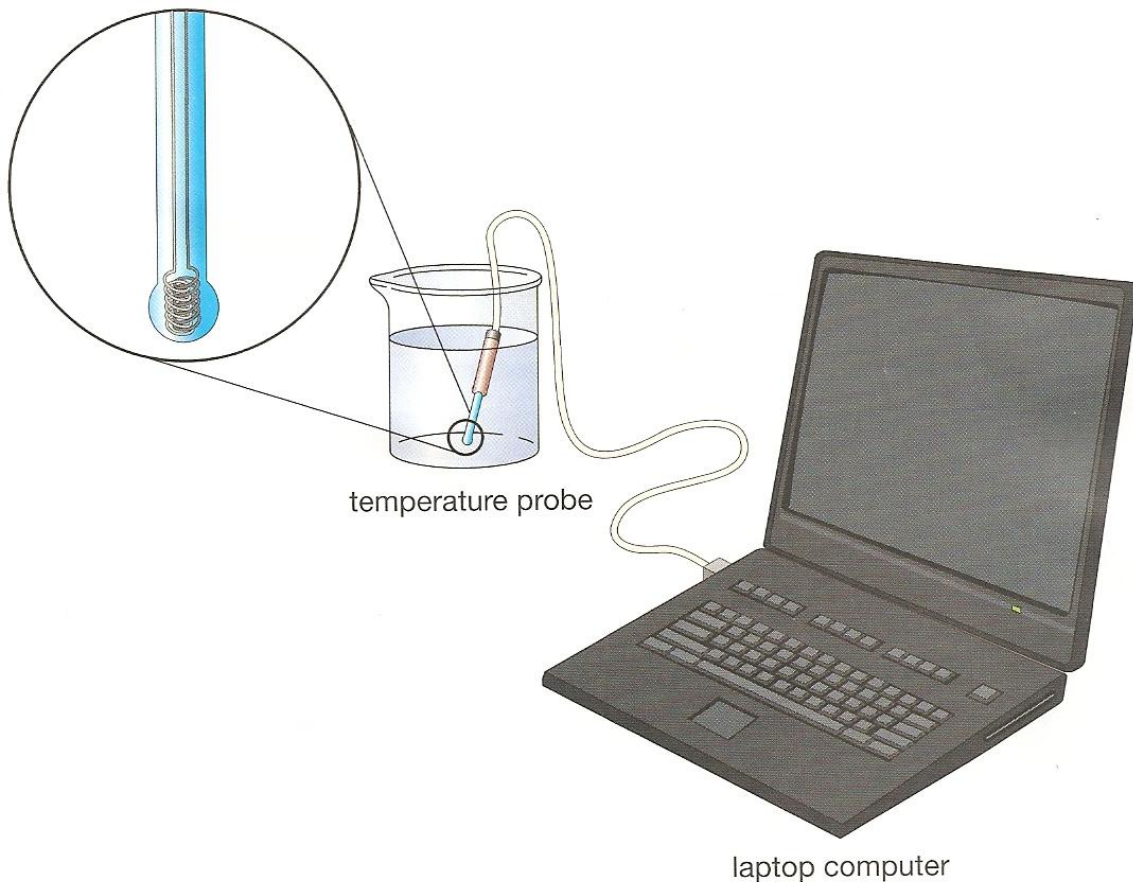


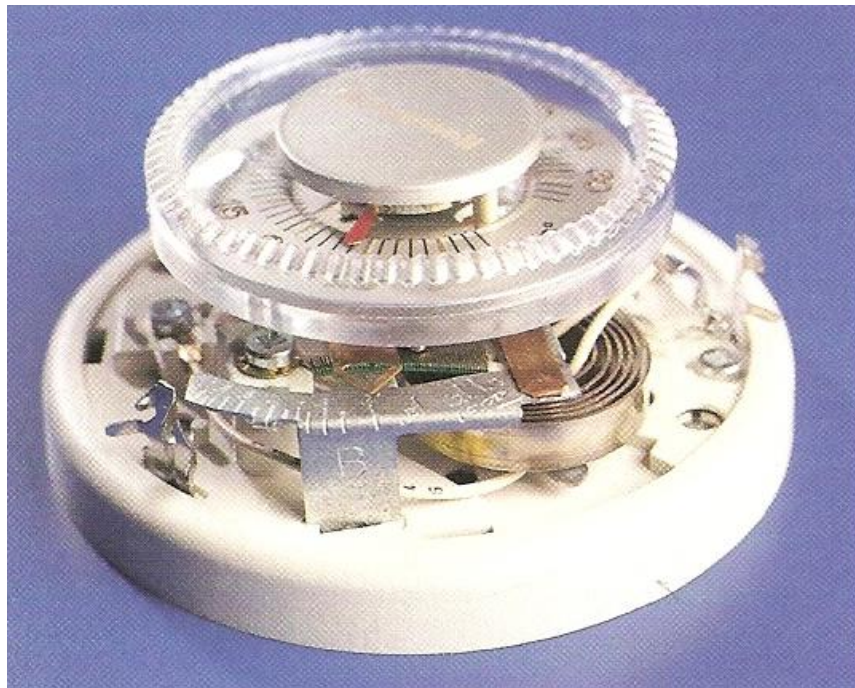
# Thermocouple

In a thermocouple, wires made of two different metals are twisted together. When the twisted wire tips are heated, a small electrical current is generated. The other ends of the wires are connected to a meter or computer, which can be calibrated to show the temperature of the joined wires. The electrical current from the thermocouple can be used to turn a switch or a valve on or off if the temperature changes.



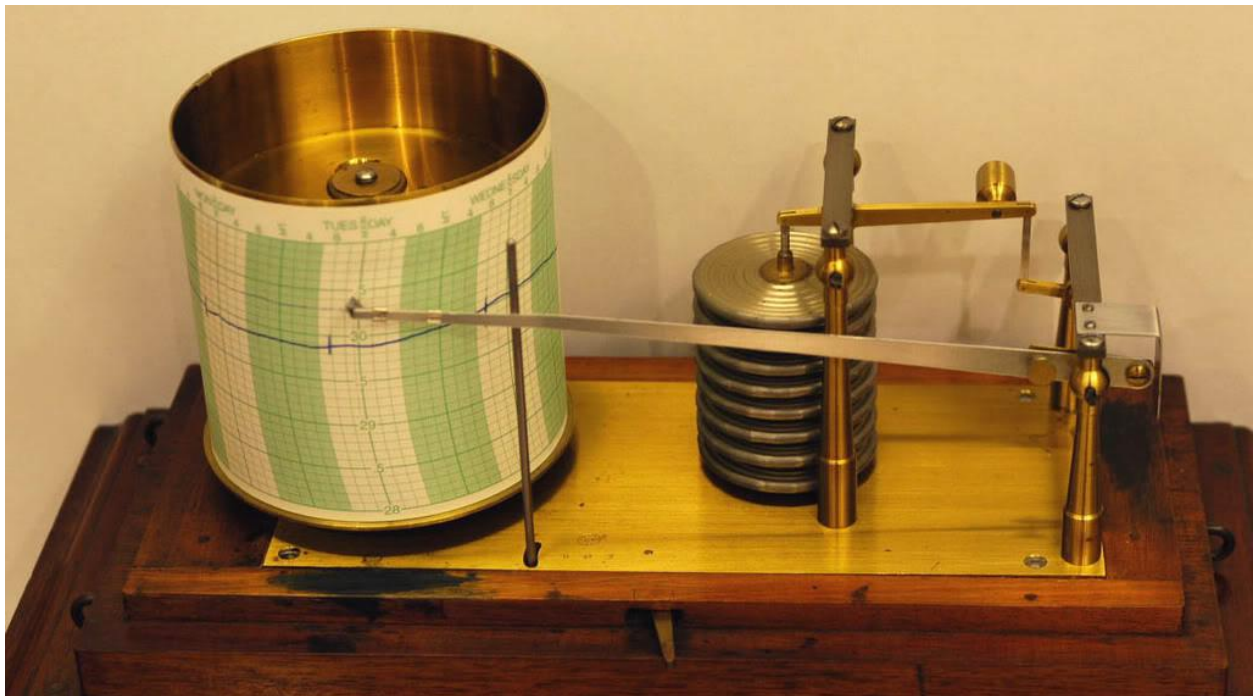
# **Bimetallic Strip**

A bimetallic strip is made of two different metals joined firmly together. When the bimetallic strip is heated, one metal expands more than the other, causing the strip to bend. When the bimetallic strip cools, one metal contracts more than the other, causing the strip to straighten or even bend in the other direction. When the strip is formed into a coil, the uneven expansion or contraction of the metals causes the coil to tighten or loosen. In a thermometer, the moving end of the strip can be attached to a pointer that points to a temperature scale.



# Recording Thermometer

In one type of recording thermometer, a hollow probe is connected by an airtight tube to a flexible metal bellows. As the temperature changes, the air warms or cools, pushing the bellows apart or pulling them together. One end of the bellows is attached to a long, light metal lever which ends in a special pen. Tiny movements of the bellows cause much larger movements of the free end of the lever and the pen. The pen traces a rising and falling line on a strip of paper attached to a slowly turning drum. The drum usually makes one turn every seven days, so each strip of paper contains a record of temperature changes for an entire week.





# Infrared Thermogram

Objects do not have to be glowing red hot to give off radiation. Anything that is warmer than absolute zero gives off infrared radiation (IR), a type of radiation similar to light, that your eyes cannot detect. Your skin can detect infrared radiation when you are near hot objects. Even if you are not actually touching the object, you can feel the warmth. Special camera film can photograph IR, and electronic sensors can detect it and display infrared images on television screens.

