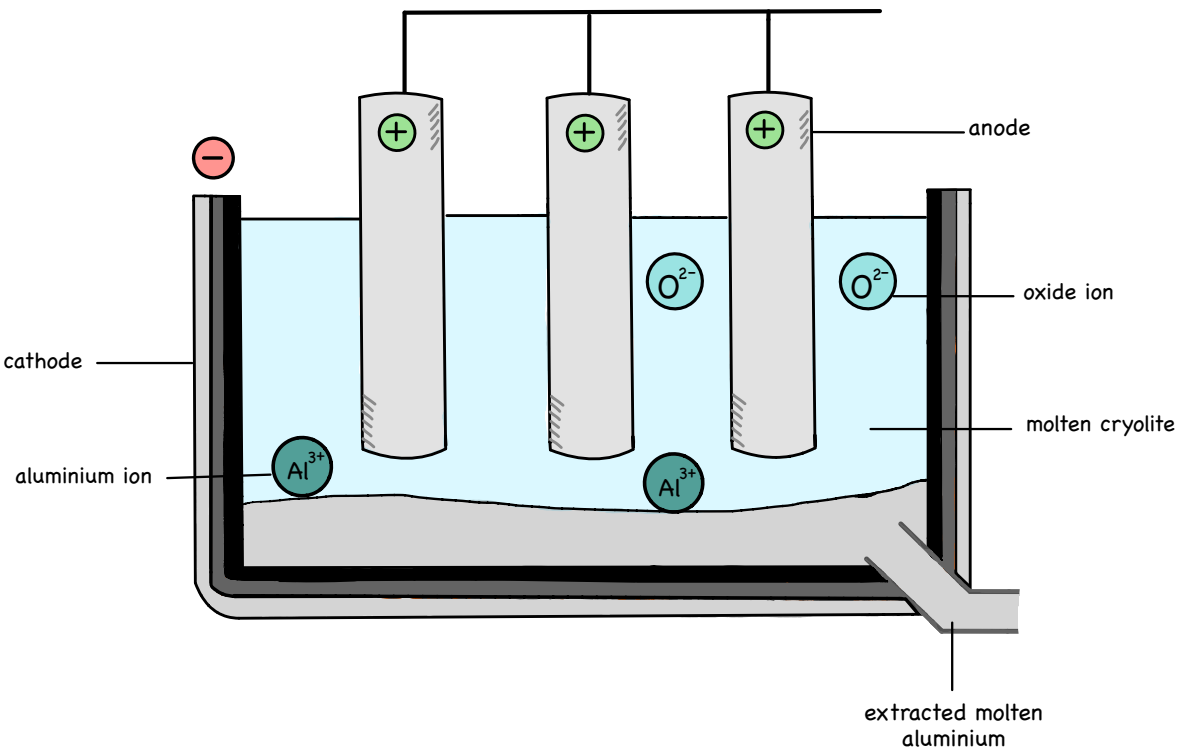


© Luciola


anode
oxide ion
molten cryolite
cathode
aluminium ion
extracted molten aluminium
O^{2-}
O^{2-}
Al^{3+}
Al^{3+}

© Luciola

Extraction of Aluminium

electro — electricity

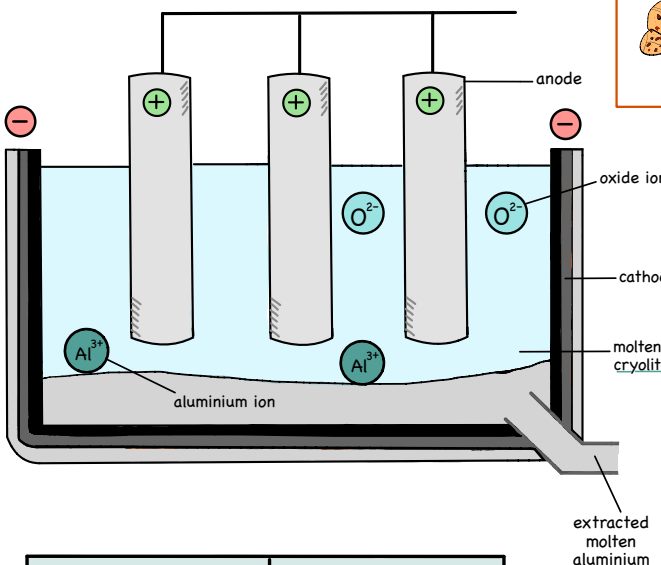
lysis — breaking down

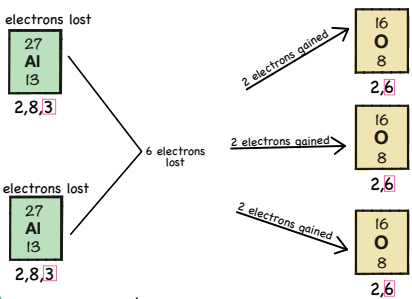
the breakdown of an ionic compound using electricity
must be molten or dissolved so ions can move

aluminium is too reactive to be extracted by reduction with carbon



bauxite – ore containing aluminium compounds
aluminium oxide – obtained from the ore
aluminium oxide – mixed with cryolite





$2Al^{3+} + 3O^{2-} \rightarrow Al_2O_3$

aluminium oxide

cryolite lowers the melting point of aluminium oxide
→ less energy is needed

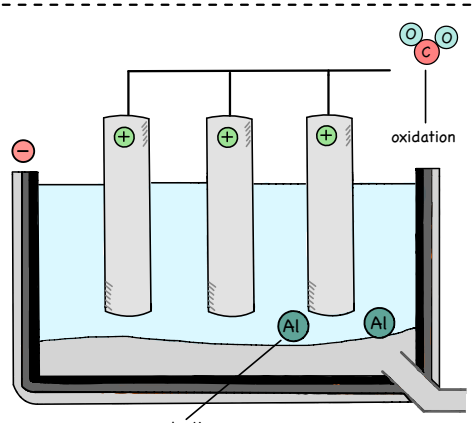
cathode —	anode +
Al^{3+} gains electrons	O^{2-} loses electrons
$Al^{3+} + 3e^- \rightarrow Al$	$2O^{2-} \rightarrow O_2 + 4e^-$
reduction	oxidation

OILRIG

oxidation is loss, reduction is gain
(of electrons)

PANiC

positive anode, negative cathode
(oxygen) **(aluminium)**



oxygen produced at anode → reacts with carbon electrode → carbon dioxide is produced → carbon electrode is gradually used up → electrode must be continually replaced

$C + O_2 \rightarrow CO_2$

© Luciola

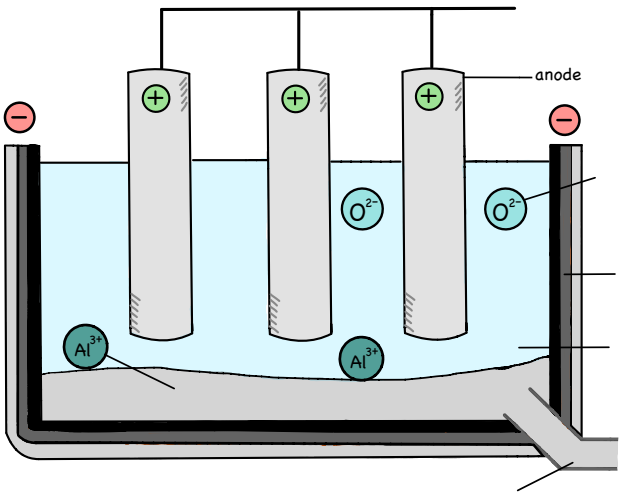
Extraction of Aluminium

electro — electricity

lysis — breaking down

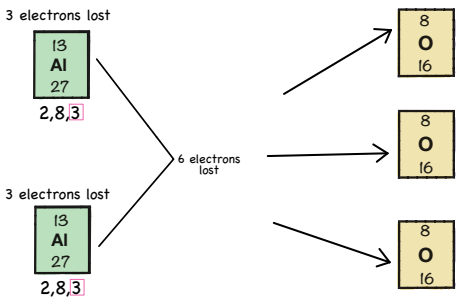
aluminium is _____

to be extracted by _____ with carbon





bauxite – ore containing aluminium compounds
aluminium oxide – obtained from the ore
aluminium oxide – mixed with cryolite

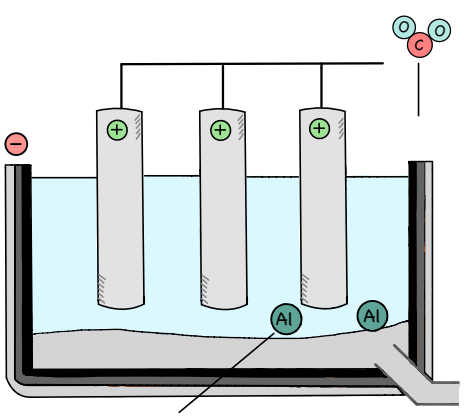


cathode —	anode +
_____ forms here	_____ forms here
_____ happens here	_____ happens here

aluminium oxide ⟶ +

ionic compound

PANiC



oxygen produced at anode ⟶ ⟶ carbon dioxide is produced

⟵

$C + O_2$ ⟶

© Luciola