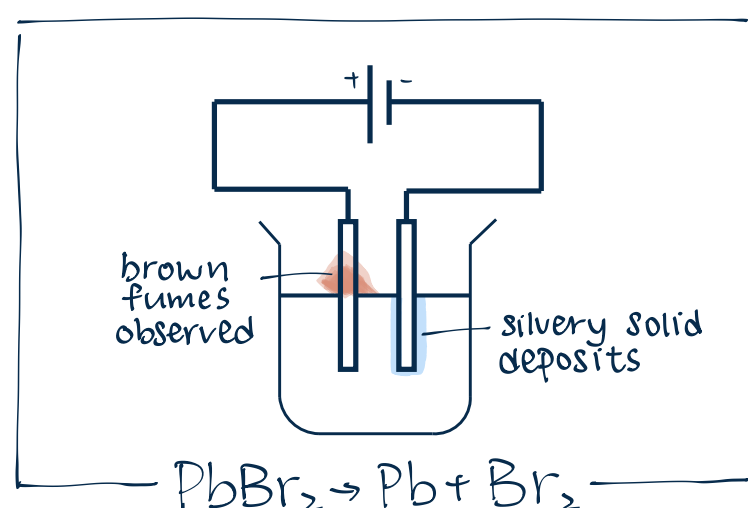
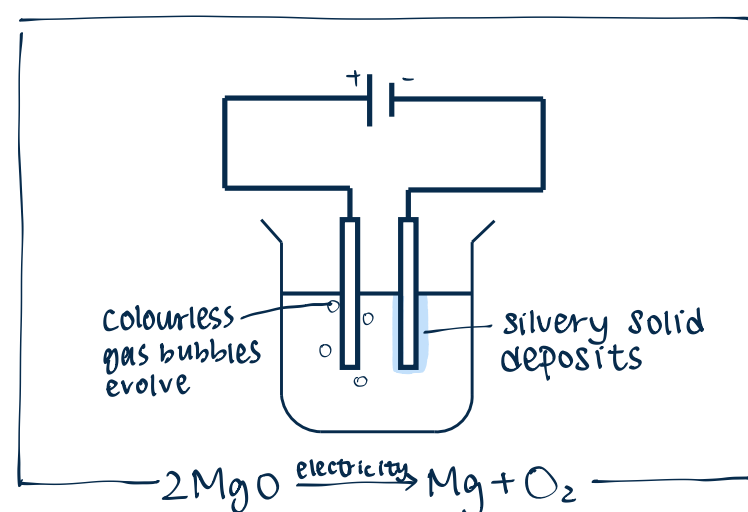
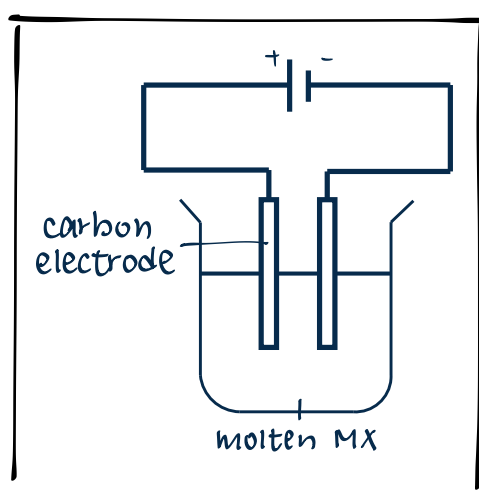
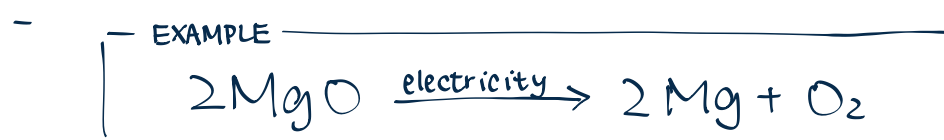


Extraction of metals

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