

A STEM in the Park

Take Home Activity

STEM

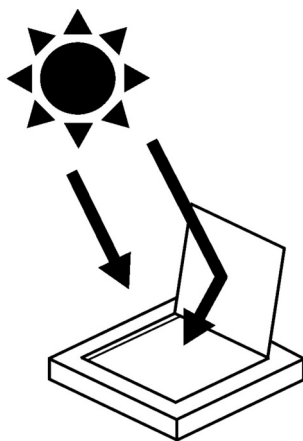
in the **PARK**™

Science, Technology, Engineering, and Mathematics

Solar Oven

What You Need

- Pre-cut pizza box
- Aluminum foil
- Clear tape or glue
- Plastic wrap
- Black construction paper



What To Do

1. Tightly wrap foil around the top flap of the box, then tape it to the back, or outer side of the flap.
2. Open the box and tape a double layer of plastic wrap over the opening you made when you cut the flap in the lid. Leave about an inch of plastic overlap around the sides and tape each side down securely, sealing out air.
3. Line the bottom of the box with black construction.
4. The best hours to set up your solar oven are when the sun is high overhead - from 11 am to 3 pm. Take it outside to a sunny spot and adjust the flap until the most sunlight possible is reflecting off the aluminum foil and onto the plastic-covered window. Use a ruler, or stick, to prop the flap at the right angle.

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Learn...

The heat from the sun is trapped inside of your pizza box solar oven, and it starts getting very hot. Ovens like this one are called collector boxes, because they collect the sunlight inside. As it sits out in the sun, your oven eventually heats up enough to melt cheese, or cook a hot dog! How does it happen? Rays of light are coming to the earth at an angle. The foil reflects the ray, and bounces it directly into the opening of the box. Once it has gone through the plastic wrap, it heats up the air that is trapped inside. The black paper absorbs the heat at the bottom of the oven, and the newspaper ensures that the heat stays where it is, instead of escaping out the sides of the oven.

Investigate...

What else can cook in these types of ovens? Could you insulate the box more with newspaper? Just remember to use a small plate or piece of foil so your construction paper stays clean. Check out this web site for more solar oven recipes:

<http://www.going-green-challenge.com/solar-oven-recipes.html>

This activity is brought to you by St. Kateri Catholic Academy

Pizza boxes were generously donated by Marco's Pizza (marcos.com)



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