

## VII SCIENCE LESSON :4 HEAT

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### **KEY WORDS:**

- 1. CELSIUS SCALE:** It is a temperature scale based on  $0^{\circ}$  for the freezing point of water  $100^{\circ}$  for the boiling point of water.
- 2. CONDUCTION:** The process by which heat is transferred from the hotter end to the colder end of an object.
- 3. CONDUCTOR:** The materials which allow heat to pass through them easily.
- 4. CONVECTION:** The mode of transfer of heat from one place to another by the circulation of fluid or gases.
- 5. INSULATOR:** The materials which do not allow heat to pass through them.
- 6. LAND BREEZE:** A breeze blowing usually at night towards the sea from the more rapidly cooling land.
- 7. RADIATION:** It is the emission and propagation of energy in the form of waves, rays or particles.
- 8. SEA BREEZE:** A cooling breeze blowing generally in the day time from the sea.
- 9. TEMPERATURE:** It is the degree of hotness or coldness of an object.
- 10. THERMOMETER:** It is a device used for measuring temperatures.

### **EXERCISE:**

- 1. State similarities and differences between the laboratory thermometer and the clinical thermometer:**
  - a. Similarities between clinical and laboratory thermometers:**
    - i. Both thermometers are used to measure temperature.
    - ii. Both thermometers use mercury.
    - iii. Glass tubes are long, narrow and uniform.
  - b. Difference between clinical and laboratory thermometers**
    - i. Clinical thermometer:**
      - The clinical thermometer is used to measure body temperature.
      - The temperature range of clinical thermometers is  $35^{\circ}c$  to  $42^{\circ}c$

- The clinical thermometer can be tilted while reading the temperature values.
- It has a kink in the capillary tube.

**ii. Laboratory Thermometer:**

- It is used to measure object temperature.
- The temperature range is  $-10^{\circ}c$  to  $+110^{\circ}c$
- This thermometer need to be kept upright while reading the temperature values.
- There is no kink in the laboratory thermometer.

**2. Give two examples of each conductors:**

- CONDUCTORS: Iron, copper, water.
- INSULATORS: Wood, rubber, plastic.

**3. Discuss why wearing more layers of clothing during winter keeps us warmer than wearing just one thick piece of clothing.**

Air is a poor conductor of heat when we wear multiple layers of clothes, the air gets trapped between the clothing layers and prevents heat loss from our body. So multiple layers keep us warmer as compared to a single layer.

**4. Look at figure mark where the heat is being transferred by conduction by convection, and by radiation.**

- Radiation: Transfer of heat from the burner to the pan.
- Conduction: Transfer of heat from the pan to water.
- Convection: Transfer of heat with in the water.

**5. In places of hot climate it is advised that the outer walls of houses be painted white. Explain.**

In places of hot climate, it is advised that the outer walls of house be painted white because colour does not absorb any heat radiation from the sun which keeps inside cool, even if there is hot climate outside the house.