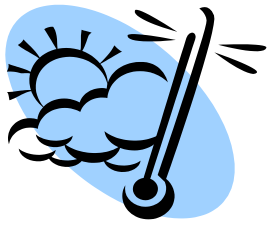
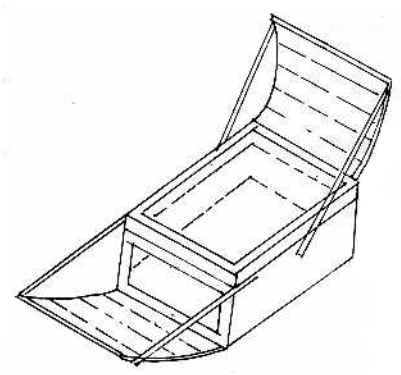
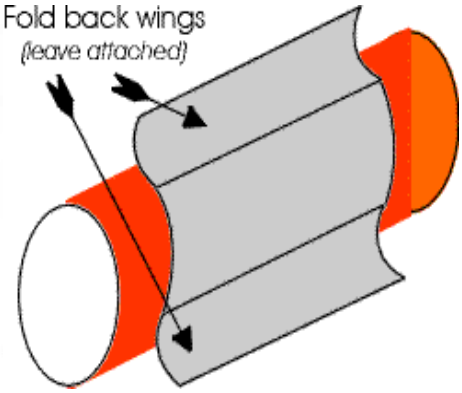
Name: _____ Blk ____ Date _____



Solar Oven Project

Scenario: You are going on a camping trip to the Great Smokey National Park. But the weather has been very warm and having a fire is just to hot to even think about. However, no camping trip is complete without s'mores!! Your group will design a solar oven out of materials you would probably have on a camping trip. You may use a Pringles can, tissue box or something of equal size. Any additional parts added to your cooker must be somewhat limited. The entire solar over must be able to fit into a paper box with the lid on. You will gather data showing the time is takes your cooker to get the thermometer probe to increase 10° while under a stationary lamp. You will record the data every 30 seconds until the increase in temperature reaches 10°—then you will create a graph using the data you gathered. The final task will be to get a chocolate square and marshmallow to melt on a graham cracker so you can make a s'more.





Project Due Date:

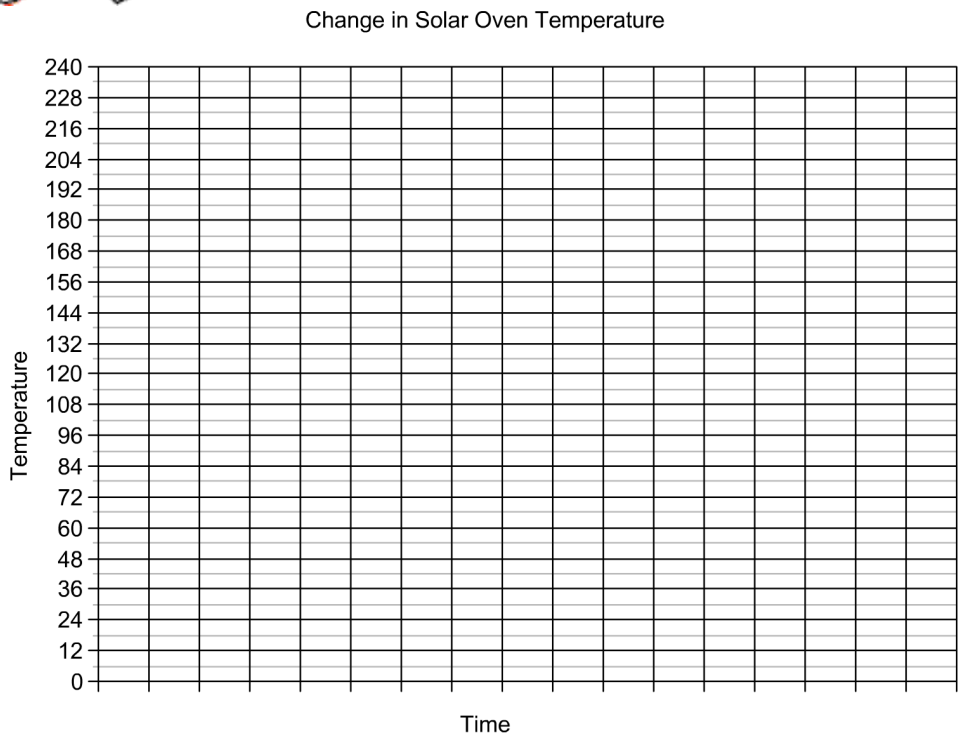
_____

Two other group members:

_____

_____

Seconds	Temperature
0	
30	
60	
90	
120	
150	
180	
210	
240	



Some helpful websites:

http://www.stevespanglerscience.com/lab/experiments/solar-oven

http://solarcooking.org/sbcdes.htm

http://www.nasa.gov/pdf/435855main_BuildaSolarOven_6to8.pdf

http://www.eia.gov/kids/energy.cfm?page=solar_home-basics

List two other sites you found:

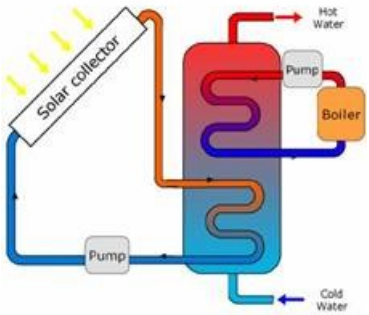
_____

_____

Solar Thermal Heat - Solar Thermal Energy

Solar thermal energy refers to harnessing the sun's light to produce heat. Heat results when photons, packets of light energy, strike the atoms composing a substance (water, your body, asphalt), exciting them. Solar thermal technologies include passive solar systems for heating (or cooling!) buildings; flat plate solar collectors, often used for providing households with hot water; and solar concentrator power systems.

These systems, also known as solar thermal power plants, use the sun's heat to create steam, which then turns a turbine and produces electricity. The major applications of solar thermal energy at present are heating swimming pools, heating water for domestic use, and space heating of buildings. For these purposes, the general practice is to use flat-plate solar-energy collectors with a fixed orientation (position).



Where space heating is the main consideration, the highest efficiency with a fixed flat-plate collector is obtained if it faces approximately south and slopes at an angle to the horizon equal to the latitude plus about 15 degrees.

Solar collectors fall into two general categories: non-concentrating and concentrating.

In the non-concentrating type, the collector area (i.e. the area that intercepts the solar radiation) is the same as the absorber area (i.e., the area absorbing the radiation).

In concentrating collectors, the area intercepting the solar radiation is greater, sometimes hundreds of times greater, than the absorber area. Where temperatures below about 200° F are sufficient, such as for space heating, flat-plate collectors of the non-concentrating type are generally used.