#### SCIENCE, TECHNOLOGY, ENGINEERING & MATH



# SOLAR POWER: BUILD a SOLAR OVEN (6-8)

### **KEY CONCEPTS:**

- Heat energy is transferred from one location to another by three methods: conduction, convection and radiation.
- > Conduction transfers heat via direct molecular collision.
- > **Convection** is the transfer of heat by the movement of fluids.
- > Radiation is the transmission of heat through space.
- Solar energy is radiant energy emitted by the sun.

## **LITERACY CONNECTION:**



The original Maori tales of Maui the demigod include how he <u>harnessed</u> <u>the sun</u> to lengthen the day and help his people. <u>Maui: How it Came to Be</u> by Will Kyselka and Ray Lanterman will let you witness ancient geologic events come to life through this fascinating story of the real island of Maui and how it formed.

### **ACTIVITY: SIMPLE SOLAR OVEN**

Materials: cardboard box, aluminum foil, scissors/box knife, tape, clear plastic wrap, stick (optional)

- Cut an opening in the box and fold the flap back.
- 2. Insert a piece of aluminum foil on the bottom of the box.
- 3. Wrap the flap of the box with aluminum foil.

1.

- 4. Tape a piece of plastic wrap over the opening cut in the box.
- 5. Time to cook! Put your ingredients together, place them in the oven, point it towards the sun and wait.

**TIP**: Use a stick, skewer or ruler to prop open the flap if needed. You might need to move the oven to face the sun if cooking takes a long time.

What is happening? A solar oven is a box that traps some of the sun's energy to make the air inside the box hotter – up to about 200°F. When thermal light energy from the sun enters your oven, the foil in the box reflects the light (heat), concentrating the it into the oven. The items cooking inside absorb the heat (energy). This simple oven works because the cardboard and plastic wrap insulate the oven.

**EXPLORE:** For a more complex, permanent project try this tutorial from <u>Home Science Tools</u>.

### For step-by-step instructions, watch the video at: Solar Oven STEM Activity

This at-home educational activity is from the Literacy Coalition of Palm Beach County's literacy-based Stories & STEM program. Stories & STEM is made possible with support from Prime Time Palm Beach County, Inc., which receives significant funding from the Children's Services Council of Palm Beach County, Inc.

Having fun? Send pictures or video links of you and your Stores & STEM projects to csharkey@literacypbc.org

