



Make a Solar Oven Activity



Ready to get started with this activity? To keep track of your progress, check off the instructions for each step below as they are completed. Make sure to check the box of the last step when you're done to receive congratulations for your completed activity!

Consider this: During cooler months cooking helps to heat a home, but during the summer cooking inside could increase energy bills because the air conditioner needs to run longer to remove the extra heat. When the sun is bright and warm let's take the cooking outside - and let the sun do the cooking for us!

1. Gather Your Materials

- A sunny day
- (1) Empty pizza box
- Black construction paper
- Aluminum foil
- Sheet of clear plastic wrap
- Non-toxic glue
- Masking tape
- Scissors
- Ruler
- Marker
- (1) wooden dowel rod, or a wooden ruler



2. Cut the Pizza Box

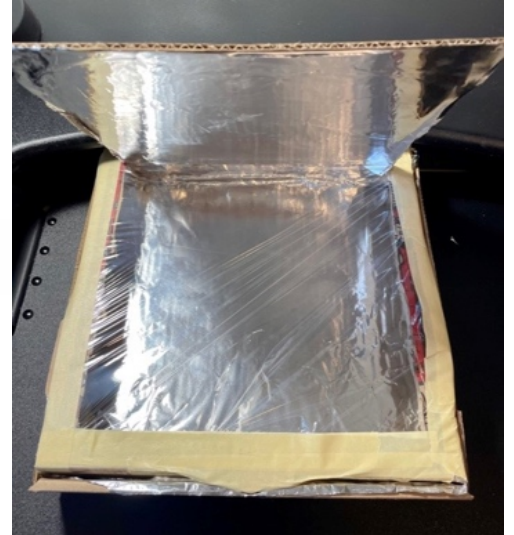
- Draw and cut a window in the top of the pizza box, leaving one side for folding.





3. Add the Plastic Wrap

- Tape a piece of plastic wrap to the underside of the opening you cut in the lid.
- Make sure the plastic is tightly sealed around all the edges. This makes your oven window.



4. Add Finishing Touches and Enjoy

- Glue the corners of a piece of black construction paper to the bottom of the inside of the box on top of the foil.
- Your solar oven is now ready!
- Place your food to be cooked in the inside of the box. Close the box and prop open the window lid using the dowel rod, or ruler. Position your oven in the sun so that the foil lid reflects the maximum amount of sunlight through the window. Try heating up s'mores or hot dogs! If the oven gets warm enough, you may even be able to bake a cookie.

Share a picture of your creations with ahall@clarkpud.com!





■ 5. Things to Think About

- On a sunny day, the temperature inside the solar oven can range from 85 – 95 degrees. Some creators have recorded 275 degrees in their ovens! Your oven temperatures will vary. Keep a log of the temperatures inside the oven, the outside temperature, and the conditions of the weather (overcast, clear, windy, etc.).
- Measure the duration of time it takes to cook the food items. For example, it could take 30 – 35 minutes for the marshmallow to get warm enough to become soft and for the chocolate to melt.
- What temperature is the oven when this starts to happen?
- Do the times vary on different days?
- Do they vary with different foods?
- Why do we use aluminum foil? Does it help reflect the sunlight?
- Why do we use plastic wrap? Does it create a greenhouse effect with the window over the box (think about what happens inside a car in the summer)?
- How does that help cook the food?
- Why do we use black cardstock? Does it create a heat sink that absorbs direct and reflected sunlight to increase the temperature in the oven?
- Does changing the angle of the lid help increase the amount of sunlight going into the oven?
- What kind of energy are we using? Conduction, Convection, and/or Radiation?

