

Chapter 1 – Quick Revision Sheet

Matter in Our Surroundings

Core Idea — *One-Line Anchor*

Matter is anything that has mass and occupies space — and its behavior depends on particle motion and energy.

Nature of Particles of Matter — *Think Microscopically*

Particles of matter are extremely small and continuously moving. There are spaces between them, and they attract each other with varying force. These three properties together explain diffusion, compressibility, and different states of matter.

States of Matter — *(Ultra-Quick Comparison)*

Solids have a fixed shape and volume due to strong inter-particle forces and minimum motion. Liquids have a fixed volume but no fixed shape because particles move more freely. Gases have neither fixed shape nor volume as particles move randomly with maximum kinetic energy.

Effect of Temperature on Matter — *Energy Controls State*

When temperature increases, the kinetic energy of particles increases, causing them to move faster. This increase in motion can overcome inter-particle forces and lead to a change in the state of matter.

Change of State — *(Must-Remember Terms)*

Melting: solid → liquid

| Freezing: liquid → solid

Vaporization: liquid → gas

| Condensation: gas → liquid

Sublimation: solid → gas (direct)

Latent Heat — *Why Temperature Stays Constant*

Latent heat is energy used to change state without temperature change.

Fusion changes solid to liquid, while vaporization needs much more energy.

Evaporation — *Cooling Without Boiling*

Evaporation occurs at all temperatures and only at the surface.

High-energy particles escape first, causing cooling of the liquid.

Evaporation vs Boiling — *Never Confuse*

Evaporation: any temperature, surface only, causes cooling.

Boiling: fixed temperature, whole liquid, no cooling.

Exam Traps & Smart Points — *High-Scoring Points*

 Temperature remains constant during change of state.

 Gases are highly compressible.

 Attraction: solid > liquid > gas.

 Evaporation ≠ boiling.

30-Second Recall — *Final Memory Trigger*

 State depends on motion, attraction, and energy.

 State change occurs due to heat transfer.

 Evaporation causes cooling.