***Transfer of Heat***

***Heat:*** A form of energy associated with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of atoms or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Transferred from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ temperature objects to objects at a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ temperature.

**How Heat Can Be Transferred**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Conduction**

Transfer of heat through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Occurs anytime objects at different temperatures are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ each other.

As long as the objects are in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, transfer of heat will continue until the temperature of the objects is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Example: If you leave a metal spoon in a pan of soup that you are heating on the stove, it may burn your fingers. The spoon is in direct contact with the hot soup and heat is transferred to the spoon.

**Conductors and Insulators**

Some materials conduct heat better than others.

Materials that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ heat well are called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are usually good conductors.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, paper and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are not.

Materials that \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the transfer of heat are called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (styrofoam, wool, fiberglass).

**Convection**

The transfer of energy in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_.

When part of a gas or liquid is heated, the particles it is made up of move \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ out more.

The moving particles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into other particles, causing them to move \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and spread out more.

**Convection Currents**

When particles in the air spread out, they become \_\_\_\_\_\_\_\_\_\_\_ dense and generally \_\_\_\_\_\_\_\_\_\_\_\_\_\_ above the unheated, more dense particles around them.

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ masses of the gas or liquid move in to fill the space left by the heated particles.

The particles that move away from the source of heat become \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dense.

**Radiation**

Energy transferred in the form of \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or particles.

We will concentrate on the type of radiation that travels as electromagnetic waves.

**Heat From the Sun**

You can feel the sun warm your skin on a sunny day.

This is because the energy causes the particles in your skin to move \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy.

**Electromagnetic Waves**

Include \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light, microwaves and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light

Can travel through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is our major source

**Convection = Basis of Most Winds**

Air is heated by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of our planet.

Warm air \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ air comes in to take it’s place.

Warmer, \_\_\_\_\_\_\_\_\_\_\_\_\_ dense air is pushed up by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, denser air.

Air further from the earth’s surface is cooler so the temperature of the air drops. As the air cools, it becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_ dense and starts to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

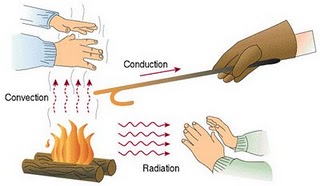
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ air moves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ warmer air, pushing the warmer air \_\_\_\_\_\_\_\_\_.

Convection is warmer at the earth’s surface so \_\_\_\_\_\_\_\_\_\_\_\_ near the earth’s surface is heated by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, less dense air \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

It is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ higher up in the atmosphere, so the air becomes \_\_\_\_\_\_\_\_\_\_\_\_\_ dense again and begins to fall.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ air moves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ warmer air and it all starts over again.

[](http://1.bp.blogspot.com/_A131MWmB344/SkTEHmjQwhI/AAAAAAAAAD0/1ceiEjewIyE/s1600-h/heat-transmittance-means.jpg)