

Thermal Energy and Heat

**Conductors
and
Insulators**





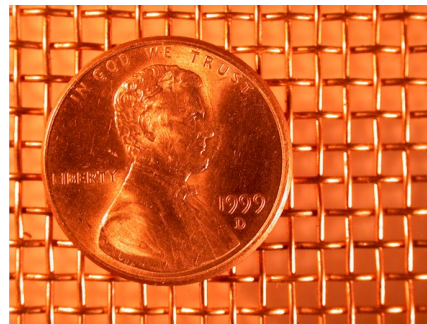
Conductors allow thermal energy to easily pass through them.

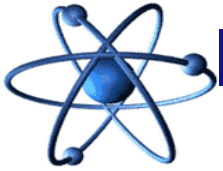
Insulators do not allow thermal energy to easily pass through them.



Conductors and Insulators

Most metals are excellent heat conductors (thermal energy easily passes through them). Copper was the best conductor of the metals we tested, but silver, gold and platinum are even better.





A spoon, a fork, a glass and a match...



What do you think will happen when the flame reaches the fork?

Screen and candle experiment





Other solids, however, are not very good at transferring thermal energy.

These are poor heat conductors or heat insulators



Some examples are glass, wood, styrofoam, pink insulation, goose down feathers, etc.



Most insulators are used to **slow down** the transfer of thermal energy (i.e. they are used to keep objects warm or cold for as long as possible) like in a house, a blanket, or a sleeping bag.



Space Shuttle Ceramic Tiles



2000°C

Conduction & Insulation Experiment

Picture it....

Two cups, one filled with hot water and one filled with cold water cold. Each cup has a thermometer placed in it. The liquids are linked together with an aluminum bar.

Two cups, one filled with hot water and one filled with cold water cold. Each cup has a thermometer placed in it. The liquids are linked together with an wood stick.

Set the timer going what would be the end result...?