

# BioMedical Admissions Test (BMAT)

## Section 2: Chemistry

### Topic C15: Kinetic/Particle Theory

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## Topic C15: Kinetic/Particle Theory

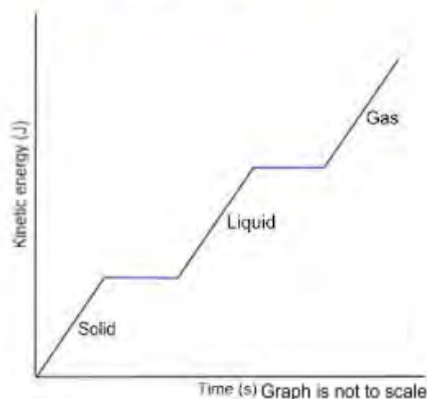
### Kinetic Theory

Kinetic theory explains that a substance **in different states** has the same **particles** but these have **different amounts of kinetic energy** and are therefore arranged differently.

#### Heating graph

Heating something causes a **transfer of kinetic energy** and this increased amount of kinetic energy can cause a **change of state** from solid to liquid and from liquid to gas.

**Changes of state require energy to weaken or break the bonds between particles.**



Some things to note

- Gases have more kinetic energy than liquids, and liquids have more kinetic energy than solids.
- When a liquid is heated, it **gains kinetic energy**. Particles at the surface of the liquid move faster than those not at the surface because these particles have more energy. If a liquid is heated enough, the surface particles will gain sufficient kinetic energy to **overcome the forces of attraction** holding the liquid particles weakly together. This means they will be able to escape from the surface.
  - ◆ The particles escaping from the surface are **evaporating**.
  - ◆ The term **volatility** refers to how easily a liquid evaporates.

### States of Matter

State	Amount of energy	Forces of attraction between particles	Movement of particles	Arrangement of particles	What happens when heated?
<b>Solid</b>	Least	<b>Strong</b>	Only vibrate; <b>fixed</b> positions	Regular lattice arrangement	Melts to become liquid
<b>Liquid</b>	More	<b>Weaker</b>	Can move slightly past each other; not fixed	No fixed shape; will fill shape of container they are put in	Expands slightly
<b>Gas</b>	Most	<b>Very weak</b>	Many directions; fast	Fills any container	Expands and pressure increases

