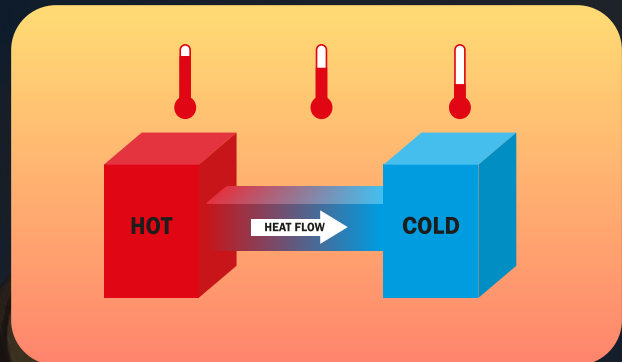


Heat

Energy that flows between two objects or systems due to a temperature difference between them.



Temperature

The temperature is a measure of the hotness or coldness of an object.

Temperature scales

Calibrated scale made on a thermometer.

Fahrenheit scale

Water freezes at 32°F
& boils at 212°F

Celsius scale

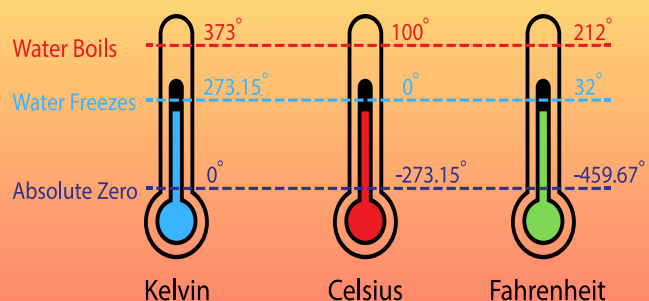
Water freezes at 0°C
& boils at 100°C

Kelvin scale

Water freezes at 273 K
& boils at 373 K

Absolute zero

Lowest temperature possible in the universe. At absolute zero, there is no heat and the motion of particles stops. Absolute zero occurs at 0 K , -273°C or -459°F .



Relation between different temperature scales

The relation between the Celsius (C), Fahrenheit (F), and Kelvin (K) scales are

$$\frac{C - 0}{100 - 0} = \frac{F - 32}{212 - 32} = \frac{K - 273}{373 - 273} = \frac{T - \text{L.F.P.}}{\text{U.F.P.} - \text{L.F.P.}}$$

Where, T is temperature of any scale, L.F.P. is lower fixed point, U.F.P. is upper fixed point.

Thermometers

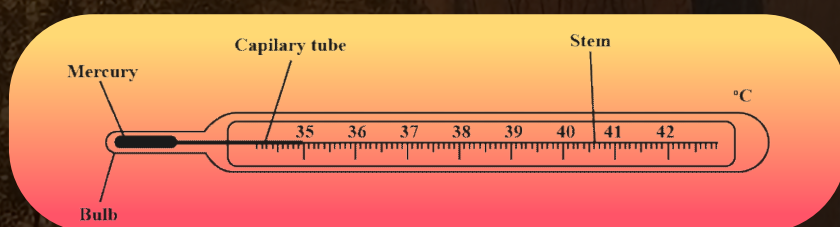
Instruments that measure temperature. A liquid-in-glass thermometer consists of following parts : (a) Glass tube (b) Capillary tube (c) Bulb

Maximum thermometer-(mercury-in-glass) (-30°C to 357°C)

Minimum thermometer - alcohol-in-glass (-110°C to 78°C)

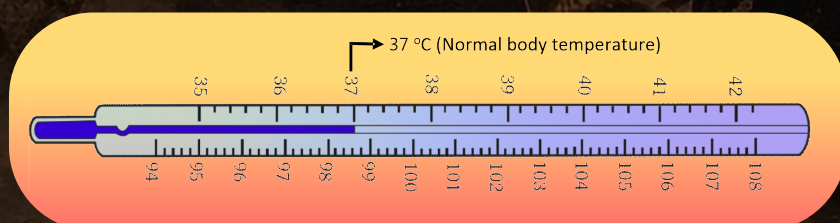
The laboratory thermometer

laboratory thermometers have a range from - 10 °C to 110 °C.



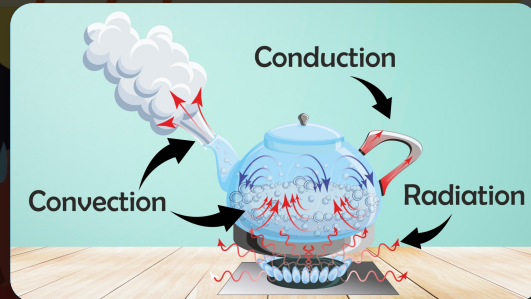
The clinical thermometer

It is a thermometer used to measure body temperature. It is different from laboratory thermometers due to kink. Normal body temperature is 37°C or 98.6°F.



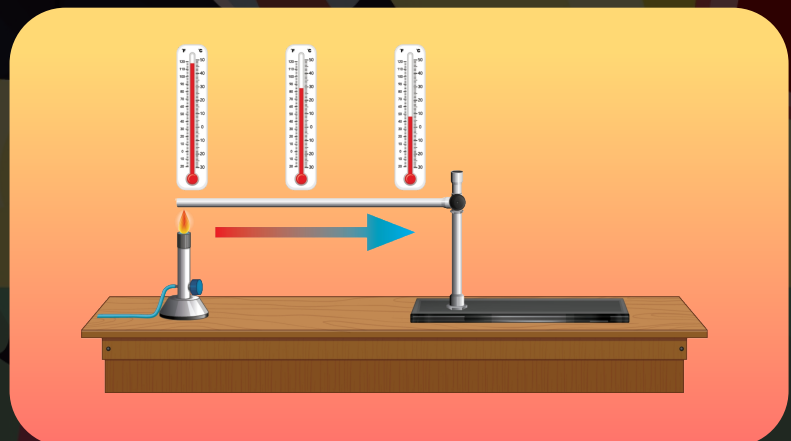
Transfer of heat

Heat transfer can occur in three ways—by conduction, radiation, or convection (Heat conduction cannot occur through a vacuum)



Conduction

Conduction only occurs between two materials at different temperatures and when they are touching each other



Heat Conductors & Insulators

Any material that easily transfers heat are heat conductors eg. gold & copper and any material in which heat does not flow easily are insulators eg. wood & plastics.

