

Instructables Inspired Pringles Can Solar Cooker Project



instructables

Instructables is a website where people can upload do-it-yourself project directions, ranging from building a wireless cat harnesses, tie-dyeing a shirt with shaving cream, making a toilet paper roll lamp, to making maple walnut icecream. Other users can then comment on and rate the projects.

A good example of how an Instructable is set up is shown with this cardboard solar lamp project. Visit the website listed to review it.



<http://www.instructables.com/id/CARDBOARD-SOLAR-LAMP/#step0>

Create your own “Instructable ” on how to make a Solar Cooker. You can follow the Pringles Can directions exactly, make modifications, or come up with your own design completely. For example, what else could you use as the “oven vessel” other than a Pringles can? What else could you cook instead of a hotdog? What can you use to focus and intensify the sun’s rays on the food you cook?

Requirements: Your Solar Cooker Instructable should include the following slides:

-Cover Slide (*includes*)

- A picture of your final solar cooker
- Features of your solar cooker
- Benefits of your solar cooker
- Your name

-Tools and Materials Required Slide

-Direction Slides

Include as many slides necessary to clearly show how to construct your solar cooker. The slides should include pictures and written descriptions.

Your instructable should show the food that you cooked, record how long it took it to cook to that point and the weather temperature and conditions during cooking.

You can create your instructable in the following two ways:

1. Use PowerPoint to create the slides, print each slide to a sheet and turn in.
2. ~~Use a Google Presentation to create the slides. Name your presentation SOLAR COOKER INSTRUCTABLE STUDENT FIRST NAME LAST NAME. Share it with me allowing me to “Can edit” and checking the Notify people via email box.~~

Invite people:

"Ewa Dossin" <Ewa.Dossin@romeo.k12.mi.us>, Can edit ▾

Notify people via email - [Add message](#)

Send a copy to myself

Pringles Can Solar Cooking Experiment

Adopted from (Energy Information Administration, 2001)

Allow 45 minutes for full activity and discussion.

Materials

1 Pringles can for every 3-4 students, 1 hot dog for each student, plastic wrap, masking tape, 14" wood skewer for each Pringles can, scissors or sharp knife, access to direct sun. Stop watch, Thermometer

Procedure

1. Cut the Pringles can as shown in Diagram 1. Bend back the flaps, but do not remove them from the can.
2. Cover the opening on the inside of the Pringles can with plastic wrap and tape the plastic wrap in place.
3. Make small holes in the metal end of the can and in the plastic lid. Remove the plastic lid from the can.
4. Put a hot dog onto a skewer, slide the skewer into the can, and place the end of the skewer into the hole in the metal end. Put the plastic lid back onto the can, fitting the other end of the skewer through the hole. The hot dog should be suspended inside the can as in Diagram 2.
5. Place the solar cooker in direct sunlight, positioning the flaps to reflect the maximum amount of radiant energy onto the hot dog.
6. Record the amount of time required to cook the hot dog. Consider insulating the solar cooker to improve efficiency.
7. Compare length of cooking time between groups, discuss why differences were observed.

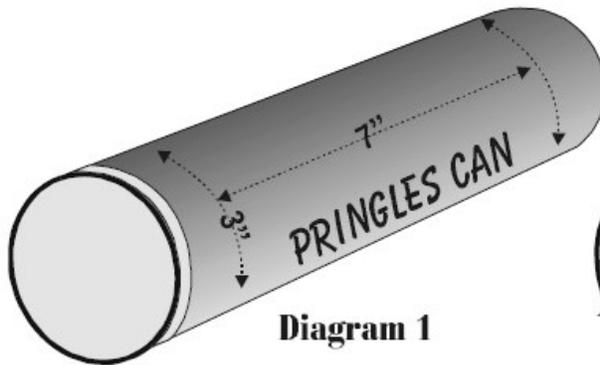


Diagram 1

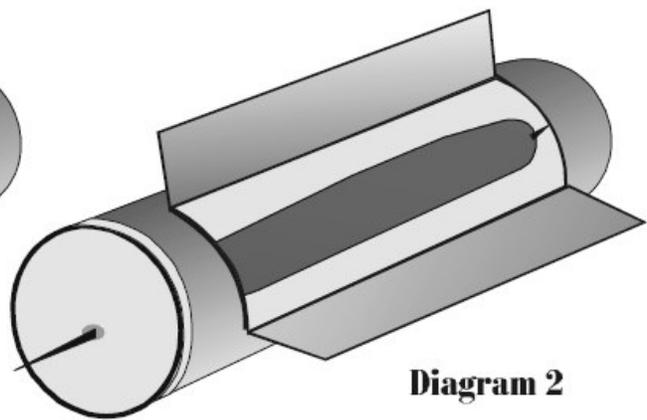


Diagram 2

Helpful Information

Radiant energy from the sun can be reflected and concentrated on an object. A portion of the radiant energy absorbed by an object is in the form of thermal energy (heat). This is an energy conversion: radiant energy to thermal energy. Radiant energy can pass through clear materials much easier than thermal energy can.

Concepts to Think About

Direction to sun

Amount of radiant energy

Insulation

Amount of wind

Shadows

Flap orientation

Temperature of air and hot dog

Other items???

Grading Rubric

Student: _____

Project: Instructables Inspired Pringles Can Solar Cooker

Project Presentation					
	Not Evident 0 pts	Not Proficient 2 pts	Partially Proficient 3 pts	Proficient 4 pts	Proficient with Distinction 5 pts
Content Knowledge	Not Evident	Not Proficient	Partially Proficient	Proficient	Proficient with Distinction
	None shown	The project is lacking more than two elements required. There are many gaps in information presented. Confusing.	All but two of the relevant information is included on the project. There is not enough information presented. Information is presented in an unorganized fashion and may be hard to understand.	Project includes all relevant information except for one element; however, it is not well-organized.	The Project includes all information relevant to the topic. The Project is creative, clear and concise. The student added information above what was required for the project.
Work quality/ effort	Not Evident	Not Proficient	Partially Proficient	Proficient	Proficient with Distinction
	None shown	Work is done with little effort, quality is not what the learner is capable of. It is evident that the work was rushed and little time was spent on the final product. Work is incomplete.	Work is done with fair effort, but the quality is still not what the learner is capable of. It is evident that the work was rushed.	The work was done with good effort that shows what the learner is capable of. It is evident that time was put into this poster and presentation.	The work done exceeds all expectations and shows that the learner is proud of his/her work. The effort that time was put into this task is the best it can be by the learner.
Creativity	Not Evident	Not Proficient	Partially Proficient	Proficient	Proficient with Distinction
	None shown	Lacks creativity. Slides are not in orderly sequence. Lacks color. 5 or more typos/misspelled words or grammatical errors.	Not very appealing. Some color/design. 3-5 misspelled word/typos/ grammatical errors.	Appealing design. Shows the student spent time creating the project. 1-2 typos/ misspelled words/ grammatical errors.	Eye catching. Great use of colors, texture, and design. No errors.
Project Directions	Not Evident	Not Proficient	Partially Proficient	Proficient	Proficient with Distinction
	None shown	Student showed very little understanding of the project directions. Lacks most of the required information.	Student showed some understanding of project directions although some areas are lacking.	Student showed a full understanding of project directions and all areas are evident in the project.	Student showed a full understanding of project directions and all areas required are evident. The student added and developed upon above what was required.
Graphics	Not Evident	Not Proficient	Partially Proficient	Proficient	Proficient with Distinction
	None shown	No Graphics included in project to help enhance the project.	Some graphics were included but not relevant to the project.	Most graphics are relevant to the topic of the project and helps the audience understand the concept.	Many graphics used and help to enhance and explain the topic giving the audience a clear understanding.