



Make a solar oven



What is happening?

The sun emits visible light (electromagnetic radiation) that excites molecules and causes them to vibrate. The vibration transforms light energy to thermal energy (heat). The aluminium foil acts as both a reflector of light and an insulator of heat. The box traps the heat causing the temperature inside to rise and cook the food.

Materials Required

- 1 x rectangular box
- aluminum foil
- plastic film (e.g. clean wrap)
- marshmallow
- scissors
- tape
- paper plate (optional)
- thermometer (optional)





STEP 1:

Start by cutting three sides of a rectangle from the top of the box leaving one of the long sides to fold up. Be careful when using scissors.



STEP 2:

Fold the flap upwards to reveal the inside of the box; this will be the opening for your solar oven.



STEP 3:

Cover the flap and all the internal sides with aluminium foil (trying to keep the foil as flat as possible). Tape down the foil.



STEP 4:

Place the paper plate with marshmallow into the solar oven. Rest the thermometer on the bottom of the solar oven and observe the temperature every three minutes. Seal the opening of the solar oven with the plastic film held down by tape.



STEP 5:

Place a marshmallow on a plate and insert into the solar oven.

Further challenges:

- What will happen to the rate of temperature change if you use a smaller box?
- What happens to the marshmallow if you paint the plate black?
- What are other ways to make a solar oven? Can you make a solar oven without a box?

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