

## Inquiry Question

**Can you cook a pizza using just the sun as a source of energy? Can you design and improve a solar oven?**

**Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

A solar cooker is a simple piece of technology used to cook food using only sunlight as a source of energy. Many countries are heavily dependent on wood or coal to cook their food. The demands on the local forests and the pollution to the atmosphere represent serious problems. A solar cooker, designed perfectly, can offer a clean alternative.



## General Instructions

In this experiment, we will attempt to build a clean energy, solar oven

### Materials you'll need:

- Your course notes
- The internet
- cardboard box (see videos)
- aluminum foil
- tape
- glue (or hot glue gun)
- clear glass or plastic (see video)
- scissors
- utility knife

### Procedure

The final design is up to you. There are lots of ways to build such a solar cooker. Use the videos below to give you an idea as to how to get started.

#### Build a Solar Oven From a Pizza Box



...or



**Ideas and Hints**

- Orientation of your oven is important. Try and capture as much sun as possible.
- You want the oven to hold the heat. If the outside of your oven is as hot as the inside you are losing heat. Try insulating.
- Always move a utility knife so that the cut is away from you and your body. Get help.

**Project submission:**

- Upload your completed work to the Physics project drop box if you chose to submit online.
- You can either submit photos/video of your project (along with an explanation and/or steps of construction) or, if you can drop-in to the school, you can present it to your teacher in-person.
- Be sure to carefully organize any data collected so that any other student or teacher could reproduce your experiment and achieve the same results.

**Project Timing:**

- In its most basic form, this project will take the average student 2 hours. Locating all of the materials needed may vary.

## **Extension Questions and Experimental Design:**

1. Do you think that thick, corrugated cardboard would be better or worse? Why?
2. Some solar ovens are curved (parabolic or elliptical in shape). Explain why this would be an advantage.
3. Identify regions in the world that could make use out of such an oven.
4. Identify regions where this type of oven would be ineffective.
5. Why is it important for your oven to have "feet" so that it does not make direct contact with the ground.
6. What else could you use a solar oven for other than cooking food?
7. Many solar ovens are painted black. Why is this so?
8. Discuss three ways that your particular oven could be improved.