**Solar Cooker Lab Competition**

**Purpose**

Cook a single hot dog using only solar energy and a device of your own design and construction.

**Materials**

Apparatus- WHATEVER YOU WANT TO USE, but

- no purchased apparatus or pre-made ‘solar’ materials

- no new materials (all materials must be second use/recycled)

- note- if fire becomes part of your set-up, you will be eliminated from the competition, as you are using fire instead of solar waves to cook the hot dog.

PASCO Thermometer

Laptop

Hot Dog

**Procedure**

* All teams will cook for the same amount of time (70 minutes).
* Each team will use a PASCO thermometer to measure temperatures at the beginning of the experiment, every 10 minutes throughout the experiment, and then at the end.
  + Collect the air temperature, the surface temperature of your apparatus, and the internal temperature of the hot dog each time you measure data.
* At the end of the 70-minute cooking period, disassemble your apparatus so the hot dog can be inspected. It will also be graded/judged based on ‘aesthetics’.
* Do not eat your hot dog after cooking (thermometer will contaminate it).

**Report/Analysis**

1. Construct and complete a data table with temperatures at each 10 min interval
2. Use Excel to make a line graph showing all 3 temperature measurements. Your graph needs to have proper scientific formatting including-
   1. Only black, white, and gray
   2. Outlined plot area
   3. Title, labeled axes
   4. 3 different symbols differentiating the 3 different temperature measurements
   5. A legend explaining these 3 different measurements

*The rubric for this lab report grade is available online. This project is worth 30 points.*

Competition Due Dates

Design outline- due Wednesday March 24 (period 2) and Thursday March 25 (Period 6)

* Needs to include at least one detailed drawing, a full list of materials (you will be responsible for acquiring these materials), and how the apparatus will be assembled

Cooker Competition- Tuesday March 30 (period 2) and Wednesday April 7 (Period 6)