Specific heat capacity

→ heat required to produce a 1°C rise in 1kg

Heat equation →

$$Q = m \times \Delta\theta \times c$$

Thermal capacity → quantity of heat needed to raise the temperature of the whole body by 1°C

$$\text{thermal capacity} = m \times c$$

c of water → 4200 J/kg°C
c of sand → 800 J/kg°C

* When two substances at different temperatures are mixed, heat flows from the one with higher temp to one at lower temp, until both are same temp.
∴ heat given out = heat taken in

Specific latent heat

→ heat absorbed by a solid during melting or given out by a liquid during solidification is called latent heat of fusion.

→ The specific latent heat of fusion (l_f) of a substance is the quantity of heat needed to change unit mass from solid to liquid without temperature change.

$$Q = m \times l_f$$

→ The specific latent heat of vapourisation (l_v) of a substance is the quantity of heat needed to change unit mass from liquid to vapour with the change of temp.

$$Q = m \times l_v$$

- Heat change for same state → specific heat capacity
- Heat change from one state to other → specific latent heat

The gas Laws

→ $T = 273 + \theta$: To find temp in Kelvin

→ $F = \frac{9}{5}C + 32$

→ $C = \frac{5}{9}(F - 32)$

→ $\frac{pV}{T}$ = constant

Expansion of solids, liquids and gases

→ expansion = linear expansivity × original length × temp rise

Conduction and convection and Radiation

→ conduction is the flow of thermal energy through matter from places of higher temperature to places of lower temperature without the movement of the matter as a whole

→ convection is the flow of heat through a fluid from places of higher temperature to places of lower temperature by movement of the fluid itself

→ Radiation is the flow of heat from one place to another by means of electromagnetic waves