

# Topic C4a Chemical changes

you need to know:

## Extraction of metals

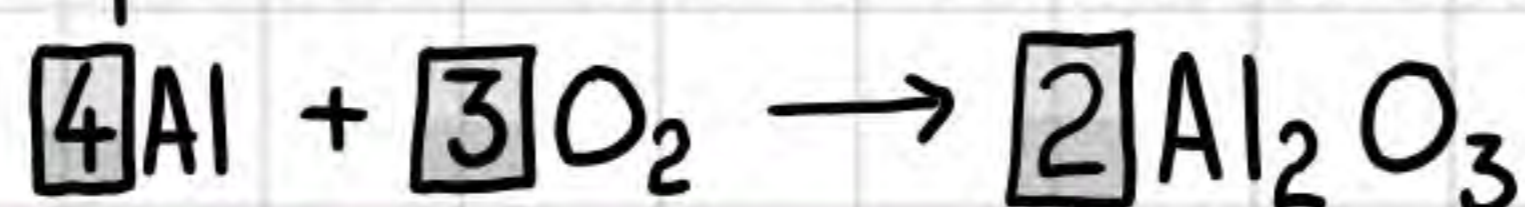
- Iron** is made by reacting carbon and iron oxide  
 $\text{carbon} + \text{iron oxide} \rightarrow \text{iron} + \text{carbon dioxide}$
- Zinc** is extracted from zinc sulfide (ZnS) by a two stage process
  - ZnS is oxidised by heating to form ZnO.
  - ZnO is then reduced to zinc using carbon.

## Metal reactivity series

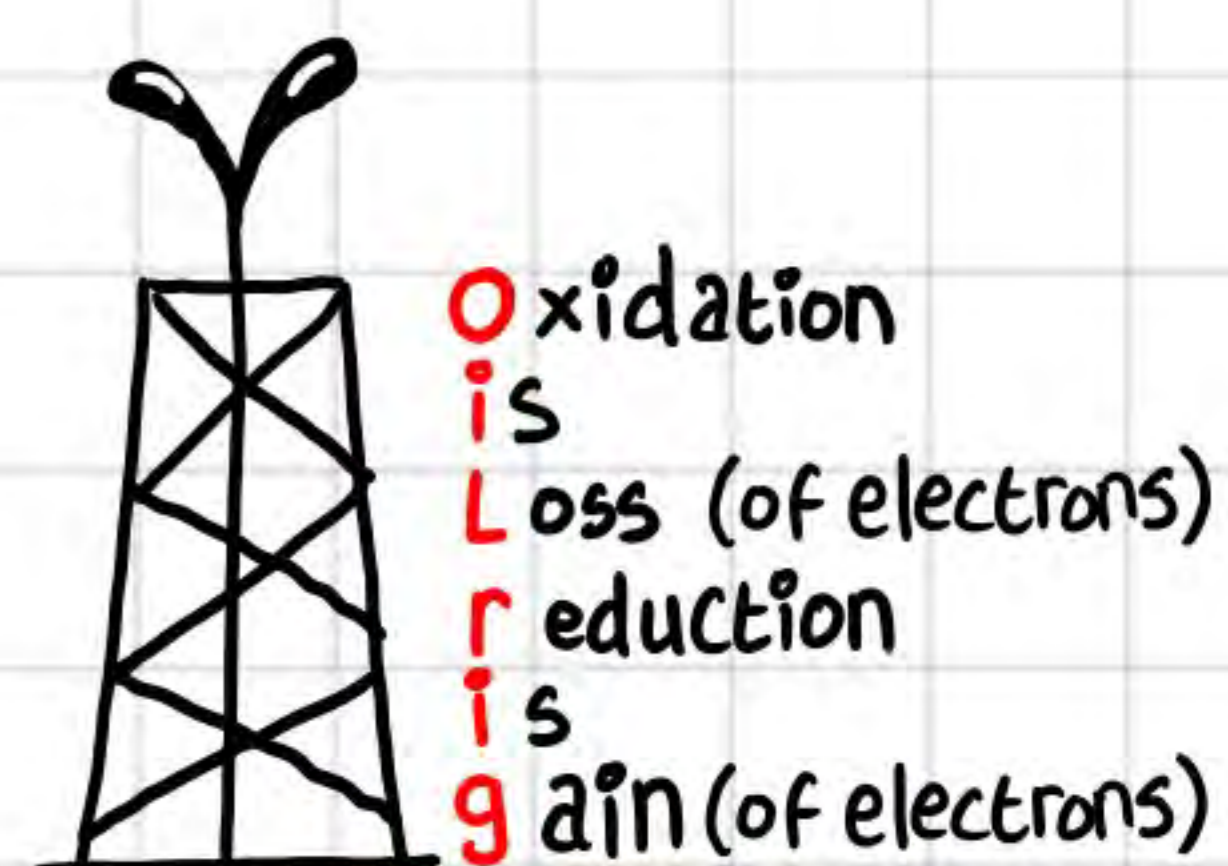
- know how metals are extracted
  - Calcium } **more reactive** than carbon: extract by **electrolysis**
  - Aluminium }
  - Carbon
  - Zinc } **less reactive** than carbon: extract with **carbon**
  - Iron }
  - Gold } **unreactive**. Found **pure**

## Oxidation and reduction

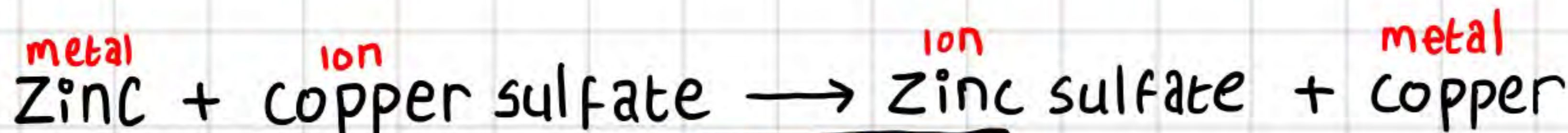
- Learn the balanced equation for the oxidation of aluminium.



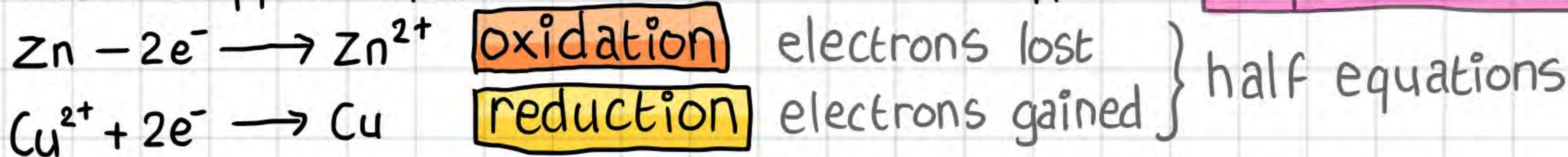
**oxidation** is the **addition** of **oxygen**



- know that **loss** of electrons is **oxidation** and **gaining** electrons is **reduction**

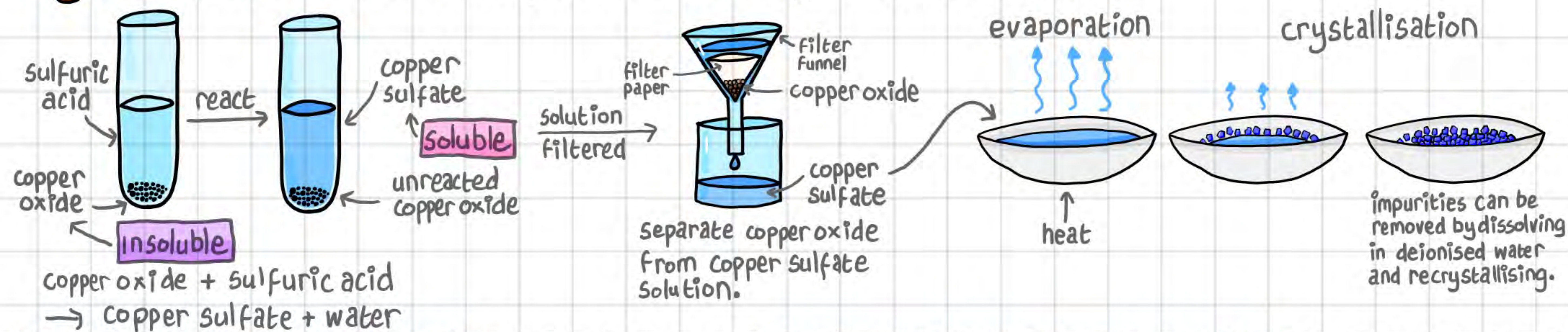


**Displacement reaction**



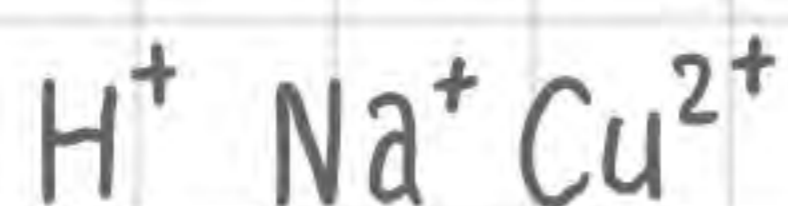
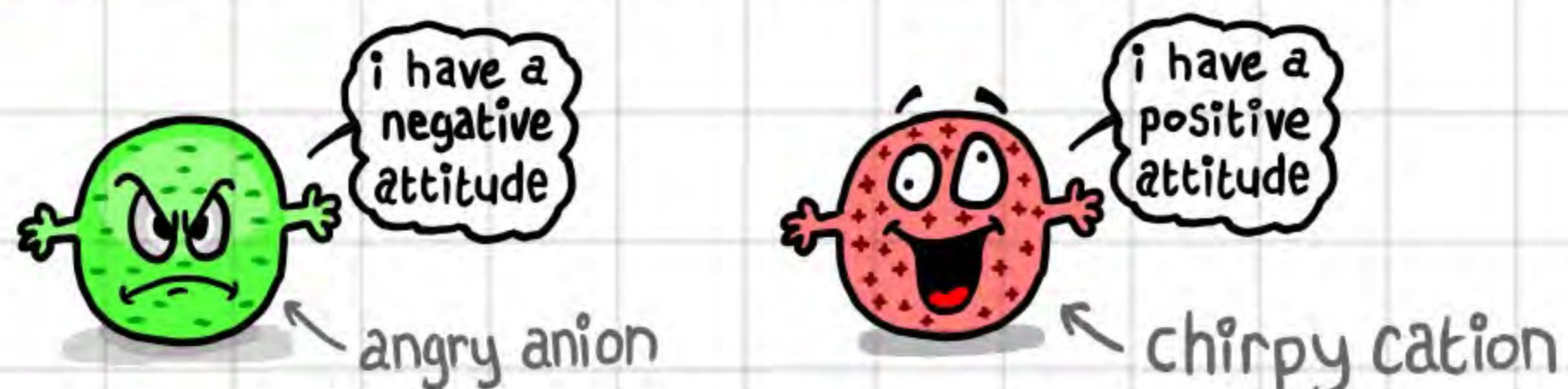
## Making copper sulfate

- Describe the method to make copper sulfate from copper oxide and sulfuric acid



## Anions and cations

- Identify anions and cations



## Reaction of metal with acids

- Describe the reaction of metals with acid

