## Let’s study the radiation phenomena a little bit further

All objects radiate energy and heat, even your own body. However, the radiation coming from hotter objects is more intense than that coming from cooler objects. Radiation leaves an object in the form of waves. The hotter an object, the shorter the wavelength of this radiation.

As you stand in front of a camp fire holding your cold fingertips out in front of you, what do you feel? Slowly your fingers begin to warm up as they absorb the radiation coming from the fire. The infrared waves, or heat rays, leave the hot fire, and radiate out towards your hands. An object that is especially good at radiating heat is referred to as a blackbody.

The most influential factor affecting weather in the atmosphere is heat. But where does this heat come from? A small amount of heat is generated from the Earth itself. This heat comes from a wide variety of sources, including hot springs, volcanic eruptions, radiation, and occasional forest fires. However, none of these sources produce heat on a large scale. Even a volcanic eruption is only hot enough to warm a very small area for a very short period of time.

The vast majority of heat found in our atmosphere comes from the Sun. Through the process of nuclear fusion, the Sun produces a massive amount of energy every moment of every day. In one second, the Sun produces more energy than mankind has ever used in our entire history.

**Activities:**

1. State **true** (T) or **false** (F) based on the text above and your class notes. If it is false, explain why.
2. Heat can be transmitted through empty space by radiation. [ ]
3. Convection occurs in fluids due to movement of these fluids. [ ]
4. Infrared rays can travel through empty spaces. [ ]
5. The colder an object, the longer the wavelength of this radiation. [ ]
6. Heat, energy and temperature are all different names for the same thing. [ ]
7. Conduction of heat only occurs in liquids. [ ]
8. Fill in the missing words in the following sentences. You can use your book, Internet or class notes. Choose from the list:

***absorb, conduction, convection, energy, heating, insulator, kinetic, metals, radiation, temperature***

a) Many common domestic appliances are used for \_\_\_\_\_\_\_\_\_ and cooling.

b) Heat is a form of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) Moving energy is also known as \_\_\_\_\_\_\_\_\_\_\_ energy

d) Heat is transferred between two objects when they have a difference in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e) Heat can be transferred by \_\_\_\_\_\_\_\_\_\_\_\_ , convection and radiation.

f) \_\_\_\_\_\_\_\_\_\_\_\_\_ tend to be good conductors of heat.

g) A substance that doesn’t conduct heat well is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

h) Heat travels in fluids mainly by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

i Heat can travel through a vacuum by \_\_\_\_\_\_\_\_\_\_\_\_\_\_

j) Black surfaces \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ heat well.

1. Could Earth and Sun be considered "blackbodies"? Why?