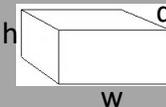
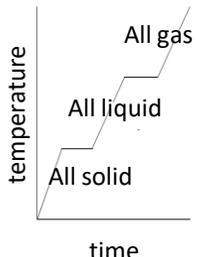
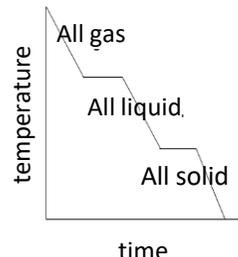


Key points to learn

1. Mass, m	Amount of matter in something. Measured in kg
2. Volume, V	Amount of space something takes up. Measured in m ³
	Volume of a cuboid = w x d x h 
	Volume of an irregular object can be found by dropping in a liquid and measuring displacement
3. Density, ρ	Mass per unit volume. Measured in kg/m ³
	$density = \frac{mass}{volume}$
4. Floating	An object that has a lower density than the fluid will float
5. Sinking	An object that has a higher density than the fluid will sink
6 Evaporation	Happens at any temperature
7 Sublimation	Solid turns straight into gas
8. Solid	Particles held together in fixed positions by strong forces. Least energetic state of matter
9. Liquid	Particles move at random and are in contact with each other. More energy than solids, less than gas
10. Gas	Particles move randomly and are far apart. Weak forces of attraction. Most energetic.

Key points to learn

11. Melting point	Temperature when solid turns into liquid. Same as freezing point
12. Boiling point	Temperature when liquid turns into gas. Same as condensation point
13. Condensation point	Temperature when gas turns into liquid. Same as boiling point
14. Freezing point	Temperature when liquid turns into solid. Same as melting point
15. Latent heat	Energy transferred when a substance changes state but temperature doesn't change
16. Specific latent heat of fusion	Energy needed to melt 1kg of solid into liquid
17. Specific latent heat of vaporisation	Energy needed to boil 1kg of liquid into gas
18. At state changes...	Temperature and kinetic energy of particles stays constant
	Internal energy increases due to an increase in potential energy as particles move further apart
19. Heating and cooling curves	
	
20. Gas pressure	Caused by particles hitting surfaces. Increases when temperature increases

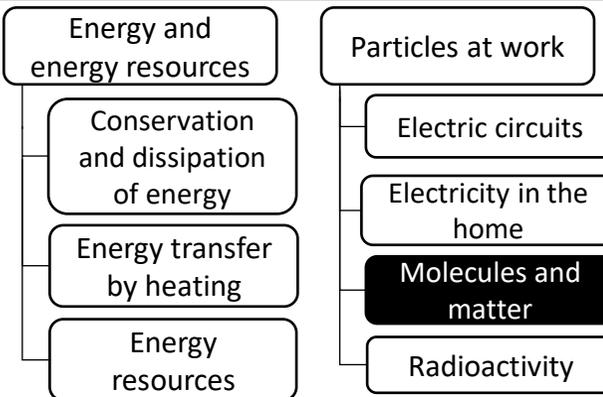
Trilogy P6: Molecules and matter

Part of: Particle model of matter

Knowledge Organiser



Big picture (Physics Paper 1)



Background

The particle model is widely used to predict the behaviour of solids, liquids and gases. It helps us to design vehicles from submarines to spacecraft. It even explains why it is difficult to make a good cup of tea high up a mountain!

Maths skills

$$density = \frac{mass}{Volume} \quad \text{(You need to remember this.)}$$

$$[kg/m^3] \quad \rho = \frac{m}{V} \quad \frac{[kg]}{[m^3]}$$

Latent heat: Energy = mass x specific latent heat

$$E = m \times L \quad \text{(You are given this)}$$

[J] [kg] [J/kg]