



Create a solar oven that will
cook a s'more.



How to make a Solar Oven S'Mores!

1. Cut a piece of aluminum foil large enough to cover the inner side of the cardboard flap of your SEEDS box
2. Wrap the foil tightly, and secure with tape. *What purpose does the foil serve?*
3. Line the bottom of the SEEDS box with black construction paper. *What purpose does the black paper serve? Would white paper work as well? Why or why not?*
4. Cut two pieces of plastic wrap that are the same size as the top of the SEEDS box.
5. Use tape to secure the plastic wrap to the edges of the rectangle square opening of your SEEDS box. You are creating an airtight window. *Why do you want to make your oven airtight?*
6. Pull down the front flap of your box. This is where you can slide your food in and out. Close the flap after food is inside.
7. Roll up some newspaper pages into tubes to stuff into the sides of the box. Make sure you are still able to close the lid of the SEEDS box. *What purpose does the newspaper serve?*
8. Now it is time to cook something! The best time to use your oven is between 11 AM and 2 PM. Make sure to set the food on a dish so you don't mess up the interior of your oven.
9. One food option is a solar s'more. Place one or two marshmallows on top of a graham cracker. Put two to three squares of chocolate on top of the marshmallow. Wait until it's done cooking to top it with the second graham cracker. *Any idea why it might be smart to have the chocolate on top?*
10. You could also make nachos by placing grated cheese on top of tortilla chips or use the oven to heat up leftovers or soup.

Results

On a sunny, warm day, your oven could reach about 200 degrees F. You will notice that food takes longer to cook in a solar oven than a regular one.

Why?

Let's recap: You covered the flap with foil so that the foil would reflect sunlight into the oven. The black paper on the bottom of your oven absorbed the sun's energy (white paper would have reflected a lot of that energy). You made your oven airtight so that the warm air inside your oven would not leave the SEEDS box via convection. You put the newspaper inside your oven to insulate it and prevent heat loss through radiation. It is best to use your oven between 11 AM - 2 PM because that is when the sun's rays are strongest. If you are making a s'more, it is good idea to have the chocolate on top because its dark color will absorb heat better than the lighter graham crackers. Food takes longer to cook in a solar oven because solar ovens don't get as hot as conventional ovens. That's okay for many dishes and using an educational oven like the one you made yourself adds an extra special taste.



HINT:

Solar cooking takes time! Place your oven in direct sunlight for at least three hours.

WHAT'S GOING ON?

Have you ever been in a car that has been parked in the sun on a hot summer day? The air inside was heated by solar energy, or energy from the sun. Like the air in the car, solar heat energy "cooked" your s'more.

Solar power is a clean, renewable energy source. Using it means we do not use any of Earth's resources like oil or coal. It does not produce byproducts like smog or smoke. There is always more solar energy, even on cloudy days.



What are some other uses for solar energy?



Some ovens have a rack to let hot air move around the food. How would a rack affect your s'more? Try it.



Research products that use solar energy. Create something that uses the sun's energy to solve a problem.



Design a recipe card. Then, write the directions for making a solar s'more.



Make a chart. Record the time and the temperature of your oven every thirty minutes. What do you notice?