



Be a Sun Chef!

Evelyn, 10, Minnesota, cooked up a treat using Earth-friendly solar energy. Try s'mores and more!

By Evelyn Hutton

Want to cook a tasty snack in a solar oven? Here's a quick oven to make. My mom's got a pizza box, and we gathered some aluminum foil, black construction paper, tape, newspapers and clear plastic wrap. We needed to make a flap out of the top of the box, so we could use it to reflect heat onto the food we'd cook. So I measured an inch in from the edge on three sides of the top, and we carefully cut the flap, and folded it up. We put aluminum foil over the entire inside of the flap and taped it down.



Next, we taped black construction paper over the bottom part of the box. Dark colors like black will help hold the heat of the sun to further heat up whatever you'll cook. We rolled up newspapers and put rolls on the inside four sides of the box bottom. That keeps the heat from escaping out of the box—it's like insulation in a house.

Easy Solar Eating

Don't let those sunrays go to waste—get cooking! Make an oven like Evelyn's pizza box oven or one like Kelly made (next page). Kelly put a smaller cardboard box inside a bigger one, and put foil over and between the bigger box's flap. She put insulating material (sheep wool) in the space between the boxes, and lined the inside of the box with black paper.



Or you can simply prop a car windshield reflector on a chair, surround your food container with something dark and heat-absorbing like a fleece jacket, and cook. NMG editor Helen recently cooked a hot dog and steeped mint-hibiscus tea that way, and baked cookies in a pan (above right) on the inside of her car window. YUM!



Evelyn enjoying s'mores and her new solar oven

Then we put a sheet of clear plastic on the box lid to cover the square where the flap had been. That will let the sun rays in and trap the heat created inside the box. After putting the s'mores in the oven (inside the box), we used a pencil to prop the flap so it reflected the most sunlight onto the s'mores.

We started cooking the s'mores at 4:15 p.m., when it was 69 degrees Fahrenheit outside. By 5:00 p.m., the s'mores were melty and hot! The chocolate was really sticky, and the marshmallow nice and warm, though not as melty as the chocolate. With the graham cracker on the bottom and the chocolate and marshmallow squishy on top, it was really good and messy and delicious.

I love solar power because it saves a lot of energy, and it works great on a sunny day. This project was fun, and it was tasty too, because it included pizza dinner for us so we could get the box, and really good s'mores.

Some tips for solar success:



*Position your solar setup so it gets the most direct rays, and move it as the sun moves. Arrange the reflective surface so rays beam right at the food.



*Put food in a covered glass container or cover container in clear plastic.



*DO use hot pads—solar ovens get HOT!

*Cook when the sun's the hottest, usually around 10 a.m. to 3 p.m. But try solar anytime the sun's out and tell us what you cooked! Try nachos, pizza, quesadillas, baked apple or potato slices, or just about anything! Search "solar cooking" at NMGmembers.com for ideas to eat well and save energy.

Super Solar Power

The sun could supply all the energy needed in the world, and many places such as Germany are using the sun for one-fourth of their energy use. Have you seen solar panels on top of houses or huge fields of solar panels? Here's how they work.

The photons (tiny particles that make light) in sun rays make electrons transfer between layers in a solar cell, creating electricity. The energy can be



used on the spot or transferred elsewhere or stored in batteries. Solar cells can range from small ones that charge phones and laptops to huge panels that keep thousands of households energized. Cars, boats, and planes can be solar-powered. This group of Maryland kids are excited that the solar-powered car they designed and built is headed for a national competition!

Sunny Solutions

When Kelly Redshirt was 9, she and her family spent Christmas day bringing baked treats to family who lived in rural areas of their Navajo Nation in New Mexico. She noticed that many families lacked electricity and running water, so they had to cook on fires and often ate packaged foods that weren't very healthy. Kelly started thinking about solutions, which led her to start researching solar ovens during elementary and high school. She refined an oven made from everyday items that cooks anything a normal oven can cook, including mutton—a favorite dish for many Navajos in a sheep-raising area—and all kinds of healthy fresh food. The oven materials are nearly free, and so is energy from plentiful sunrays.

Kelly's work won her worldwide recognition, including winning an international engineering award and an award to travel to Germany and teach high-schoolers there about solar ovens. Kelly now studies environmental engineering at the University of Oklahoma, focusing on ways to provide water sustainably to all. We asked Kelly to share some details about her work—thanks, Kelly!

NMG: What key steps did you take with your idea?

Kelly: As Navajo people we are very communal, so I brainstormed with many relatives, community members, and local elders. I used their wisdom and life experiences and traditional teachings, Kelly's oven bakes cookies and much more.



Kelly in the Navajo Nation



which is why I don't look at my solar oven project as my own. I then spent many hours in school experimenting about the solar aspect of the project because there weren't many people who were experts in solar energy in the community.

What's the most satisfying part of your work?

It was great to get a breakthrough to a successful working oven, after many failed trials and altering the design and brainstorming again. I also enjoy how the story of my project inspires and empowers other people. There is greatness in everyone—we just have to believe in it.

What's your advice for girls who want to create solutions but aren't sure how to start?



Sometimes we are all scared of failure, but it is necessary for us to grow and find better things. Whatever you want to create, give your idea your best work, research it, ask questions, and keep evolving your solution. If you gave it your best work, you will already have made a difference, and accomplished steps toward something amazing.

What are your favorite solar-cooked foods?

I really love chicken! Chicken cooked in the solar oven is amazing—it's very tender and juicy. I also enjoy the cookies we bake in the ovens, as well as other meats like pork chop and steaks.



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