

# HEAT

## THE NATURE OF HEAT

- **Heat:** the form of energy which can make the \_temperature\_ of an object change /increase
- **Unit of heat energy:** \_Joule (J)\_
- **Temperature:** a measure of how hot is an object
- **Thermometer:** measuring temperature in \_\_\_degrees celsius\_\_\_(°C)
- **Source of Heat:**
  1. Electrical (toaster)
  2. Mechanical (bending wires)
  3. Nuclear (Sun)
  4. Chemical (reactions)
- **Uses of Heat:** \_\_\_ cooking, heating, cleaning\_\_\_
- **Problems of Heat:** \_\_\_ serious burn, damage \_\_\_
- **The Kinetic Theory and Heat:**
  1. All matter is: made up of \_small particles\_ that are in constant \_motion\_
  2. Particles in a solid vibrate about \_fixed\_ positions  
Particles in a liquid \_move\_ about each other\_
  3. Particles in a gas \_free\_ to spread apart\_\_

## THE TRANSFER OF HEAT

- **3 Methods of Heat Transfer:**
- **Conduction:**
  1. Occurs mostly in solid
  2. Heat passes from particle to particle by \_vibrations\_ \_
  3. Metals are good \_conductors\_.
  4. Plastic and foam are examples of \_insulators\_.
- **Convection:**
  1. Occurs in liquid and gas
  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 \_particles\_ to transfer heat
  2. Example of radiation heat transfer: \_Sun heat\_
  3. Good absorbers and radiators are \_dark/black\_ in colour.

**Using a diagram, show how a vacuum flask slows down conduction, convection and radiation.**

## EFFECTS OF HEAT AND ENERGY

1. A solid or liquid that is heated will \_increase\_ in size.
  2. The word used for increasing in size is \_expansion\_ while getting smaller is called \_\_contraction\_\_.
  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 \_\_alcohol freezes below 0 deg C and boils above 100 deg C\_\_
  - **Changes of State:**

Liquid to gas is called: \_evaporation\_\_

Liquid to solid is called: \_freezing\_\_

Gas to liquid is called: \_condensation\_\_

Solid to liquid is called: \_melting\_\_

Solid to gas is called: \_sublimation\_\_