

Chapter 05

HEATING EFFECTS OF ELECTRIC CURRENT

We use electrical energy for different purposes. We need electricity to run various electrical appliances such as Rice cooker, oven, fans and refrigerators.

Children, how do you clear the wrinkles off your clothes?

With an electric Iron!

What about electric stove? How is that we are able to cook food on such a stove just by plugging the wire and switching it on?

Your laptop too is warmer when it is switched on.

Let us understand this effect with a simple activity.

Make a circuit as before by connecting a cell, switch and a bulb. Keep the switch in the open position. You can see that the bulb is not glowing.

Switch ON the circuit by closing it. You can see that the bulb starts glowing. Leave the switch on for some time.

Now switch OFF the circuit. Touch the bulb. You can feel that the bulb is hot. How did this happen?

As electric current passes through a circuit, it transforms into heat energy. This is called as **heating effect of electric current**.

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Let us now understand how these devices work.

A bulb has a thin wire made up of TUNGSTEN material. This wire is called a Filament.

In an electric stove, there is a coil of wire that gets heated.

These components i.e. Filament and coil are called as HEATING ELEMENTS.

When electric current passes through them, they become hot and give out heat.

The amount of heat produced in a wire depends on three things, the material, length, and thickness.

Different electrical appliances use different materials as heating elements.

Let us know more about these heating elements.

FUSE

Wires made from some materials heat quickly and melt when a large amount of electric current passes through them.

Such wires are used in Electric FUSE

A Fuse is a safety device.

When large amount of electric current passes through it, the heating element in a Fuse melts and breaks the circuit.

This prevents damages to the circuit and possible fires.

Fuses of different kinds are used for different purposes. Some kind are used in electric appliances and some others in houses or buildings

