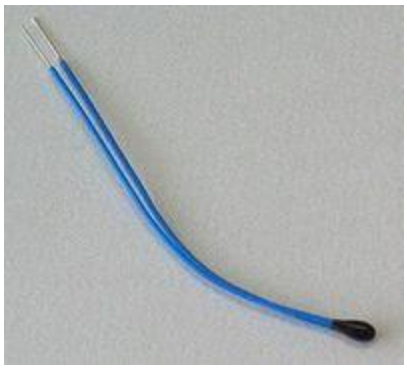
A **thermometer** is a device that measures temperature or a temperature gradient. A thermometer has two important elements: (1) a temperature sensor (e.g. the bulb of a mercury-in-glass thermometer or the pyrometric sensor in an infrared thermometer) in which some change occurs with a change in temperature; and (2) some means of converting this change into a numerical value (e.g. the visible scale that is marked on a mercury-in-glass thermometer or the digital readout on an infrared model). Thermometers are widely used in technology and industry to monitor processes, in meteorology, in medicine, and in scientific research.

An **infrared thermometer** is a thermometer which infers temperature from a portion of the thermal radiation sometimes called black-body radiation emitted by the object being measured.

Thermistor thermometer:

A **thermistor** is a type of resistor whose resistance is dependent on temperature.



Heat transfer:

There are three types of heat transfer:

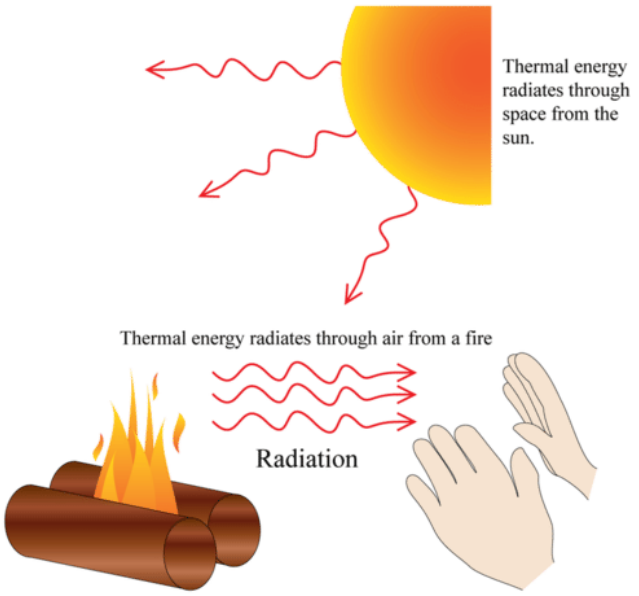
Heat conduction

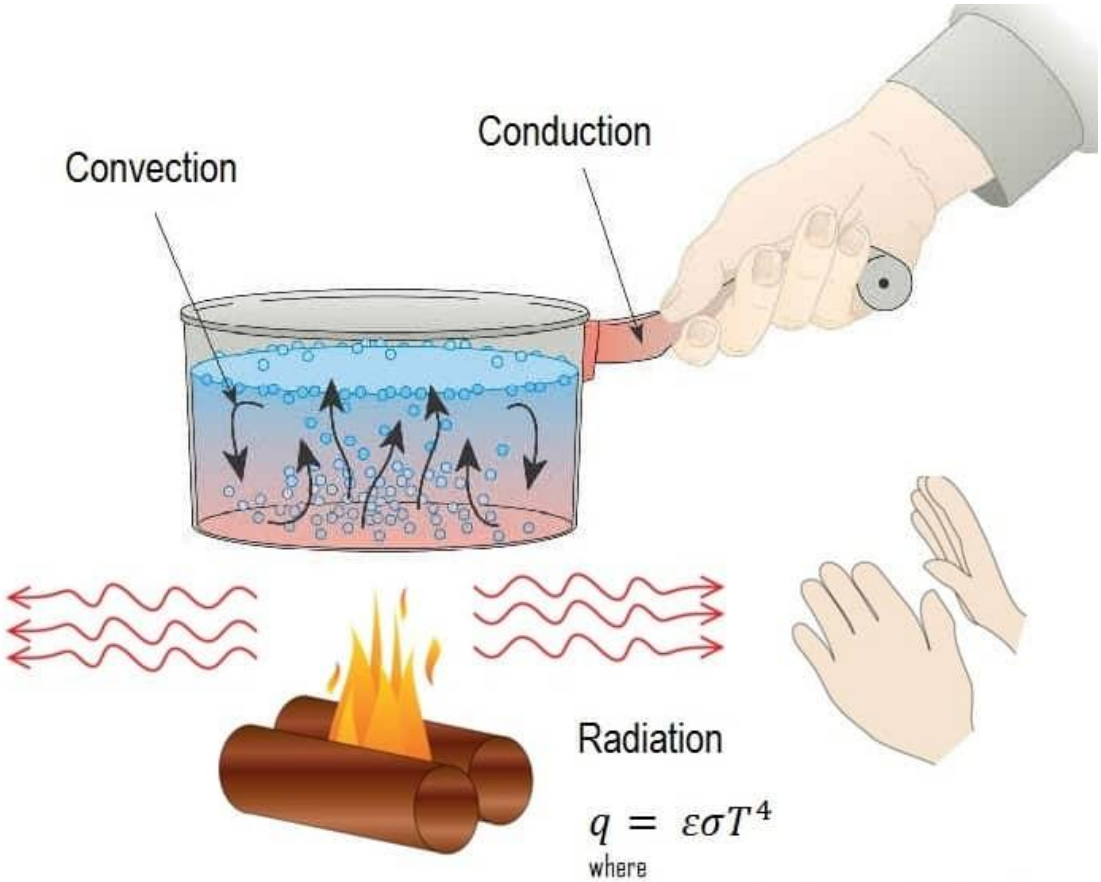
The transfer of energy between objects that are in physical contact. Thermal conductivity is the property of a material to conduct heat.

Heat convection

The transfer of energy between an object and its environment, due to fluid motion.

Heat radiation:
The transfer of energy by the emission of electromagnetic radiation.





$$q = \varepsilon\sigma T^4$$

where

q is the power radiated from an object [$W.m^{-2}$]

σ is the Stefan–Boltzmann constant [$W.m^2K^4$]

ε is the emissivity of the surface of a material [-]

Heat therapy:

Heat therapy, also called **thermotherapy**, is the use of heat in therapy, such as for pain relief and health. It can take the form of a hot cloth, hot water bottle, ultrasound, heating pad, hydrocollator packs, whirlpool baths, cordless FIR heat therapy wraps, and others. It can be beneficial to those with arthritis and stiff muscles and injuries to the deep tissue of the skin. Heat may be an effective self-care treatment for conditions like rheumatoid arthritis.[1]

There are two types :

Direct contact and infrared radiation.