

## Solar Oven Science Experiment – with parent participation

This experiment demonstrates solar energy and shows students how to trap the sun's natural heat to make an oven.

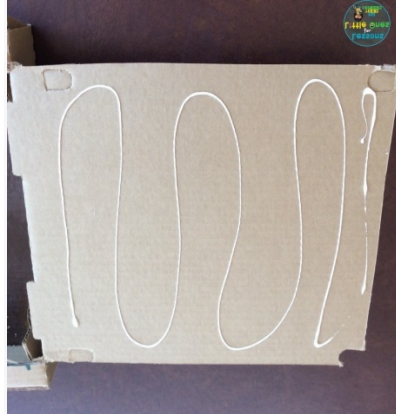
This resource explains how to make s'mores in the solar oven. However, you can also melt cheese onto nacho chips or whatever you prefer.

Remove any paper liners that may be inside the pizza box.

Using the ruler and marker, measure in 2 cm from each edge of the pizza box lid except the side with the hinge.



Using the utility knife (adult please), cut all the way through the lid on those three sides of the square. Then fold the flap back slightly along the hinge side.



Put some glue on the inside of the flap. Glue a piece of aluminum foil on the inside of the flap keeping it as smooth as possible. Fold the extra foil over the edges to help hold the foil in place. Smooth it out. This will reflect sunlight into the oven.



Open the lid and cover the opening in the lid with plastic wrap. Pull the plastic wrap taut and tape it to the box on all the edges. Make sure there are no holes in the plastic wrap and that it is completely sealed. It is important to have a tight seal. This “window” helps keep the sun’s heat in the box.



Close the lid and cover the top side of the opening with plastic wrap. Pull the plastic wrap taut and tape it to the box on all 3 sides. Make sure there are no holes in the plastic wrap and that it is completely sealed. It is important to have a tight seal. Having an airtight seal is important in keeping the oven hot.



Glue a layer of aluminum foil in the bottom of the pizza box for insulation.



Cover the foil with pieces of black construction paper and glue them in place. The black paper will absorb light and generate more heat inside the box.



Place the s'mores snacks or whatever you choose on the black paper. Make sure they are directly below the plastic wrap window.



On a bright, sunny day place the solar oven outside in direct sunlight. Adjust the foil flap to find the best angle for reflection. Use a ruler or stick to keep the flap propped up in place.



Leave the solar oven in the sun for anywhere from a half hour to up to 2 hours depending on the outdoor temperature and how direct the sunlight. Check on the s'mores every 15 minutes to half hour. Observe the effect of the sun on the chocolate and marshmallows or whatever you are cooking. When the chocolate and marshmallows are melted they are ready to eat.