

# ThermoSense Mk1

## Temperature and Heat are different but linked.

**Temperature (T)** is a measurement of the average kinetic energy of the molecules which vibrate in an object and can be measured by a thermometer.

**ThermoSense Mk1** is a thermometer which measures from two temperature sensors Hot and Cold changes. These are displayed on your computer in Graphical and Numerical ways with the information available for personal investigation .

Temperature can be used to determine the **Internal Energy(U)** contained within an object.

**Heat Energy(Q)** always refers to the **transfer of Internal Energy** between objects, **not to the Internal Energy(U) contained within the objects.**

**Two objects:** say two baked potatoes, one large (A), one small (B) could be at the same temperature or have different temperatures.

### A) At Same Temperatures

\* If potato (A -large) and potato (B-small) are **at the same temperature** then **potato (A)** will have **more Internal Energy(U)** than **potato (B)**



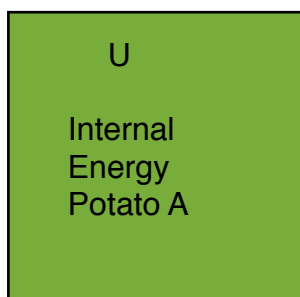
**Potato A**



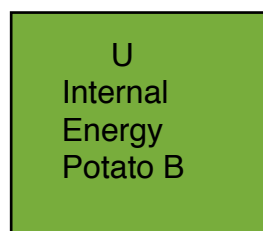
**Potato B**

That is the:-

**Internal Energy of Potato (A) is greater than Internal Energy of potato (B)**

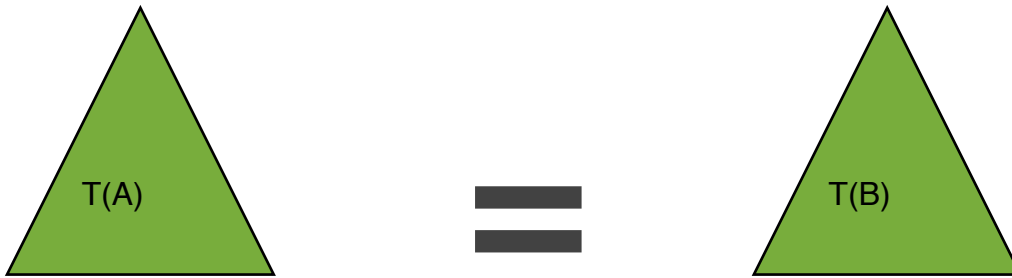


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**even though**

**TEMPERATURE of Potato(A) = TEMPERATURE of Potato (B)**



### **Heat Energy Transfer (Q).**

**\* Requires a Temperature difference between two objects.**

**So if TEMPERATURE of Potato(A) = TEMPERATURE of Potato (B)**

and

They touch each other, so as to be in thermal contact

There is no **Heat Energy** conduction

SO

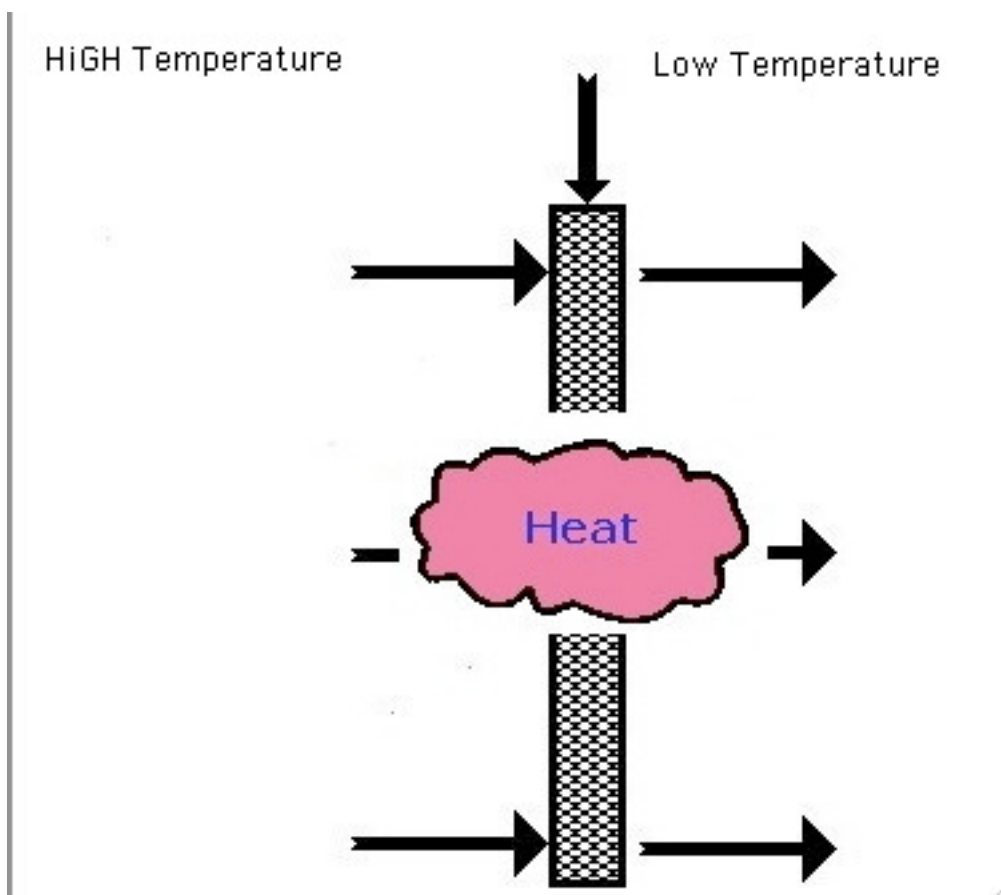
Heat Energy Transfer between Potato(A) & Potato (B)

is zero.

**Q=0**

**B) At different Temperatures.**

**\* for Heat Energy (Q) to transfer from one object to another there must be a Temperature difference.**



**\* Heat Energy (Q) transfers from an object at a High Temperature to an object at a lower Temperature.**

**\* Heat Energy (Q) may transfer by three means:-**

**To Illustrate**

**a) Conduction ---Finger touch on a hot surface.**

**b) Convection --- Draft from a gap in a wall.**

**c) Radiation --- Heat from the Sun on your face.**

**WITH THIS IN MIND WE CAN HAVE FUN AND LEARN USING IMAGING ASSOCIATES INTERNATIONAL'S THERMOSENSE MK1**

**ThermoSense Mk1 will enable you to make easy Temperature and Heat Transfer measurements and help you investigate Sustainable Environmental issues involving ENERGY.**

**Practical Measurements will increase your insight into many scientific and political Issues including GLOBAL WARMING!**