Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**HEAT, TEMPERATURE AND WEATHER NOTES**

First… HEAT vs TEMPERATURE

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the measure of the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ that something has. When someone asks, “What is the temperature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?”

“HOW \_\_\_\_\_\_\_\_\_ energy does \_\_\_\_\_\_\_\_ have?”

When a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shows a high temperature, the air \_\_\_\_\_\_\_\_\_\_\_\_\_\_ have a lot of energy so they are \_\_\_\_\_\_\_\_\_\_\_\_ the bulb more rapidly and harder.

When a thermometer show a \_\_\_\_\_\_\_ temperature, the \_\_\_\_\_\_\_\_ molecules have very little energy so they are hitting the bulb very \_\_\_\_\_\_\_\_ and not as hard.

BACK to our original \_\_\_\_\_\_\_\_\_\_\_\_\_...

HEAT VS TEMPERATURE

Remember that temperature is the \_\_\_\_\_\_\_\_\_\_ of the amount of energy that something has.

Heat is the transfer of \_\_\_\_\_\_\_\_\_\_\_\_!

When a high \_\_\_\_\_\_\_\_ molecule hits a low energy molecule….. one \_\_\_\_\_\_\_\_\_\_ energy while another \_\_\_\_\_\_\_\_ energy.

Think back…. Why do metal objects feel \_\_\_\_\_\_\_\_?

Your finger has more energy than the \_\_\_\_\_\_\_\_\_\_\_ (metal object). The wrench takes energy \_\_\_\_\_\_\_\_\_ your finger causing it to “feel” \_\_\_\_\_\_\_.

How does all of this \_\_\_\_\_\_\_\_\_\_ to WEATHER?

Weather is \_\_\_\_\_\_\_\_\_ by our atmosphere getting and \_\_\_\_\_\_\_\_ energy.

All of the energy in our atmosphere \_\_\_\_\_\_\_\_\_\_\_\_ came from the SUN!

The energy from the \_\_\_\_\_\_\_ can be transferred \_\_\_\_\_\_\_\_\_ the earth in three different ways!

Radiation

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

Convection

RAIDATION

\_\_\_\_\_\_\_\_\_ is the transfer of energy by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ waves

Therefore, both the \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ heat the atmosphere.

Both the Sun and the \_\_\_\_\_\_\_\_\_ emit (\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_) radiation.

Most of the Sun’s radiation is \_\_\_\_\_\_\_\_\_\_ by the Earth’s atmosphere, clouds, or \_\_\_\_\_\_\_\_\_\_\_\_.

(Heat Transfer - energy \_\_\_\_\_\_\_\_\_\_\_\_).

After the surface is \_\_\_\_\_\_\_\_\_\_ up, that is radiated \_\_\_\_\_\_\_\_\_ to the atmosphere. The atmosphere absorbs this \_\_\_\_\_\_\_\_\_\_\_\_.

Darker \_\_\_\_\_\_\_\_\_\_\_\_ on Earth absorb heat… therefore, they \_\_\_\_\_\_\_\_\_\_ more energy into the atmosphere.

CONDUCTION

Conduction is the \_\_\_\_\_\_\_\_\_\_\_\_ of energy by direct contact of molecules or \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The air \_\_\_\_\_\_\_\_\_\_\_\_ the ground is heated \_\_\_\_\_\_\_\_\_\_\_\_ by contact with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Darker \_\_\_\_\_\_\_\_\_\_\_\_ on Earth absorb heat… therefore, they \_\_\_\_\_\_\_\_\_\_ more energy into the atmosphere.

CONVECTION

Convection is the transfer of energy by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a liquid or \_\_\_\_\_\_\_\_\_\_.

Warm / Hot air has a lot more energy than \_\_\_\_\_\_\_\_\_ air.

Since \_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_ air has more energy, it expands and takes up more space than cold \_\_\_\_\_\_\_\_.

Warm Air – More energy – Expands

Cold Air – Less energy – Shrinks

A hot air balloon is a great example the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ warm air expanding and rising.

CONVECTION in our \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Land heats up faster that \_\_\_\_\_\_\_\_\_\_. The air above the land in return gets \_\_\_\_\_\_\_\_\_\_\_ up. This warm air rises. Cooler air from over the water comes in to take its \_\_\_\_\_\_\_\_\_.

Warm air \_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_.

As is rises, it cools or \_\_\_\_\_\_\_\_\_\_ energy.

The cool air then \_\_\_\_\_\_\_\_\_\_ back down to be reheated by the \_\_\_\_\_\_\_\_.

Due to warm air rising and cool air coming in to take its place…… \_\_\_\_\_\_\_\_ is created!

To review…. The energy from the sun can be \_\_\_\_\_\_\_\_\_ around the earth in three ways!

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

Conduction

Convection

These three types of HEAT \_\_\_\_\_\_\_\_\_\_\_ cause weather on Earth to occur.

1. Radiant heat from the \_\_\_\_\_\_\_\_ warms land & \_\_\_\_\_\_\_\_\_\_
2. Land & water radiate heat onto the \_\_\_\_\_\_\_\_\_\_\_\_(infrared ways).
3. Land & water also heat the air by \_\_\_\_\_\_\_\_\_\_ contact (Conduction).
4. Warm \_\_\_\_\_\_ raises
5. \_\_\_\_\_\_\_\_ air sinks

4&5) Show \_\_\_\_\_\_\_\_\_\_\_\_\_ taking place

The \_\_\_\_\_\_\_\_\_ supplies all the energy in our \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!

This energy is what causes our \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!