science physics

chaseterrace academy

1) Heat Energy
Heat is a form of energy measured in Joules.

The amount of energy in a thermal energy store is based on the temperature of the object, the mass / size of the object and the material it's made from.

2) Temperature
Temperature is a measurement of how hot or cold an object is.

It can be measured in Celsius, Fahrenheit or Kelvin.

The Celsius scale is based on the melting point of water (^{o}C) and boiling point 100°C).

The Kelvin scale starts at zero which is the coldest temperature there is (-273°C) and is called absolute zero.
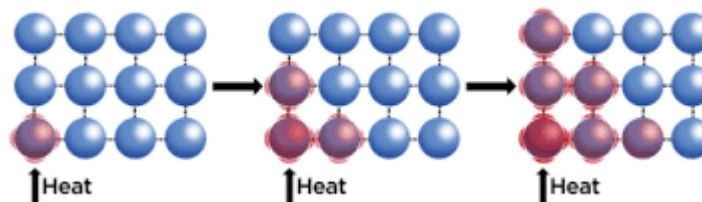
3) Heat Transfer
If there is a difference in temperature between an object and its surroundings, then this difference causes a transfer of heat energy.
Heat energy can be transferred (moved) in 4 ways:
1. Conduction
2. Convection
3. Radiation
4. Evaporation

Heat travels from **HOT** to **COLD**

4) Conduction
As the particles get heated, they start to vibrate or move faster as the have more energy and this heat energy is passed on to neighbouring particles.


Conduction occurs faster in solids than liquids and gases as the particles are closer together.

5) Convection
Convection occurs when heat is transferred by the movement of particles in liquids or gases.

Convection occurs when particles with more heat energy in a liquid or gas move and take the place of particles with less heat energy.

Hot liquids are less dense than colder ones so rise through the liquid. Colder liquid being more dense sinks to takes its place. The same process occurs in gases.
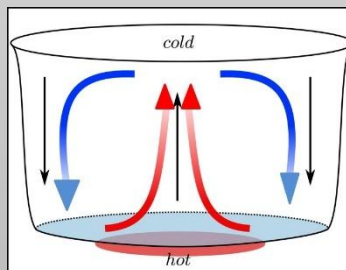
6) Radiation
Radiation is the transfer of heat energy by infra-red waves.
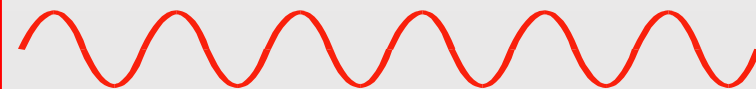
Infrared waves and light waves are part of the electromagnetic spectrum.
Infrared waves have a longer wavelength than light waves.
They can travel through a vacuum (space where there are no particles).
They can be reflected.

7) Insulation
Ways in which heat transfer can be reduced involve...
Reducing the surface area to reduce evaporation
Insulating the material

8) Investigation Keywords

Independent variable – what you **change**
Dependent variable – what you **measure**
Control variables – what you **keep the same**