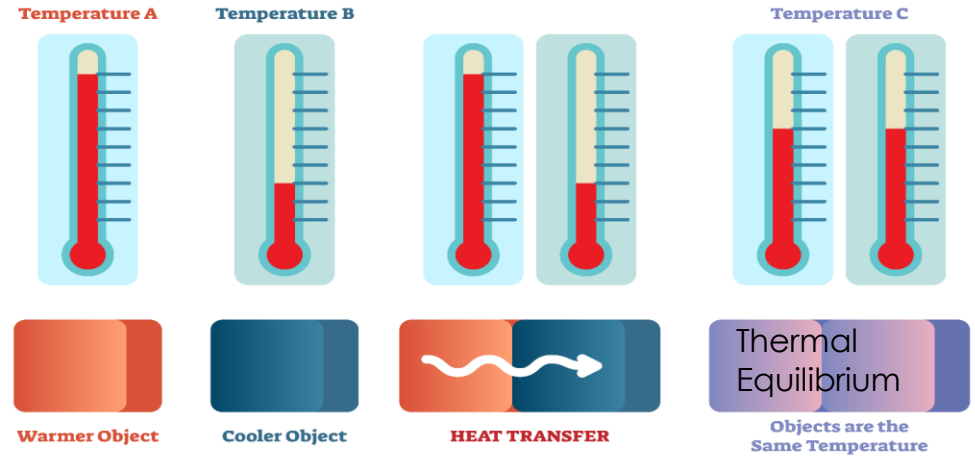


Heat | Year Six Science | Spring 1

Properties of the particles in the three states of matter

Solid	Liquid	Gas
<ul style="list-style-type: none"> • Particles are <u>very</u> close together • In a regular pattern • Particles cannot move but can vibrate 	<ul style="list-style-type: none"> • Particles are close together • In a random arrangement • Particles can slide past each other 	<ul style="list-style-type: none"> • Particles are far apart from each other • In a random arrangement • Moving constantly in all directions



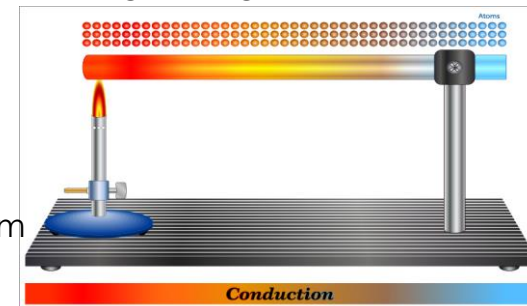
Heat transfer takes place when heat moves from a **hotter object** to a **colder object**.

Thermal equilibrium is reached when the heat is evenly spread between two or more objects.

Heat conduction - the process of heat energy being passed on between two objects in contact

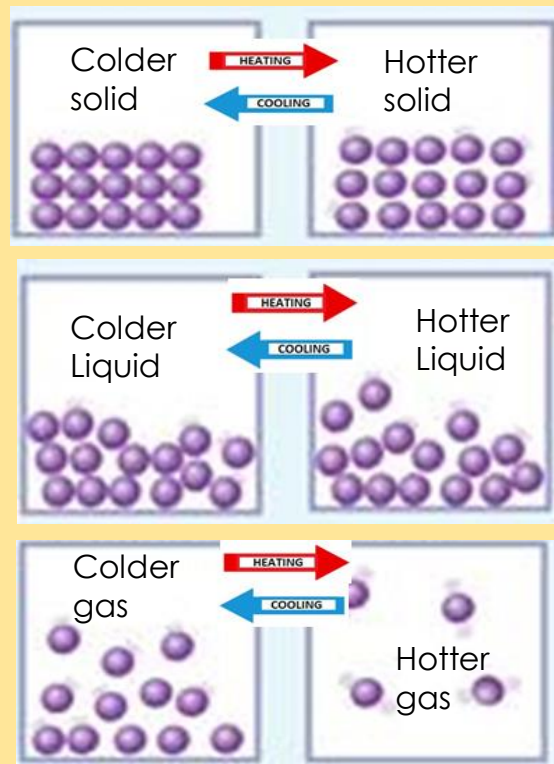
Good conductors - materials that allow heat to pass through them easily (e.g. metals, graphite)

Good insulators - materials that DO NOT allow heat to pass through them easily (e.g. cloth, plastic, wood)



Effect of heat on particles

- **Heating particles makes them move more.**
- In **solids**, they **vibrate more** in their fixed position.
- In **liquids and gases**, they move **more quickly**.
- As a result, substances **expand** when they are **heated** and **contract** when they are **cooled**.



Uses of conductors

- Heating elements (e.g. the hot bits of toasters)
- Saucepans that contain food to be cooked
- From radiators
- Cooling fins on computers and car engines

Uses of conductors

- Handles of saucepans
- Oven gloves
- The materials that coats are made from
- Through hot drinks containers
- Hair on your head or the fur coat of an animal