

S'more Sun Fun Oven

A CENVAR SOLAR SCIENCE EXPERIMENT FOR AGES 3+



Description

Harness the power of the sun to create a *delicious* treat! This experiment demonstrates how solar energy can be used to heat food, even on a small scale. Watch marshmallows transform into gooey, mushy goodness using a simple, kid-friendly sun oven.

Age/Grade Level: Pre-K (Ages 2–6)

Time: 30 minutes (plus sun exposure time)

Objectives:

- Introduce the concept of solar energy.
- Observe the effects of heat on marshmallows.
- Develop observational skills.
- Encourage curiosity and experimentation.

Vocabulary

- **Solar Energy:** Energy from the sun.
- **Heat:** A form of energy that makes things warmer.
- **Melt:** To change from a solid to a liquid because of heat.
- **Reflect:** To bounce back light or heat.

Materials

- Small cardboard box (pizza box works great!)
- Aluminum foil
- Plastic wrap
- Black construction paper
- Glue or tape
- Marshmallows
- Graham crackers (optional)
- Chocolate squares (optional)
- Stick for poking marshmallows

Safety Precautions

- Adult supervision is required.
- Be careful when handling the box after sun exposure, as it may be hot.
- Remind children not to look directly at the sun.
- Ensure the plastic wrap is taut and secured to prevent hazards.

Implementation (Teacher Script)

"Hello, everyone! Today, we're going to use the sun to make a yummy treat! We'll build a special oven that uses the sun's energy to melt marshmallows. This is called *solar energy*! Are you ready to become solar chefs?"

Procedure

1. **Prepare the Box:** Line the inside of the box with aluminum foil, shiny side up. Glue or tape in place.
2. **Darken the Base:** Place a sheet of black construction paper at the bottom of the foil-lined box.
3. **Create a Lid:** Cover the opening of the box with plastic wrap, creating a sealed 'window'. Secure with tape.
4. **Place Marshmallows:** Put marshmallows inside the box on a plate or tray.
5. **Sun Exposure:** Place the box in a sunny spot outside.
6. **Observe:** Watch the marshmallows melt over time (this may take 30 minutes to an hour, depending on the sun's intensity).
7. **Enjoy:** Once the marshmallows are soft and gooey, use a stick to enjoy them! Add graham crackers and chocolate for a solar-powered s'more!

Questions to Prompt Inquiry

- What do you think will happen to the marshmallows when we put them in the sun oven?
- Why do we use aluminum foil and black paper?
- What is the sun doing to the marshmallows?
- Do you think it will work on a cloudy day? Why or why not?

Conclusion (Key Takeaway)

The sun is a powerful source of energy! We can use solar energy to heat things up, like melting marshmallows. Even on a small scale, we can see how the sun's energy can be used to make things happen.

Activity Extensions

- **Compare:** Test different colored papers to see which absorbs the most heat.
- **Measure:** Use a thermometer to measure the temperature inside the sun oven.
- **Design:** Have students design their own sun ovens using different materials.

Adaptations

- **Younger Children:** Focus on the observation aspect, with adults handling the construction and hot materials.
- **Older Children:** Introduce the concept of reflection and absorption of light and heat. Discuss how solar panels work.

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