

HEAT

THE NATURE OF HEAT

Or temperature.

- **Heat:** the form of energy which can make the Kinetic Energy of an object change / increase
- **Unit of heat energy:** Joules
- **Temperature:** a measure of how hot is an object *is.*
- **Thermometer:** measuring temperature in degrees Celsius ($^{\circ}\text{C}$)
- **Source of Heat:**
 1. Electrical (toaster)
 2. Mechanical
 3. Chemical
 4. Solar
 5. Nuclear
- **Uses of Heat:** Cooking, heating houses
- **Problems of Heat:** Burning of damage
- **The Kinetic Theory and Heat:**
 1. All matter is: made up of atoms that are in constant motion
 2. Particles in a solid vibrate about fixed positions
Particles in a liquid roll over one another
 3. Particles in a gas move freely

THE TRANSFER OF HEAT

3 Methods of Heat Transfer:

Conduction:

1. Occurs mostly in solid/liquid/gas (circle right one)
2. Heat passes from particle to particle by vibrating + colliding
3. Metals are good conductors
4. Plastic and foam are examples of insulators

Convection:

1. Occurs in solid/liquid/gas (circle right one)
2. Hot sections of the fluid are less dense than cooler sections.
3. This causes hot sections of fluid to rise and cold sections of the fluid to fall

Radiation:

1. Unlike convection and conduction, radiation does not need matter to transfer heat
2. Example of radiation heat transfer: Sun rays to Earth's surface
3. Good absorbers and radiators are dark in colour.

EFFECTS OF HEAT AND ENERGY

1. A solid or liquid that is heated will expand *increase* in size.
2. The word used for increasing in size is expansion while getting smaller is called shrinking
3. ~~Draw a diagram to show how a thermostat works.~~

- **Thermometers:** work because a liquid (alcohol) expands when heated. An alcohol is used instead of water because it expands more than water

Changes of State:

- Liquid to gas is called: Evaporation
- Liquid to solid is called: Solidification (freezing)
- Gas to liquid is called: Liquidification (condensation)
- Solid to liquid is called: Melting
- Solid to gas is called: Sublimation