B. B. S. S. Sec. School
Class - VII th Sub - Science
Lesson - 4 - Heat

Topic - Applications of convection currents → On heating, convection currents are set in liquid and gases. The convection current in liquids and gases play an important role in nature and in our daily life.

1. Ventilation in rooms → Warm air being lighter rises up and leaves the room through the ventilators provided near the ceiling. To make up for this, fresh air from outside enters the room through the door and windows. The convection current so set in the air, helps in keeping the air in the room fresh.

2. Land and sea breeze -:

(a) Sea breeze - During the day, the land warms up more than the sea. The air over the land becomes hotter and rises upwards. To take its place, the cooler air from the sea moves towards the land. This convection current from the sea to the land is called the sea breeze.

b) Land breeze → After sunset the land loses heat faster than the sea water. As a result, the air over the sea is warmer at night. The air over the sea being warmer rises up and to take its place, cooler air from the land starts moving towards the sea. The convection current from the land to sea is called the land breeze.

Radiation → The transfer of heat from one object to another without any medium is called radiation. The heat from the sun reaches us by the process of radiation. Our body also gives heat to the surroundings and receives heat from it by radiation.

Radition needs no medium. Transfer of heat by radiation can occur even in vacuum.

*1. White or light coloured absorb lesser head and black or dark coloured absorb more heat.

2. The quantity of heat absorbed by a body depends on its distance from the source of heat.

3. A bright shiny surface is a poor absorber of heat radiation because it reflects the radiation fallion on it.

Thermos Flask → A thermos flask keeps hot things hot and cold things cold for a longer time. This is achieved by minimizing the exchange of heat between the substance kept in the flask and the surroundings.

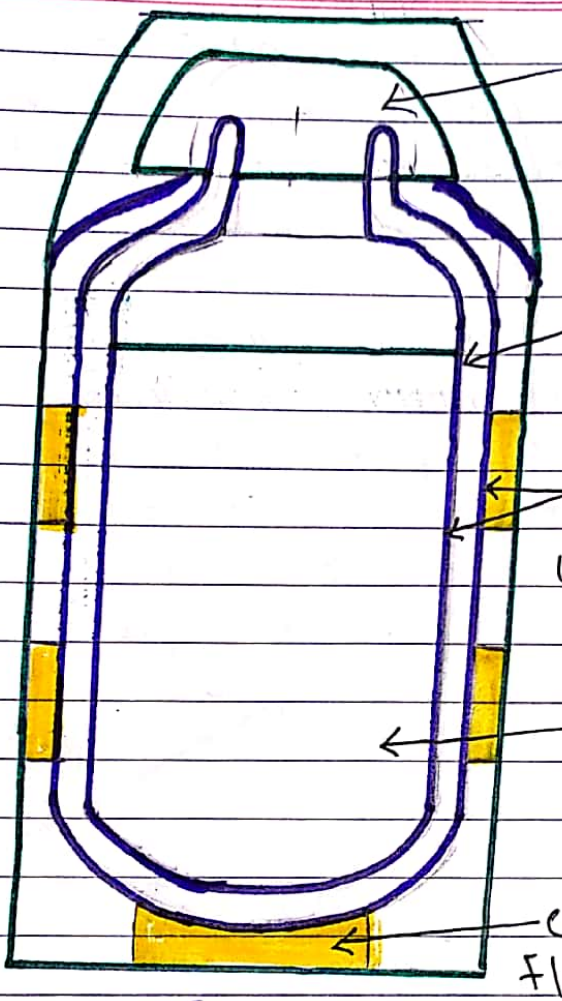
The flask consists of a double walled container made of glass or stainless steel having a vaccum between the walls. Both the walls are silvered on the vaccum side. The outer case of the flask as well as its lid is made of an insulating material such as plastic or convection through the vacuum.

Working of a Thermos flask → The thermos flask maintains the temperature of its contents due to the following reasons:-

1. Heat loss by conduction is reduced to the insulated outer case.

2. Heat loss by convection is reduced due to the vaccum created between the double walls of the container.

3. Radiation is minimized due to the shiny silver colour on the inner surface of the walls of the container.



A Thermos Flask

Note — 1. Write all notes in your note book

2. Answer the Following questions -

(i) Why are walls of houses and buildings painted with light colour ?

(ii) Why are the pipes of solar heater and containers of the solar cooker painted black ?

(iii) Why is it more comfortable to wear white or light coloured clothes in summer ?

(iv) Why does an electric room heater has a polished surface ?