

Solutions

Each answer shows the steps, then the **result**.

2.1

- any **two** of: good conductor of heat/electricity / malleable / ductile / high melting point

2.2

- metal + dilute acid → **salt + hydrogen**

3.1 C

- non-metals are usually **brittle**
- A, B and D are metal properties

3.2

(a)

- magnesium chloride** and **hydrogen**

(b)

- the gas is **hydrogen**
- it gives a **squeaky pop** with a lighted splint

3.3

- metals have **delocalised electrons** that move and carry charge

3.4

(a)

- any **three** of: shiny when cut / good conductors / malleable and ductile / high melting point and density / sonorous

(b)

- order: **magnesium, zinc, iron, copper**
- magnesium is the only one to react with **cold water**
- copper reacts with **neither steam nor acid**
- zinc reacts with acid **faster** than iron

(c)

- zinc + hydrochloric acid → zinc chloride + hydrogen
- Zn + 2HCl → ZnCl₂ + H₂**

(d)

- blue solution **fades**; **pink-brown copper** coats the magnesium
- Mg + Cu²⁺ → Mg²⁺ + Cu** — magnesium is more reactive