

Particles of Matter

Chapter 7: Particulate Nature of Matter · Topic 1

Key Concept

The constant motion of particles explains diffusion — the spreading of one substance through another, like the smell of perfume gradually filling a room as its particles spread out and mix with air particles. Particle motion increases with temperature, which is why diffusion happens faster in hot liquids or gases than in cold ones. The spaces between particles explain why gases can be compressed easily (like squeezing air into a smaller container), while solids and liquids, with much less space between particles, are far harder to compress.

Quick Revision Notes

- Matter is made of tiny, constantly moving particles with spaces between them.
- Diffusion (like perfume spreading) occurs due to constant particle motion.
- Increasing temperature increases particle motion, speeding up diffusion.
- Gases compress easily due to large spaces between particles; solids/liquids do not.

Practice Questions

- 1 Explain why a diffusing smell spreads across a room.
- 2 Why does diffusion occur faster in hot water than in cold water?
- 3 Explain why a gas can be compressed but a solid cannot.