

States of Matter

Name:

Date:

INQUIRY

Water is the only common substance that exists naturally as solid, liquid, and gas on Earth. Why is this special?

Discuss with your partner. Write your initial ideas below:

Key Vocabulary

Term	Definition
Solid	Fixed shape, fixed volume. Particles vibrate in place.
Liquid	No fixed shape, fixed volume. Particles slide over each other.
Gas	No fixed shape or volume. Particles move freely.
Sublimation	Solid directly to gas (e.g. dry ice).

Part A — Particle Model

1. Draw particle diagrams for solid, liquid, and gas. Label arrangement, movement, and spacing. [3 marks]

Part B — Changes of State

2. Name the change of state: (a) ice to water (b) water to steam (c) steam to water (d) dry ice to CO₂ gas. [2 marks]

3. Explain why evaporation is a cooling process. How does this relate to sweating in Nanjing's summer? [3 marks]

Part C — Heating Curve

4. Describe what happens to the temperature and state of ice as it is continuously heated from -20°C to 120°C .
Where does temperature stay constant? Why? [4 marks]