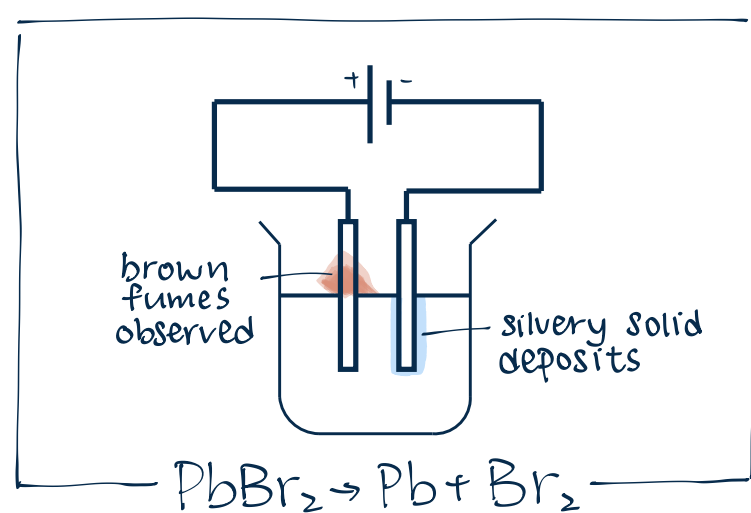
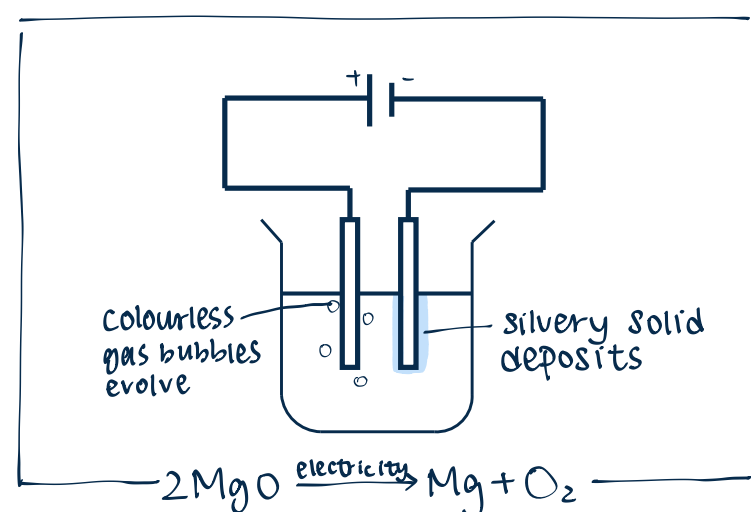
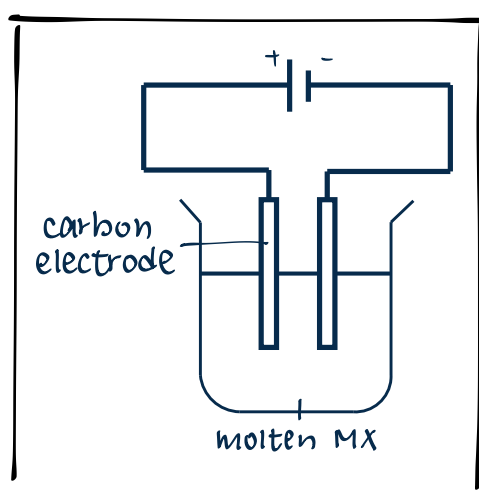


# Extraction of metals

## 1 Reactive metals

- 钾钠钙镁铝
- 需要很多能量才能分开  $\rightarrow$  electrolysis of molten  $MX$ 
  - $\nearrow$  metal
  - $\nwarrow$  non-metal



## 2 Less reactive metals

- 锌铁锡铅铜
- 不需要那么多能量就能被分开  $\rightarrow$  carbon reduction
- burn w/ C / CO /  $H_2$   $\leftarrow$  有时候可以, town gas = mainly  $H_2$
- redox
  - >  $M^{n+} \rightarrow M$
  - >  $C / CO \rightarrow CO_2$  //  $H_2 \rightarrow H_2O$
- 什么时候可以用  $H_2$ ?
  - > R.A. strength:  $H_2$  > metal (强出弱)
  - > metal reactivity series: ... 锌铁锡铅铜 ...

## 3 Unreactive metals

- 汞银金
- 只需一点能量就能被分开  $\rightarrow$  repulsive force
- 用火烧