

6.1 Physical and chemical changes

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS chemical change 化学变化 • iron 铁 • physical change 物理变化 • precipitate 沉淀
• physical and chemical changes 物理与化学变化

Objective

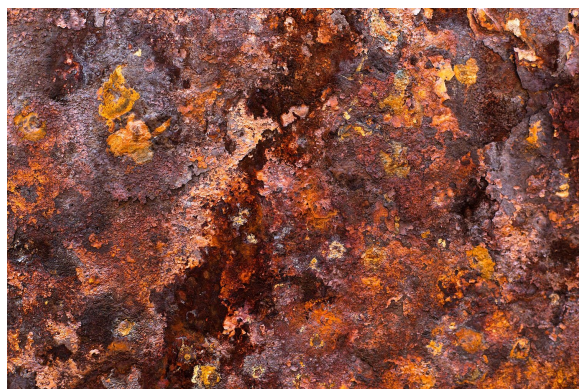
Build the skills to answer exam questions on **physical and chemical changes** 物理与化学变化 — telling them apart and recognising the signs of a chemical reaction.

You must be able to:

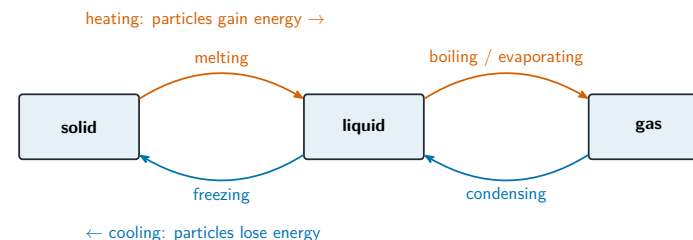
- distinguish a physical change (no new substance) from a chemical change
- give the signs of a chemical reaction
- classify examples

1 Worked examples

■ Physical vs chemical



A chemical change makes a new substance (rust); a physical change does not



Melting and boiling are physical changes — no new substance

- **physical:** no new substance; easy to reverse (melting, dissolving).
- **chemical:** new substance(s); usually hard to reverse (burning, rusting).
- **signs of a reaction:** colour change, gas given off, energy change, precipitate forms.

2 Practice

2.1 State one difference between a physical and a chemical change. [1]

2.2 Give two signs that a chemical reaction has happened. [2]

3 Exam-style questions

3.1 Which is a physical change? [1]

- A burning magnesium
- B rusting iron
- C melting ice
- D neutralising an acid

3.2 Dissolving salt in water and burning a candle are both changes.

(a) State which is a physical change and which is a chemical change. [2]

(b) Explain your choice for the candle. [2]

Solutions

2.1 a chemical change makes a new substance; a physical change does not.

2.2 any two of: colour change; gas given off; energy/temperature change; a precipitate forms.

3.1 C. Melting ice makes no new substance — a physical change.

3.2 (a) dissolving salt = physical; burning a candle = chemical.

(b) burning makes new substances (e.g. carbon dioxide and water) and is hard to reverse.