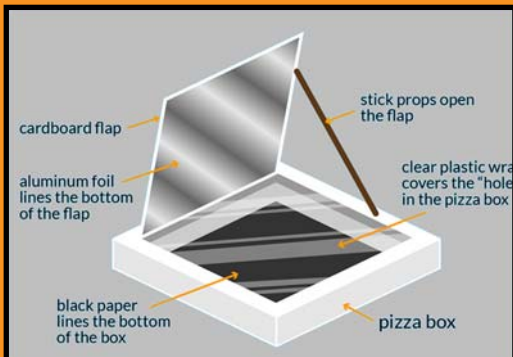


Children are naturally curious. Science education fuels that curiosity and provides children with valuable ideas, skills. Science education gives children the opportunity to experiment and work in teams. These activities enhance communication and collaboration skills. The activity ideas provided can be easily modified to do with children of various ages.



Solar S'mores



Materials

An empty box (a pizza box works well)
 Aluminum foil
 Plastic wrap
 Black paper
 newspaper
 A box cutter or knife
 (Adults or older children can do this part)
 A stick or ruler

You will also need:

Chocolate
 Graham crackers
 Marshmallows
 s'mores with clear plastic wrap.

Method

Use a box cutter or knife to carefully cut the lid of a pizza box on 3 sides, leaving it attached on the back end.

Line the inside of the lid with aluminum foil and line the bottom of the box with black paper.

Line the inside of the box with rolled-up newspaper.

Once the **solar oven** is assembled it's time to **cook up some s'mores!**

Have kids build **s'mores**, and then place them into the **solar oven**.

Once the **s'mores** are in the box, prop the foil-covered lid open, then cover the s'mores with clear plastic wrap.

It is now time to **observe and wait.....** after **about 20 minutes** they should be ready to eat!



The Science Behind the Fun!

What Happened:

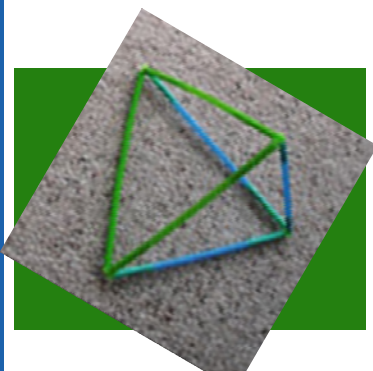
The heat from the sun is trapped inside of your pizza box solar oven, and it starts getting very hot. Ovens like this one are called collector boxes because they collect the sunlight inside. As it sits out in the sun, your oven eventually heats up enough to cook the s'mores!

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 make sure that the heat stays where it is, instead of escaping out the sides of the oven.

Source: <https://www.pbs.org/video/science-u-solar-oven-smores/>
<https://science-u.org/experiments/solar-oven-smores.html>

Amazing Pyramid (Tetrahedron) Bubble Wands



Materials

- Straight Straws
- Chenille Stems (pipe cleaners)
- Bubble Solution
- Tall plastic container
- Scissors



Instructions

Step One Cut your straws. First cut each straw in half, then cut in half again. You will get 4 straw sections from each straw.

Step Two Thread a pipe cleaner through one straw and bend the end of the pipe cleaner to secure it at the end.

Step Three Thread two more straws onto the pipe cleaner.

Step Four Bend the long end of the pipe cleaner back to meet the starting point and twist the two ends around each other.

Step Five Add two more straw sections onto the end of the pipe cleaner.

Step Six Thread the pipe cleaner through one of the adjacent straw sections.

Step Seven Add one more straw section and bend it back to one of the straw joints to form a pyramid.

Step Eight Thread the pipe cleaner through an adjacent straw section to secure everything in place. If desired, add a straight section of straw onto the end of the pipe cleaner to form a handle.

*Add additional pipe cleaners as necessary and twist the ends together to secure.

Source: <https://babbledabbledo.com/science-engineering-kids-tensile-bubbles/>

Sand Volcano

Materials

- Sand
- A Sand Bucket or cup
- Baking soda
- Vinegar
- Optional: food coloring

Method

Begin by placing a sand bucket in the sand **right-side-up**.

Then, pack sand up and around the bucket to form the shape of a **volcano**.

A bucket makes the perfect core, and you most likely always have one on hand when playing in the sand or visiting the beach.

I have found that using a taller, skinnier bucket produces a better volcano shape.

You can also use an empty cup.



Note: I filled the bucket acting as the core halfway with sand so that it would take less baking soda and vinegar to make the volcano fully erupt. Then, it was time to PLAY!

Making Your Volcano Erupt

Add **1-2 cups of baking soda** to the volcano, pour in the desired amount of vinegar, and then

Source: <https://www.growingajeweledrose.com/2014/04/sand-volcano-fun-for-kids.html>

Rainbow Walking Water Experiment



Place seven cups two inches apart each. Then, follow these instructions:

1. Fill the 1st, 3rd, 5th, and 7th cup halfway with water.
2. Add five drops of red food coloring to the 1st and 7th cup.
3. Add five drops of yellow food coloring to the 3rd cup.
4. Add five drops of blue food coloring to the 5th cup.

◆ For this experiment, you need six sections of paper towel. Take one towel, fold it into a strip, place one end in the bottom of a cup, and place the other end in the bottom of a second cup, so that the towel forms a rainbow shape and connects the two cups.

◆ Fold the second towel in the same way and use it to connect the second and third cups. Repeat with the remaining towels and cups.

◆ Follow the same protocol as steps four and five from the above directions. Leave the cups alone for one hour, then return to make your observations.

◆ Your kids will be very excited to come back to a fully formed rainbow! As the water travels from one cup to the other, the colors mix. This is also a prime opportunity to teach some art fundamentals: primary and secondary colors. The three primary colors are red, yellow and blue. Secondary colors are shades you can make from the three primary colors, like orange, green and purple.

The Science Behind the Walking Water Experiment

At first, this experiment appears to defy gravity.

How does the water get from one cup to the other? With a little bit of magic called capillary action. Essentially, the adhesive force between the paper towel and the water are more powerful than the cohesive force inside the water itself. This results in the paper towel pulling the water up. The water keeps traveling up the paper towel, across the bridge and into the other cup.

Source: <https://scienceexplorers.com/walking-water-experiment-for-kids/>