



# PRINGLES COOKER

JUSTIN TAYLOR

## SOLAR LESSON

Time Frame:	Standards:
45 minutes session to make cooker Then 60 minutes to cooker. (possibly teach another subject while waiting.)  3 <sup>rd</sup> Grade	<b>3.S.1.2.1</b> Make observations, collect data and evaluate it. <b>3.S.1.2.2</b> Replicate and/or use models <b>3.S.1.3.1</b> Measure changes that occur <b>3.S.1.6.3</b> Use appropriate tools and techniques and display data. <b>3.S.1.6.5</b> Make simple predictions. <b>3.S.1.6.7</b> Communicate the results of tests to others <b>3.S.1.8.1</b> Read and give multi-step instructions
Objectives:	
SWBAT build a solar hot dog cooker and test its ability to function.	
Background Information:	
Radiant energy from the sun can be reflected and concentrated on an object. Much of the radiant energy absorbed by an object is converted into thermal energy (Heat). Radiant energy can pass through clear materials much more easily than thermal energy.	
Materials:	
<ul style="list-style-type: none"><li>• 1 Pringles Potato Chip Can</li><li>• 1 pair of Scissors</li><li>• 1 wooden or metal skewer</li><li>• Clear Plastic for each student for each student such as transparency</li><li>• Hot dog for each student.</li><li>• Tape.</li></ul>	

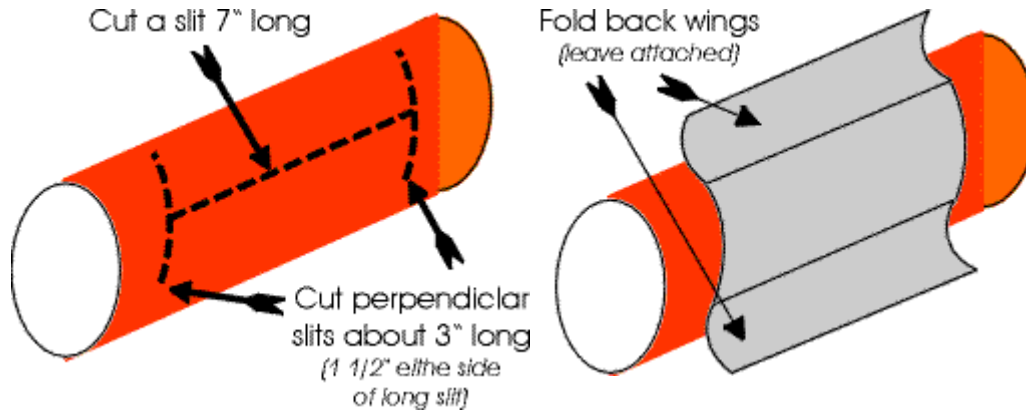
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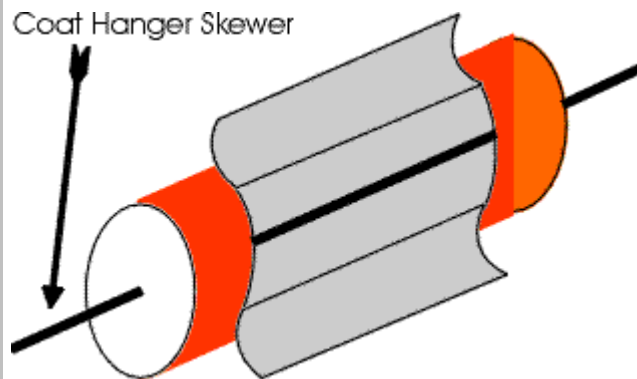
### Procedure:

Cut the Pringles can as shown on the picture below. Then bend back the flaps. Be sure not to cut off the flaps. These flaps will be used to reflect the radiant energy onto the hot dog.



Cover the opening on the inside of the can with the transparency film and tape the film into place.

Make small holes in the metal end of the can and in the plastic lid. Remove the plastic lid. Put the hot dog onto the skewer, slide the skewer into the can, and place the end of the skewer through the hole in the metal end. Put the plastic lid back on the can, fitting the other end of the skewer through the hole. The hot dog should be suspended in the can as shown below.



Place the solar hot dog cooker into direct sunlight, positioning the flaps so that they will reflect radiant energy onto the hot dog. Remember that the angle of incidence of light equals the angle of reflection.

Time how long it takes to cook your hot dog. If you working on a cold day, you might consider insulating you cooker.

Will your cooker work in artificial light?



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### Assessment:

This is a true product based assessment. Are the students able to cook their hot dogs? Be sure that you use a sunny day, this makes for a quicker product.

### Additional Content:

As a possible extension you could have the student measure the temperature and how it changes over time. Student will see how cookers will vary in temperature due to the construction of their model.

### References:

Pictures come this website @

[http://www.geocities.com/yosemite/5307/pc\\_solar\\_oven.html](http://www.geocities.com/yosemite/5307/pc_solar_oven.html)

The lesson contained comes from The NEED Project.