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# Latent Heat

- **(Latent) Heat of fusion** – the heat energy needed to melt (Solid→Liquid) or freeze (liquid → solid) one gram (or kg) of a substance.

For water:  $H_f = 334,000 \text{ J/kg}$  or  $80 \text{ cal/g}$

- **(Latent) Heat of vaporization** – the heat energy needed to vaporize (liquid→gas) or condense (gas→liquid) one gram (or kg) of a substance.

For water:  $H_v = 2.26 \times 10^5 \text{ J/kg}$  or  $540 \text{ cal/g}$

# The Transfer of Energy as Heat

- Energy moves heat in three ways
- Conduction
- Convection
- Radiation

Convection is the process of heat transfer by the bulk movement of molecules within fluids such as gases and liquids

Andhra Pradesh is the largest producer of mica in India, accounting for 41% of the country's total resources<sup>1</sup>. Other states with significant mica production include Rajasthan (21%), Odisha (20%), Maharashtra (15%), Bihar (2%), and Jharkhand and Telangana together (1%)



## Conduction-

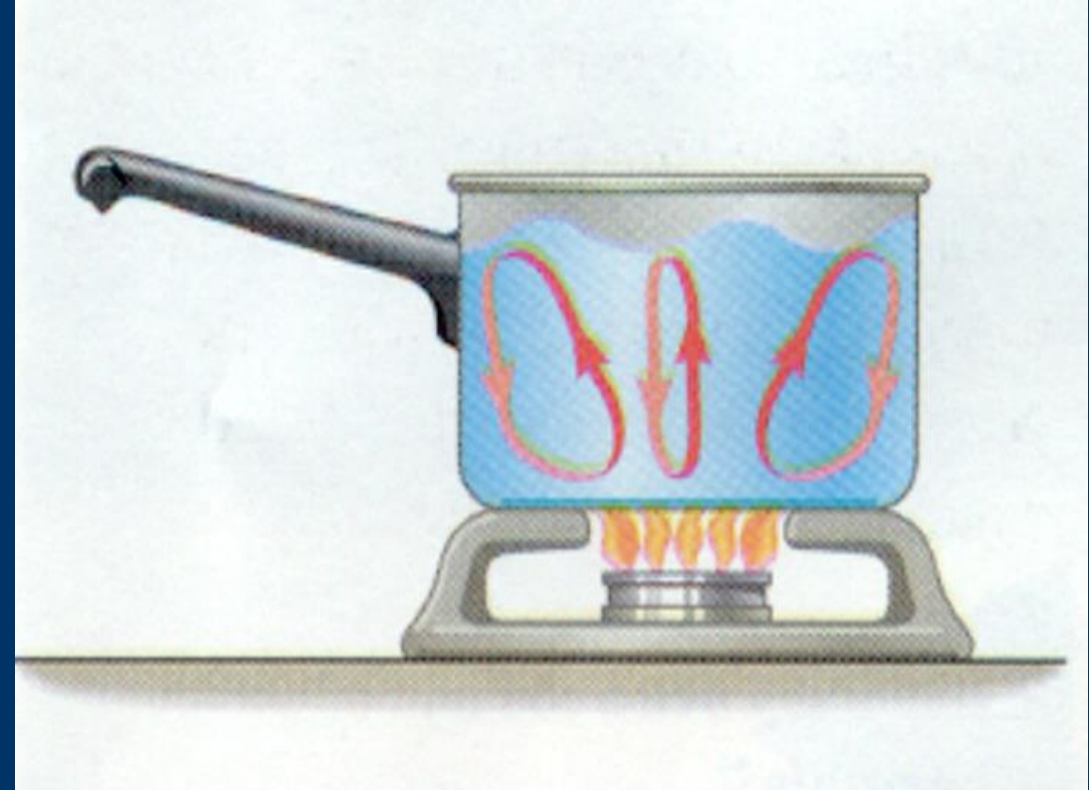
- The process that moves energy from one object to another when they are touching physically.
- Conductors: materials that transfer energy easily.
- Insulators: materials that do not transfer energy easily. thermas flax
- Examples: hot cup of cocoa transfers heat energy to cold hands

mica best conductor of heat used in electric iron and also insulator electric

India's production of mica was estimated to be 16,000 metric tons in 2022. China was the largest mica producer in the world that year, producing about 100,000 metric tons of mica.

# Convection-

- The process that transfers energy by the movement of large numbers of particles in the same direction within a liquid or gas.
- Cycle in Nature
- Boiling water and heating a room

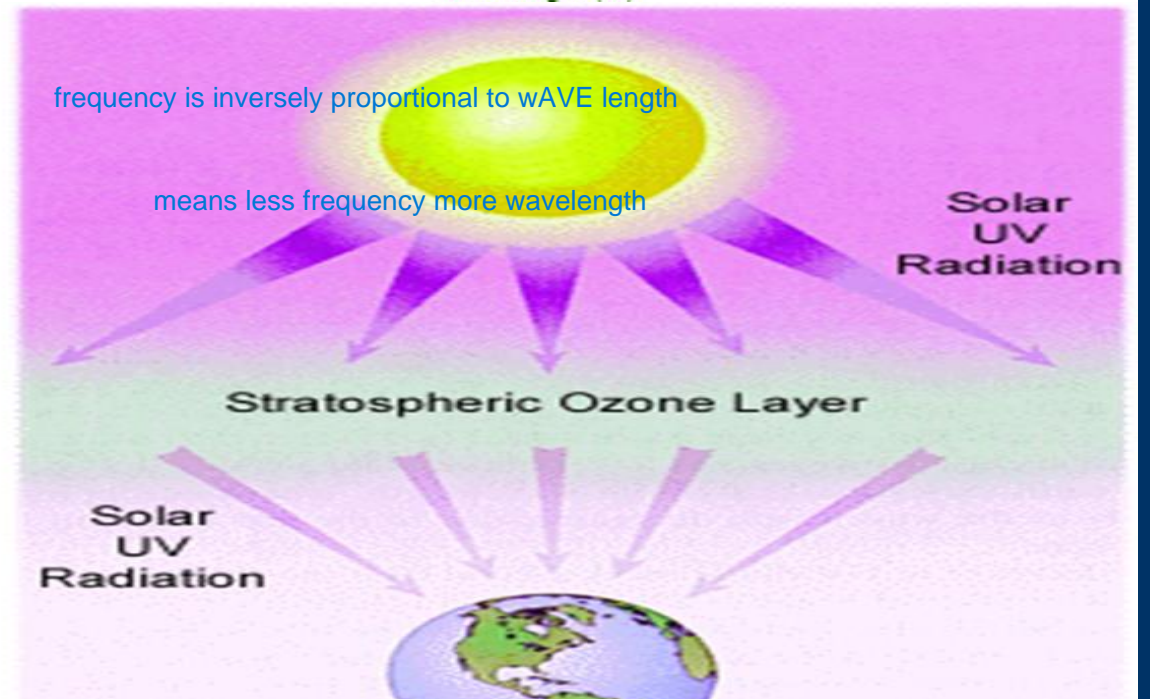
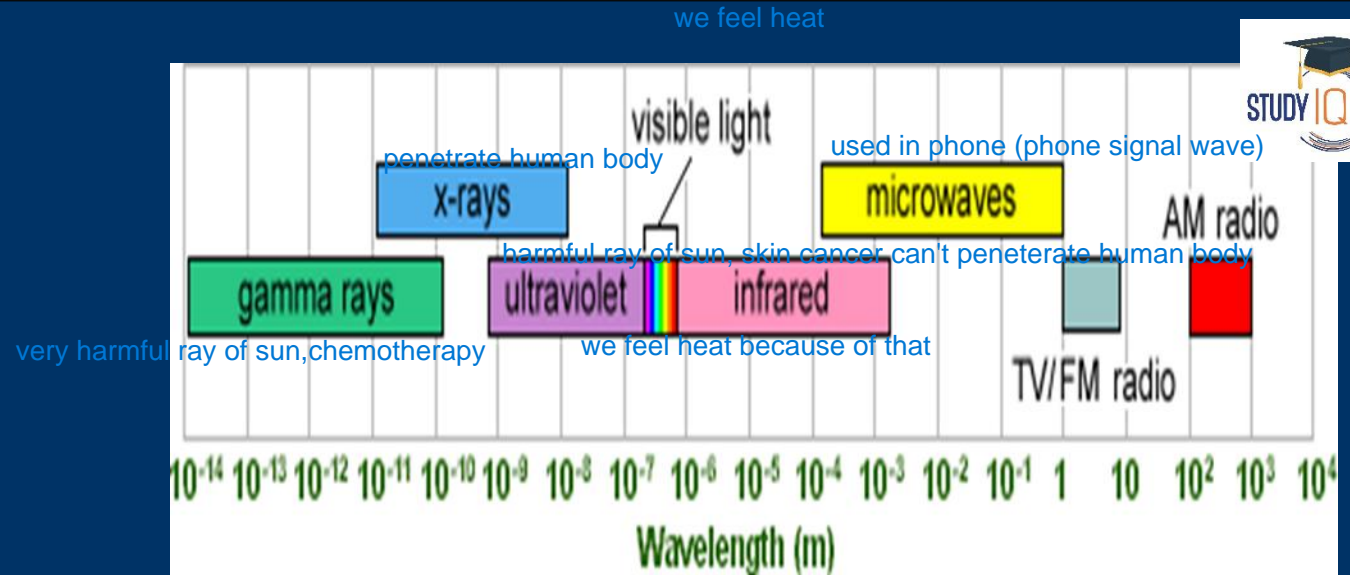


# Radiation-

- The energy that travels by electromagnetic waves (visible light, microwaves, and infrared light)

when electric field meet to magnetic field it not divert it naturalize each other

- Radiation from the sun strikes the atoms in your body and transfers energy



Newtons cooling law- The rate of loss of heat is directly proportional temperature difference between body and atmosphere.

Zeroth law of thermodynamics –If a body A is in thermal equilibrium with body B and body B is in thermal equilibrium with body C then Body A and C will also be in thermal equilibrium.

First law of thermodynamics- Energy neither can be created nor be destroyed it can be transfer from one body to another body.

$$Q=U+W$$



Thank you 😊

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