

Solar Cooking

First Grade

Science: 4.a.

Math: Geometry 2.1, 2.3

Language Arts: Written & Oral 1.1

Objective:

Teach students about renewable energy and solar energy.

Method:

Your class constructs solar cookers and makes food that they can eat.

Materials:

For solar cookers: foil, clear shrink wrap, small boxes made of material that can be cut with scissors (ex: shoe boxes, tissue boxes), scissors, tape. For snack: tortilla chips, cheese, extra toppings.

Background information:

The sun is an excellent renewable energy source because no matter how much we use it, we will never deplete its energy. The sun's energy can be used to do work, which means that it can transfer its energy to other things and make them change. Plants use solar energy to grow. We can use solar energy to cook our food!

Other forms of energy are not renewable. Natural gas, which is often used to power ovens and stoves, is not renewable because there is only a limited amount on earth. We can use it up much faster than it is made, a process that takes millions of years. Plus, using natural gas contributes to global climate change.

Solar cookers trap solar energy from the sun and use it to heat food. The sunlight shines through a hole cut in the top of the cooker and heats it up. The cooker traps more heat when it's covered in metal, which retains and attracts heat. Also, a transparent cover allows a maximum amount of light in without letting much heat out.

Procedure:

1. It can help to construct a solar cooker ahead of time to show your class so that they know what they're making.
2. Tell students about solar energy and that they can use it to cook a delicious snack!
3. Distribute the materials. Each student needs one box, scissors, and enough foil and shrink wrap to cover their box.



4. Put together the solar cookers.
 - a. Cut a large hole in the top of the box (the part that will face up towards the sun) to let sun through and cook the food.
 - b. Cover the hole with shrink wrap to make a window. Tape the shrink wrap to the box so it will stick.
 - c. Cover the top and bottom of the box, except the window, with foil. Tape the foil together if necessary. Make sure that you can still open the box!
5. Put the tortilla chips and cheese in the boxes.
6. Set the boxes outside in full sun.
7. Have your students come back and check the boxes periodically to see if their food is ready.
8. Eat up!

Language Arts Extensions:

1. Have everyone describe their experience making the solar cooker and cooking their meal with solar energy.

Math Extensions:

1. Ask the class if the solar cooker is a solid object (yes). Ask them to identify the shape of their solar cooker. Have them count the number of corners it has.

Science Extensions:

1. Have your class check on their snack periodically and draw what it looks like. This teaches them about investigation, as a part of an experiment.