

SOLAR COOKING: USING BASICS OF SOLAR ENERGY TO PREPARE A DELICIOUS TREAT!



Developed by California Sunlight Grades K-4

OBJECTIVES

Students will...

- Learn about two different forms of energy (optical and thermal).
- Learn that energy may be converted from one form to another.
- Build a solar cooker based on the Solar Balloon Energy Kit.
- Cook S'mores using the Solar Balloon and the power of the sun.
- Learn how clean energy conversion, like optical to thermal, can benefit people and the environment.
- Apply critical thinking to energy conversion.
- Experience team building and real-world problem solving.

MATERIALS

- Solar Balloon Energy Kit(s) (Cat. No. SB52005)
- PocketLab Weather Sensor (Cat. No. NA10341)
- Hot Pad for Handling Pan (Cat. No. SB01889)
- Graham Crackers
- Marshmallows
- Chocolate Bars



SB52005

with the energy kits. Encourage students to be creative. Younger students may need more guidance.

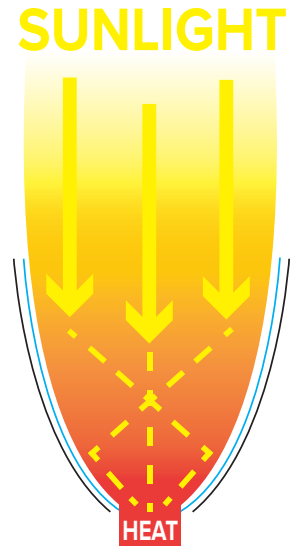
3. Convert Optical Energy to Thermal Energy (Choose a Sunny or Partially Sunny Day)

Each group of students will prepare a pan of S'mores based upon the recipe and picture below. They should use the PocketLab Weather Sensor to measure the temperature of the pan of uncooked S'mores before it's inserted into the cooking sleeve. Record the time of the measurement, the temperature of the pan, and the ambient temperature. Put the cooking package into the cooking sleeve under the small end of the balloon. Orient the balloon toward the sun. Continue to measure and record the temperature in the Cooking Package every 2 minutes until the temperature reaches 250° F. Within 10-15 minutes after reaching 250° F, the S'mores should be ready to enjoy.

PLEASE USE CAUTION AND PROTECTION WHEN REMOVING THE COOKING PACKAGE. IT WILL BE HOT!

ASSESSMENT

Teacher observation, participation in activities, cooperation, handling materials, participation in oral discussion, completeness of projects, written work, and illustrations.



Solar S'mores

Ingredients:

• Graham Crackers • Marshmallows • Chocolate Bars

1. Break a graham cracker in 2 pieces and place into the black pan.
2. Put 2 marshmallows on one of the graham crackers and 2-3 chocolate squares on the other piece of graham cracker.
3. Prepare the cooking package according to the instructions provided with the Solar Balloon Energy Kit.
4. Put the cooking package into the cooking sleeve under the small end of the balloon.
5. Orient the balloon toward the sun.
6. Within 10-15 minutes after reaching 250° F, the S'mores should be ready.

Sandwich the two pieces of graham cracker together and enjoy!

Lesson Plans are developed with teachers with no claim of original authorship.

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