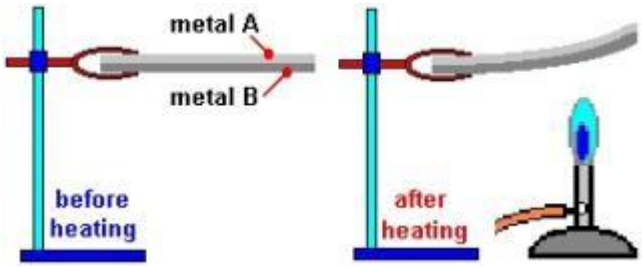
Thermostats

Introduction:

These are devices that control the temperature in appliances. The appliances include electric irons, ovens and refrigerators. The appliances can be adjusted/ regulated to the desired temperature when this temperature has been surpassed then the thermostat will break the connection and the appliance will either cool down or heat up depending on what is required.

When metals are heated they expand. Different metals have different coefficients of expansion. Two strips of differing coefficient of expansion are sometimes riveted together to form a bimetallic strip.



Bimetallic strip before and after heating

Thermostats use the principle of bimetallic strips. When a bimetallic strip is heated, the metal with the larger coefficient of expansion will bend or curve over the other one.

An open thermostat

A thermostat contains contacts that overlap. When they touch they complete the circuit. When the electricity is switched on the bimetallic strip is heated and it bends. When the desired temperature is reached, the contacts separate and the electricity flow is interrupted. The desired temperature is controlled by the temperature setting knob. As the appliance cools down, the strip straightens to its original state and electricity starts flowing again. These on and off cycles help to maintain a constant temperature.