Ohio State University Extension Lorain County 4-H School Enrichment Outreach

Pizza Box Solar Cooker

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Had any pizza lately? Save the box!

Here's a fun STEM activity for some sunny day science.

When we use the sun's heat for energy it's called Solar Power. It's popular for many reasons, one is because it's **"clean" energy**.

Solar power doesn't produce any air pollutants or carbon dioxide. Depending on the system, it can have a minimal impact on the environment.

Solar cooking is using the heat from the sun to cook our food. Here in Ohio, our warm sun time is brief, but this is a fun sunny day activity. The solar cooker we will make doesn't get hot enough to cook food, but it **can get warm enough to *heat* food**. That's all we need!

To make a solar cooker work, here are some concepts we need to consider.

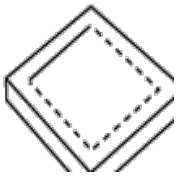
- **Concentration** – **focus the light** - using **reflective** materials that aim the light into the oven
- **Retention – hold the heat inside** the solar cooker
- **Transparent** – to let light into the cooker the lid opening is **"transparent" so light can get in**
- **Absorption** – **dark colors absorb more waves of light** than light colors do, making their surface **warmer** http://www.solarcooker-at-cantinawest.com/solarcooking-howitworks.html

That's what a solar cooker needs, lets make one!

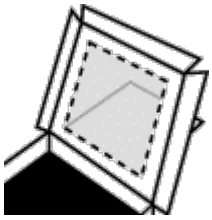
*The directions that follow are adapted from this **how-to video from Steve Spangler Science!***

Directions (OR, you could innovate and engineer it differently, **based on your own ideas and supplies**!!)

1.Using a clean pizza box, have an **adult cut a flap into the top** like this:



2. Glue aluminum foil on the inside of the box and flap. This will **concentrate the light**.



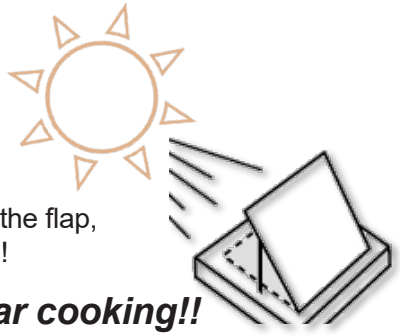
3. Tape a piece of clear plastic (e.g. page protector) over the opening in the lid on the INSIDE of the box. This **retains the heat and is transparent.**

4. Glue a 4" x 4" square of black or dark paper onto the bottom of the inside of the pizza box. **The dark area will absorb the most heat, making a "hot spot".**

5. Poke a wooden skewer or pencil through the flap to **create a "kick stand" that will hold up the flap** as you face your cooker toward the sun.

Take it outside in the sun and make s'mores!!

Place two **graham cracker squares**, one topped with a piece of **chocolate** and one with a **marshmallow**. Close the box, prop up the flap, and see what happens!!



Now you're solar cooking!!