

## INV. 5 ACTIVITY—RESEARCH RENEWABLE ENERGY

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What are the sources of alternative energy in your region? Are there any solar or wind farms or geothermal or hydroelectric plants in your area? Do you know of a friend or family member who knows a lot about any of these ways to produce electricity? Or do you know of anyone who has an electric car? Can you interview them and find out how they work? Maybe you can interview them by phone or online? Record in your notebook what you learn.

# INV. 5 ACTIVITY—CONSTRUCT A SOLAR OVEN

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## Engineering with Solar Energy—Construct and Test a Solar Oven

### Materials

- Pizza box or shoe box
- Outdoor space
- Aluminum foil
- Clear plastic wrap
- Tape
- Scissors
- Black construction Paper
- Newspaper

### Suggested procedure

Here are some ideas to consider but there are a lot of ways to improve these design ideas. This is just to get you started. You could improve this design and cook things all summer long.

- Wrap the inside of your box with aluminum foil to help reflect the sunlight into the box. Fit black construction paper on the bottom of the box to help absorb the sun's energy.
- Fold or crumble newspaper to use on the inside edges on the box for insulation to hold in the sun's heat. Use tape to hold in place.
- You need to get sunlight inside the box. Cut a large window on the top lid of the box. Tape plastic wrap to the underside of the top lid of the box. Be sure the plastic wrap is tight and taped down on all four edges to for a seal to keep the sun's heat in the box.
- Give it a try on a sunny day. Find the sunniest location. Think about the angle of the box to get the best sun into the box. Think about how to orient the box so you always have direct sun and no shade.
- You might explore adding extra reflector panels on the side in order to focus more sunlight into the box thus increasing the temperature in the box.
- What can you try to make: granola and frozen berries, smores, grilled cheese, baked potatoes, roasted apples with cinnamon. Be creative.
- Share your design: take a picture or video, and send it to a classmate and your teacher.