Science: Build your own wind turbine!

Ages: 6+

Hello everyone. Welcome to the fun and inventive world of making STEAM projects in your own home. Each month, we will share a fun and interesting project that you can make using materials commonly found in your own home.

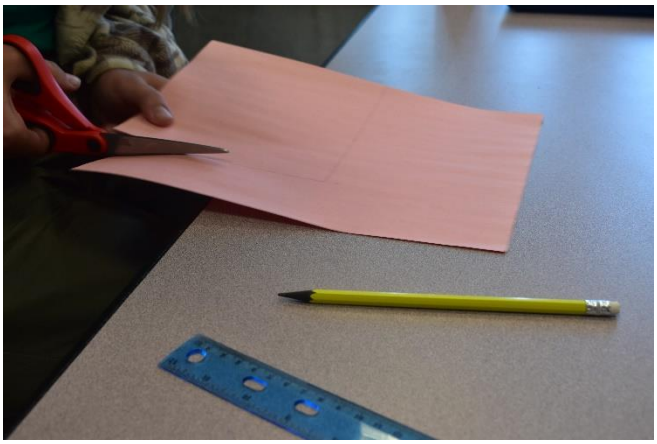
June 15 is considered as **Global Wind Day**. It is an international event to raise awareness regarding the importance of wind energy and the power it holds to change the world and improve energy systems. Investing in wind energy means spending less money on fossil fuel, resulting in a smaller carbon footprint and minimized CO2 for cleaner air on our planet. Considering all the climate change in recent years, wind energy is a great way to help the planet. Have you seen wind turbines before? Let us try t o make a mini wind turbine with supplies you can find easily and learn about wind energy. Are you ready?

Materials Needed:

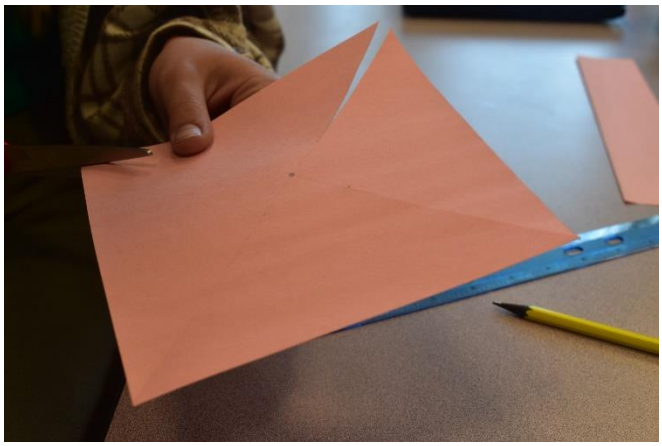
- Construction paper
- 1 Large paper/plastic cup
- 1 small paper/plastic cup
- 1 small straw
- 1 big straw (the small straw must be able to be fit inside the small straw)
- Ruler
- Tape
- String
- Scissors
- Small paperclip

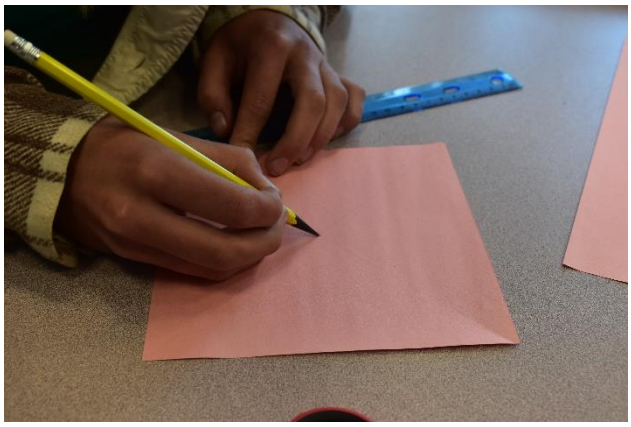
Steps:

1. Cut out a 6.5” by 6.5” square in your construction paper



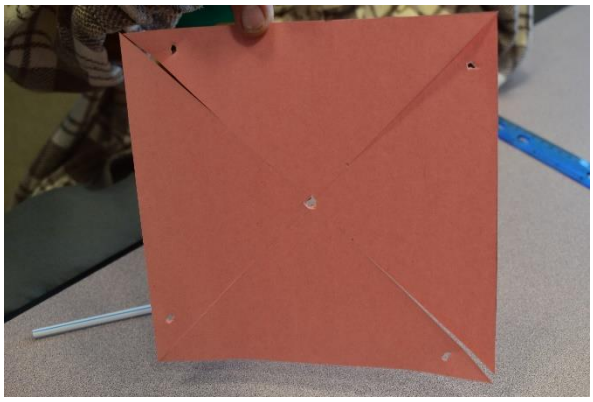
2. Mark the center of your square with your pencil and cut diagonally from a corner towards the center. Be sure to leave about 1.5 inches from your center from where you stop



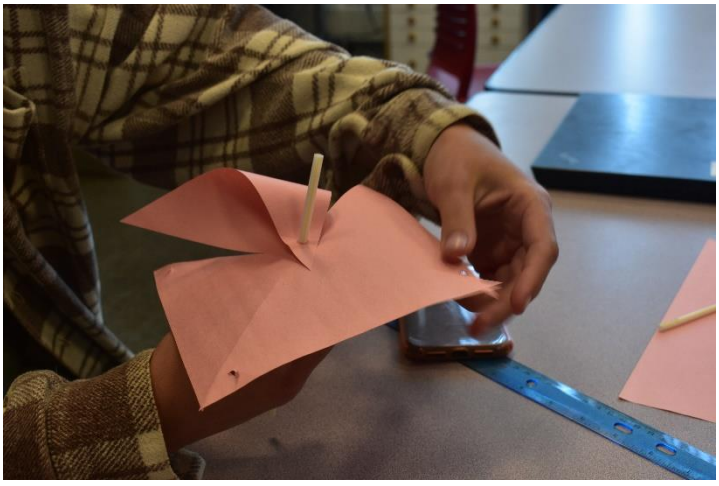


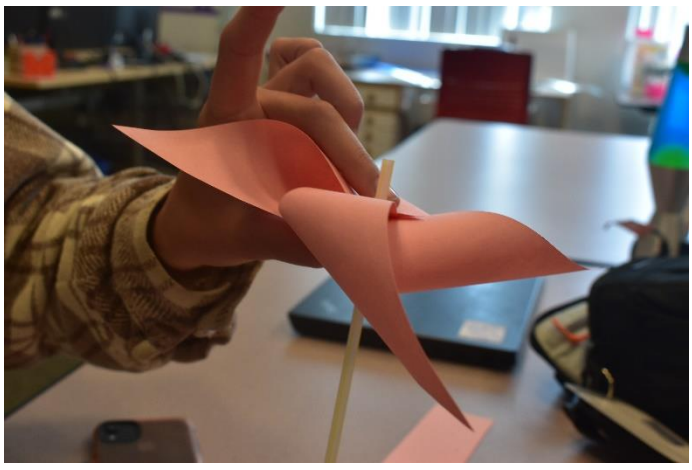
cutting.

3. Use the point of your scissor to make a hole in the center and one more hole at each corner of your paper. Make sure to have only one hole on each of the triangles.



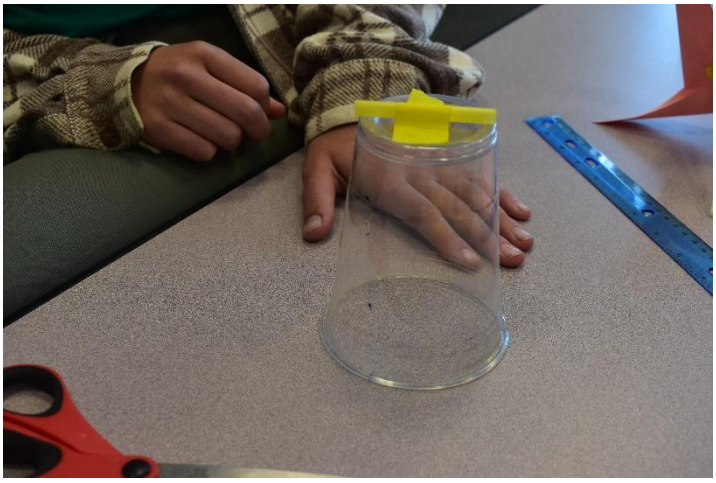
4. Push the small straw through the center hole then bend each of the corners over the small straw (making a pinwheel).



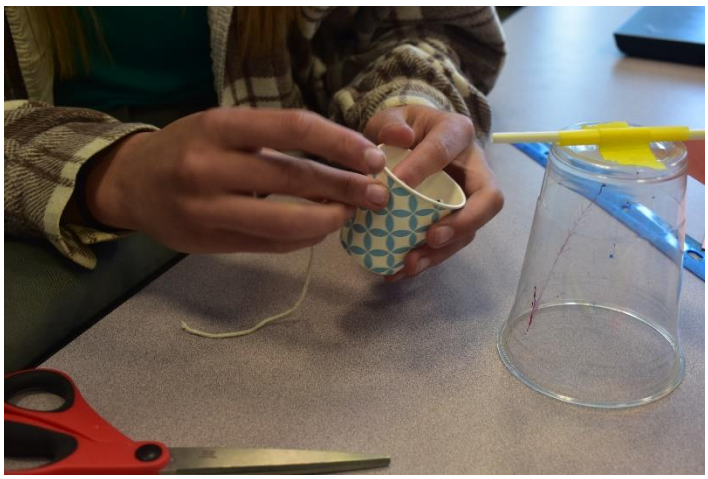


5. Using tape, secure the front and back of the pinwheel.

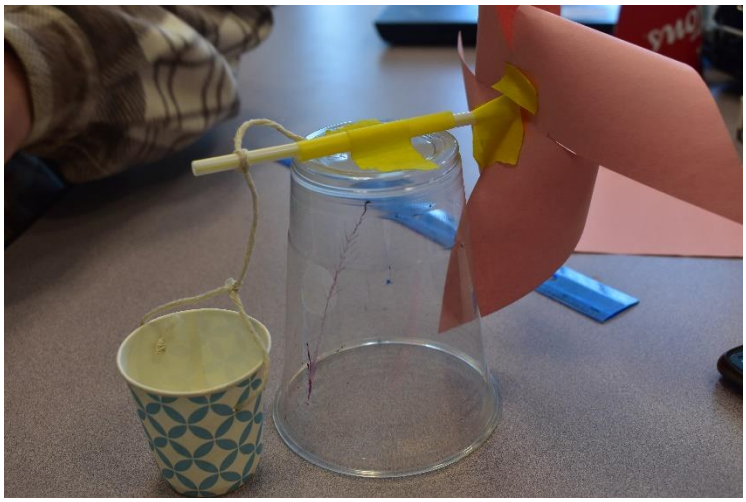
6. Cut your large straw to the length of the base of the large cup. Then secure it with some tape.



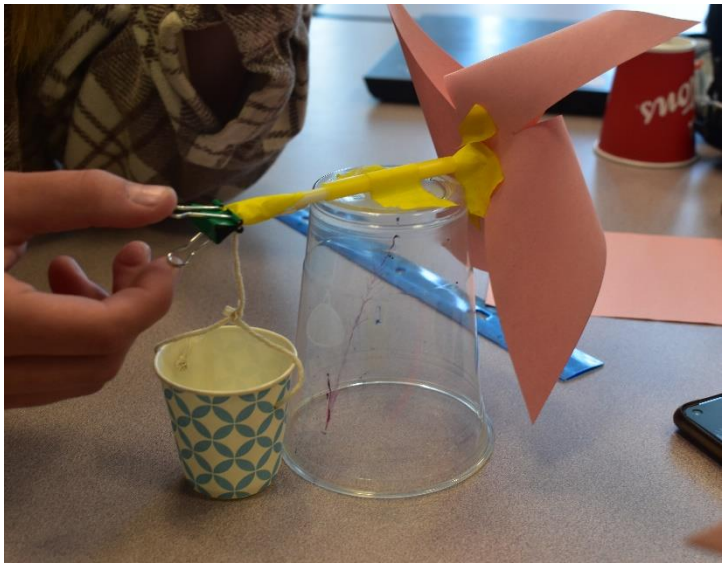
7. Take your small disposable cup and cut two holes on opposite sides of the cup. Then tie a string through it, making a bucket.



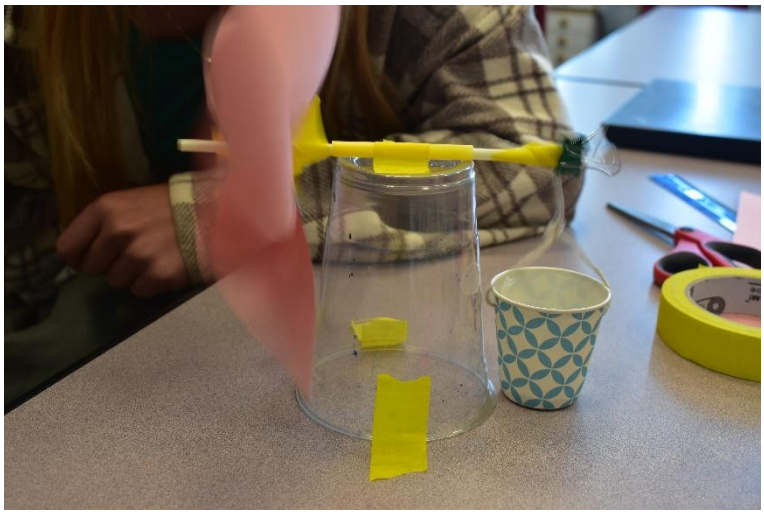
8. Insert the pinwheel through the big straw on the back side of the cup. Take another piece of small string and attach the small bucket to the straw.

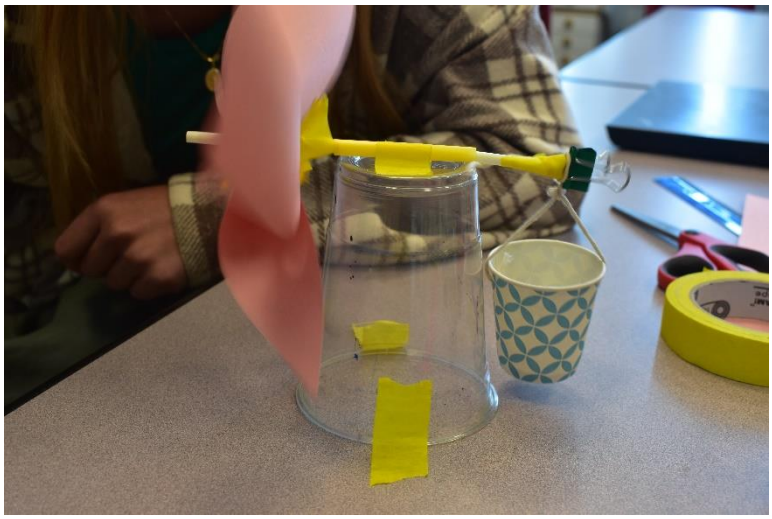


9. Take a small paperclip and clip the end of the straw.



10. Now that we have constructed our windmill, blow on it and watch the cup get lifted. Place a penny or two into the small cup to see how many penny's your windmill can pull.





How many pennies could your bucket lift? We could do around 5-6.

History of Global wind Day

The history of wind energy as a power source traces back thousands of years. Did you know as early as 5,000 B.C., Egyptians had already been using wind power to propel their boats on the Nile River. This was improved upon by the Chinese in 200 B.C. as they invented wind-powered water pumps. Furthermore, people from the Middle East and Persia discovered windmills with woven-reed blades to grind grain with more speed and less manpower, which eventually led to more efficient food production.

It wasn't until the 1st century A.D. that Heron of Alexandria created the wind wheel. According to historians, this was the first recorded wind-driven wheel to power a machine. It included a small

windmill that powered a piston that forces air through the organ pipes. According to records, it made a sound like that of a flute. In the Middle Ages, windmills became a popular device in Pakistan, Afghanistan, and Iraq. They were used to pump water and grind sugarcane, which eventually boosted their grist milling industry. This technology was ultimately brought to Northwestern Europe in 1180 and became a popular tool to grind flour — a system that still exists up to date.

In the late 1800s and early 1900s, colonists brought windmills to the United States. Homesteaders and ranchers installed thousands of water pumps and small wind-electric generations in Western America.

Check out these 1000-year-old windmills that are still used today See the 1,000-Year-Old Windmills Still in Use Today | National Geographic - YouTube

Now that you have made a windmill and learned about the power of wind, maybe you can go fly a kite and have fun in the wind?