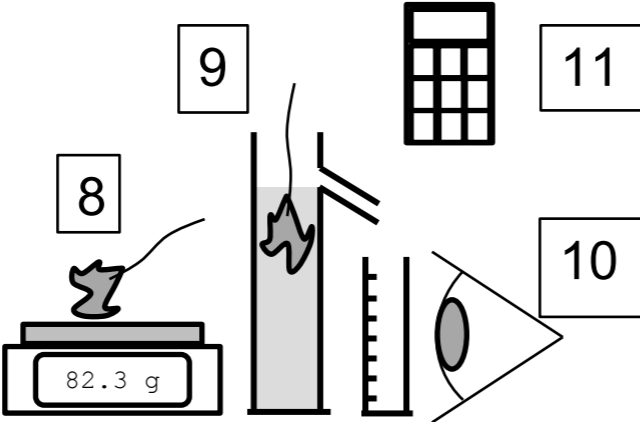
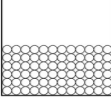
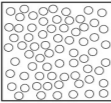
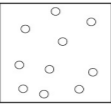
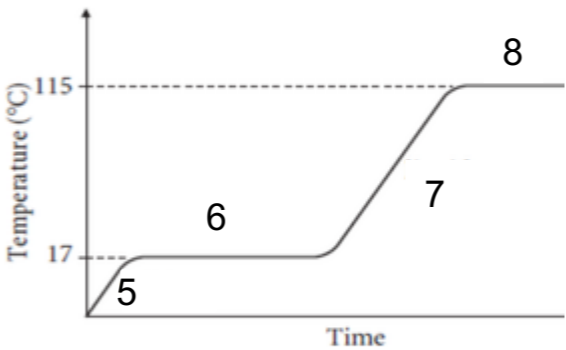
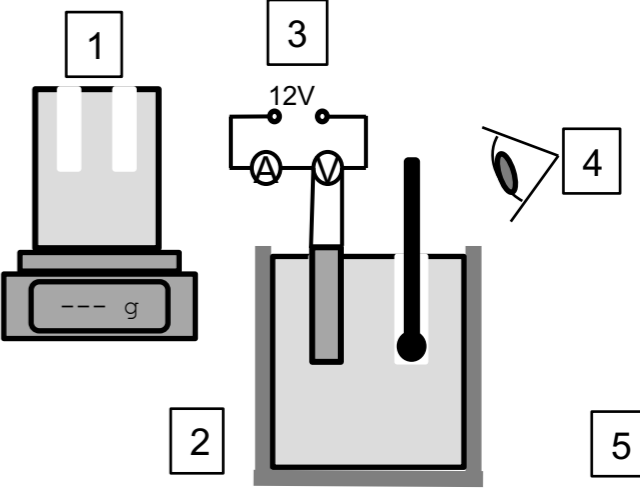


# PHYSICS TRILOGY – YEAR 10 – PARTICLE MODEL

A		DENSITY	
1	Density (kg/m <sup>3</sup> ) =	$\frac{\text{Mass (kg)}}{\text{Volume (m}^3\text{)}}$	
2	Floating	Object with lower density	
3	Measure mass with balance		
4	Submerge object in water		
5	Measure volume of displaced water		
6	Calculate density		

B		PARTICLE MODEL	
1	Solid		Particles vibrate in fixed positions Least energetic state
2	Liquid		Particles in contact but move randomly More energetic than solid
3	Gas		Particles move randomly, are far apart Most energetic state
4	Change of State	Mass and temperature is constant	
5	Solid warms		
6	Solid melts		
7	Liquid warms		
8	Liquid boils		

C		INTERNAL ENERGY	
1	Boiling Point	Temperature at which boiling occurs	
2	Melting Point	Temperature at which melting occurs	
3	Evaporation	From surface of liquid can be below boiling point	
4	Internal Energy	Energy stored in the particles Can be kinetic or potential	
5	Higher Temperature	Increases internal kinetic energy	
6	Specific Heat Capacity	Energy required to change temperature	
7	Changing State	Increases internal potential energy	
8	Latent Heat	Energy required to change state	
9	Gas Pressure	Collision of gas particles and surfaces	
10	Effect of temperature on pressure	Increased temperature, molecules move faster Faster molecules have more collisions More collisions means more pressure	

D		HEAT CAPACITY PRACTICAL	
1	Measure mass of block with balance		
2	Insulate block		
3	Connect electric heater		
4	Measure voltage, current, time and temperature		
5	Calculate power, energy transferred and heat capacity		