

Solar Oven S'mores

What is a solar oven?

A solar oven is a special kind of oven that uses sunlight to cook food instead of electricity or gas. Inside the oven, there's a shiny surface that reflects the sunlight onto the food, making it hot. A solar oven concentrates sunlight to cook food.



How to make a solar oven:

Supplies:

- 1 cardboard box with a lid (a recycled delivery box)
- Aluminum foil
- Black construction paper
- Clear plastic wrap
- Tape
- Scissors
- A ruler (to prop the lid open)
- Graham crackers, chocolate, and marshmallows (the best part!)

1. Cut a flap in the lid – Use scissors to cut three sides of a square on top of the box to make a little “window flap.”

2. Line the box with foil – Glue foil to the inside walls and bottom to help reflect sunlight.

3. Add black paper – Place black construction paper at the bottom to absorb heat.

4. Cover the flap window – Tape plastic wrap over the cutout to trap heat inside, like a mini greenhouse.

5. Build the s'mores – Set one half of a graham cracker in the box and top it with chocolate and a marshmallow.

6. Aim the oven at the sun – Prop the flap open with a ruler so the foil reflects sunlight into the box.

My Observations

Date: _____

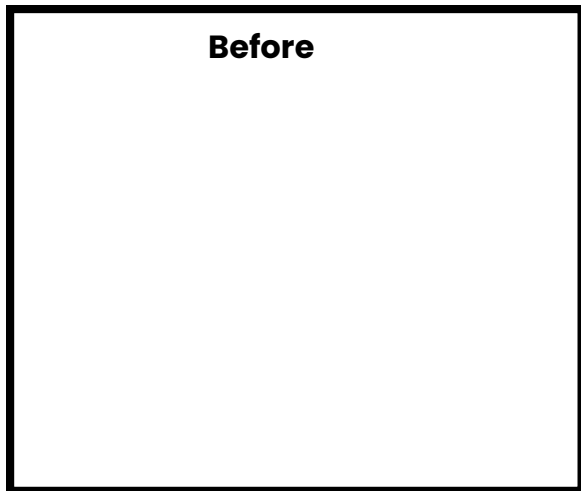
Time started: _____

Time ended: _____

Outside Temperature: _____

Weather: Sunny Partly Cloudy Cloudy Windy Hot Cool

Draw it!



What Happened?

Did the chocolate melt? Yes! A little Not really

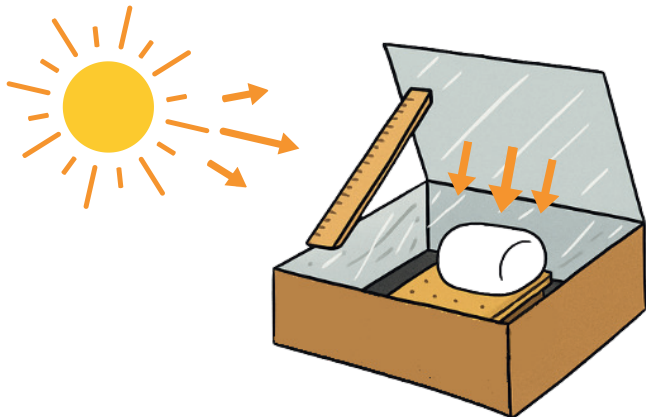
Was the marshmallow gooey? Yes! Kinda warm Still firm

How long did it take? _____

What surprised you the most? _____

How Does a Solar Oven Work?

Solar ovens trap heat from the sun to cook food—kind of like a mini greenhouse!



SUNLIGHT ENTERS THE OVEN

The sun's rays hit the foil and bounce into the box.

The foil reflect the sunlight and focuses the heat in the box.

BLACK PAPER ABSORBS HEAT

The black paper soaks up the light and warms the air inside the box.

The color black absorbs light energy which is converted to heat.

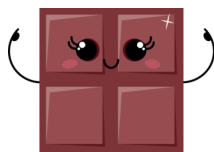
PLASTIC WRAP TRAPS HEAT

The plastic wrap acts like a window. It lets sunlight in but keeps the heat from escaping.

This is similar to car windows which let light energy in but don't let the heat escape.

CHOCOLATE MELTS EASILY

Chocolate starts to melt around 86°F—perfect for solar cooking!



WHY DIDN'T THE MARSHMALLOW MELT?

Marshmallows puff up at much higher heat, but the sun can still make them soft and warm!



Solar ovens are used around the world where electricity is limited. Some can cook full meals—like rice, veggies, or even bake cookies!