

The foundry work and  
in cooking. (ii) the



**ASSIGN  
BUSTER**

The rate of heat flow is directly proportional to the cross sectional area of the rod and inversely proportional to its length. That is why long thin handles are preferred for parts used in foundry work and in cooking.

(ii) The principle underlying Davy's Safety Lamp is the property of the wire gauze to prevent the heat of the flame to pass outside and thus raise the temperature of the gas outside to the ignition point. On account of its conductivity the wire gauze does not reach a high temperature, and the gas in contact cannot rise to the ignition point. (iii) Tea kettles have wooden or plastic handles, because these are poor conductors of heat. (2) Convection: Convection is the transmission of heat from one part of the body to another by the actual motion of the heated particles of liquid or gas.

**Illustrations:**

(i) Ventilation is an application of the convection currents in gases. The air in a dwelling room is always warmer than the free air outside, and hence it rises upwards and passes out through the ventilators, while cold fresh air comes into the room through the doors and windows to take its place. (ii) Trade winds, land and sea breeze are all convection currents in the atmosphere. (3) Radiation: It is the process by which heat is transmitted from one point to another without heating the medium.

Radiation is the greatest from a black surface and the least from a polished bright surface. A black body is a very good absorber of heat radiation, and a polished bright surface is a poor absorber of heat radiation.

**Illustrations:**

(i) Thermos flask is a glass vessel with double walls, the space between the walls being vacuum. The outer surface of the inner walls and the inner surface of the outer walls are silvered. The vacuum does not allow the conduction and convection to take place and the polished surface minimises radiation of heat. (ii) Polished metals are the best reflectors and so are used in electric radiators. (iii) Firemen's helmets or the petrol tanks are highly polished.

(iv) While linen is more suitable in summer as it absorbs very little of the sun's rays. Black clothing is preferred in winter, for it absorbs almost the whole of the incident radiation, and thus it gives more warmth. (v) It is warm on a cloudy night because the heat radiated by the earth is obstructed, and thus trapped in the atmosphere by the clouds. (vi) Dew is more copious on a clear night because radiation takes place freely so that the surface of the earth cools rapidly.