



## Challenger's Morning Science Segment:

July 18, 2016

**Topic:** Solar Power

**Build:** A solar cooker for s'mores

### Credit:

<http://www.scientificamerican.com/article/sunny-science-build-a-pizza-box-solar-oven/>

### Materials Needed:

Pizza box / utility knife / alum. Foil / plastic wrap / tape / black paper / wooden skewer / s'more supplies

**Directions:** Using a utility knife, cut the top of the pizza box one inch inward from the edge of the box, but leave the hinge side uncut. Line the bottom of this cut flap with aluminum foil. Under the flap, cover the opening with plastic wrap so that a window is created and sealed along all edges with tape. Next open the pizza box, and cover the inside with aluminum foil. After aluminum foil is covering the inside of the box, tape black paper at the bottom of the box. Finally use a wooden skewer to prop open the solar cooker aluminum covered lid. Place your s'more inside, place in direct sunlight for at least 30 minutes.

**The science [credit: <http://www.scientificamerican.com/article/sunny-science-build-a-pizza-box-solar-oven/>]:**

"Solar ovens use solar energy—light and heat emitted from the sun—to cook food. They can also be used to pasteurize water or even sterilize instruments. How does a solar oven work? The simple answer is that it is designed to absorb more heat than it releases. The solar oven will reflect sunlight into the box. This plastic "window" works like a greenhouse roof, allowing (direct and reflected) sunlight to pass into the box, while also retaining heat. At the bottom of the box, you will place black paper. This will act as a heat sink that absorbs direct and reflected sunlight to warm it, which will heat food placed on top of it."

**This activity ties into the Challenger Learning Center of Maine:** This project is like the activities in which our astronauts in training will engage during Astronaut Academy for middle school students, grades 6-8. Challenger holds STEM camps throughout the summer. FMI- [www.astronaut.org](http://www.astronaut.org)