Would you like to know how to harness the power of the sun in your very own solar oven? How about building a wind turbine to tap into wind energy?

We've got you covered!
You've heard of traditional dirt ovens, but those are often powered by biomass. With this easy, at-home experiment, you can build a functional oven that's powered by the sun. Learn more about solar cookers around the world, here: https://borgenproject.org/solar-cookers-around-the-world/

What you'll need:
- Cardboard pizza box (Think Mario's, Pizza Boys, Papa John's, Pizza Hut pizza box)
- Box knife or scissors
- Aluminum foil
- Clear tape
- Newspapers
- Plastic wrap (a heavy-duty or freezer zip lock bag will also work)
- Black construction paper
- Ruler or wooden spoon
- Thermometer
- An adult to help with cutting

Instructions:

1. Use a box knife or sharp scissors to cut a flap in the lid of the pizza box. Cut along three sides, leaving about an inch between the sides of the flap and the edges of the lid. Fold this flap out so that it stands up when the box lid is closed.

2. Cover the inner side of the flap with aluminum foil so that it will reflect rays from the sun. To do this, tightly wrap foil around the flap, then tape it to the back, or outer side of the flap.

3. Use clear plastic wrap to create an airtight window for sunlight to enter the box. Do this by opening the box and taping a double layer of plastic wrap over the opening you made when you cut the flap in the lid. Leave about an inch of plastic overlap around the sides and tape each side down securely, sealing out air. If you use a plastic bag, cut out a square big enough to cover the opening and tape one layer over the opening.

4. Line the bottom of the box with black construction paper—black absorbs heat. The black surface is where your food will be set to cook. How much you need will depend on the size of the pizza box you're using to make your solar oven.

5. To insulate your oven so it holds in more heat, roll up sheets of newspaper and place them on the bottom of the box. Tape them down so that they form a border around the cooking area. It may be helpful to also tape the rolls closed first. The newspaper rolls should make it so that the lid can still close, but there is a seal inside of the box, so air cannot escape.

DIY Solar Oven
**COOKING TIPS**

- The best hours to set up your solar oven are when the sun is high overhead—from 11 am to 3 pm. Take it outside to a sunny spot and adjust the flap until the most sunlight possible is reflecting off the aluminum foil and onto the plastic-covered window. Use a ruler to prop the flap at the right angle. You may want to angle the entire box by using a rolled-up towel.
- You can preheat your oven by setting it up in direct sunlight for up to an hour.
- Reposition your solar oven when needed, so that it faces direct sunlight. You should be checking periodically on your oven, to make sure it is in the sun.
- Make sure that the foil-covered flap is reflecting light into the pizza box, through the plastic-covered window.
- To keep the paper at the bottom clean, try putting solid food on a clear glass plate and liquids in a heavy plastic ziploc bag.
- Place a thermometer inside your oven before you close it so you can check the temperature.
- Stir liquids (if you're cooking something like rice, or soup) every 10 minutes. You can rotate solid food every 10-15 minutes as well, so it cooks evenly.
- If you don't want to wait long for a solar-cooked dish, try heating up something that has already been cooked, like leftovers, or a can of soup.
- To take the food out of the oven, open the lid of the pizza box and, using oven mitts or potholders, lift the glass dish out of the oven.

**HOW DOES IT WORK?**

1. The heat from the sun is trapped inside of your pizza box solar oven, and it starts getting very hot. Ovens like this one are called collector boxes because they collect the sunlight inside. As it sits out in the sun, your oven eventually heats up enough to melt cheese, or cook food!

2. How does it happen? Rays of light are coming to the earth at an angle. The foil reflects the rays and bounces it directly into the opening of the box. Once it has gone through the plastic wrap, it heats up the air that is trapped inside. The black paper absorbs the heat at the bottom of the oven, and the newspaper makes sure that the heat stays where it is, instead of escaping out the sides of the oven.

3. Your solar oven can reach about 93° C on a sunny day and will take longer to heat things than a conventional oven. Although this method will take longer, it is very easy to use, and it is safe to leave alone while the energy from the sun cooks your food.

So... what Caribbean dish are you going to try first?

Source: https://www.homesciencetools.com/article/how-to-build-a-solar-oven-project/
Now let's experiment with wind energy! Did you know that wind power has been used as a source of renewable energy all over the world for centuries? These days, wind technology is one of the main methods of electricity generation for a renewable energy future. Let's make a wind turbine of our own to see just how wind can power our everyday lives.

**WHAT YOU’LL NEED**

- Paper
- Printer
- Scissors
- Straight pin
- Bead
- Crayons/markers/colored pencils
- A small eraser (like the one from the end of a pencil)

**INSTRUCTIONS**

1. Print the Wind Turbine Template on a sheet of paper.
2. Cut out the tower and blades.
3. Decorate the tower and blades.
4. Assemble the tower by folding along the dotted lines, inserting Tabs A, B and C into Slots A, B and C. (Remember to fold the undecorated side inside!)
5. Crease (but don't fold!) the blades along the dotted line.

**To assemble the turbine:**
6. Insert the dress pin into the center of the blade.
7. Thread the bead onto the pin.
8. Insert the pin into the dot marked at the top of the tower.
9. Place the eraser at the end of the pin.
Now get outside and catch some wind!

4. Fold in the inside surface that is NOT decorated.

5. Bent slightly to fit a line

6. Put the tilt angle of the blade

Assemble with care to the tip of the Pin

Bead

Eraser

Dress Pin

Blade

Tower
