

States of Matter

Chapter 8: A Journey through States of Water · Topic 1

Key Concept

These differences in behaviour arise directly from how tightly the particles are packed and how much energy (movement) they have — solids have the least particle movement, gases have the most. A fourth state, called plasma, exists at extremely high temperatures (like inside the Sun or in lightning), where particles are so energetic that they break apart into charged particles, though this is not commonly studied at this level. Understanding states of matter helps explain everyday changes, like why ice melts or why perfume spreads through a room.

Quick Revision Notes

- Solid = fixed shape and fixed volume (particles tightly packed).
- Liquid = fixed volume, changing shape (particles close but able to move).
- Gas = no fixed shape or volume (particles far apart, moving freely).
- A fourth state, plasma, exists at extremely high temperatures.

Practice Questions

- 1 Name the three common states of matter with one example each.
- 2 Explain why a gas can be compressed into a smaller container but a solid cannot.
- 3 Describe what happens to the particles of ice as it is heated and turns into water.