Science: Wind Catcher!

Ages: 7 - 13

Hello everyone. This is Bill from the Okanagan Regional Library System. Welcome to the fun and inventive world of making STEAM projects in your own home. Each week, I will share a fun and interesting project that you can make using materials commonly found in your own home.

Even though we can't be together right now, we can still learn how to make exciting projects each week!

This week's project: How to Make your own Wind Catcher.

Wind Catcher

Find out how to read the wind! The only difference between a howling gale and a gentle breeze is how fast the air is moving. Meteorologists, the people who study weather, use a device called an anemometer to measure wind speed. You can make one of these yourself and then broadcast weather reports to your family.

The type of anemometer that you are going to construct, is called a Robinson Anemometer. It has cups that will go whizzing around and around when they catch the wind. At a weather station, a sensor automatically measures the speed of rotation. With your anemometer, which is made with cups, you do the counting yourself.

Materials Needed:

- 6 Cups
- 3 Wooden Skewers
- 1 Straw
- Adhesive Putty
- Scissors
- 1 piece of Card Stock
- Coloured Tape

Time: 30 minutes

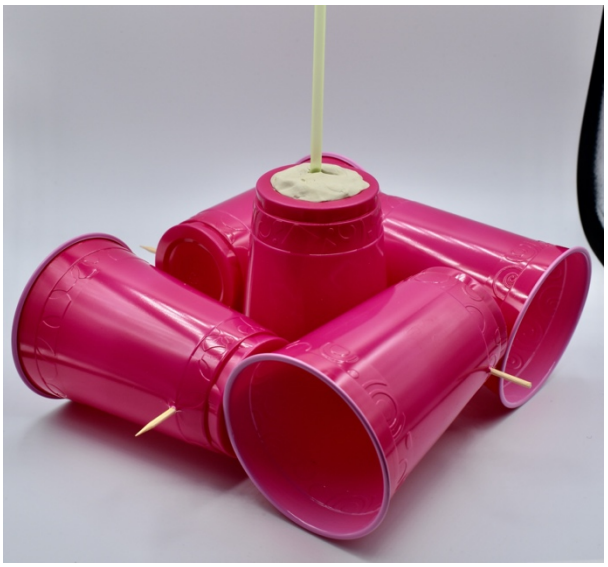
Steps:

1. Cut the straw to a length of about 10 cm. If it is a bendy straw, just snip off the bendy bit. Then use the scissors to split one end of the straw into four flaps, each about 2 cm long.

2. Open out the straw flaps. Then, using a few blobs of the adhesive putty, fix the flaps onto the bottom of an upturned paper cup. Stand the straw up as straight as possible. In your finished anemometer, this cup will face the other way up.

3. Push a skewer all the way through the cup with the attached straw – watch your fingers on the sharp end! Do the same with a second skewer, placing it at right angles t the first one.

4. Use the third skewer to pierce holes through the middle of four cups. These cups will slot on to the two skewers sticking out of the middle cup. Push them into place. For safety purposes, you can snip off the sharp ends of the skewers.



5. Cut out a card stock circle. Press a lump of adhesive putty onto it. Push the skewer through the final cup and press the skewer and cup rim into the putty.

6. Slip the open end of the straw over the skewer. If your wind-catching cups won't stay level, fix them to the skewers with more adhesive putty. Finally, mark a dot on one cup, using the colouring tape. This lets you count every turn as the anemometer spins around. Go outside and test it.

The Science behind your Wind Catcher

As the wind blows, it pushes the mouth of one cup and also the base of the cup on the opposite end of the same skewer. The force is greater on the cup with its mouth facing into the wind, so the anemometer will spin. This brings the other pair of cups into the wind. The faster the wind blows, the more times the cups rotate per minute.

STEAM

This activity includes everything you need for a comprehensive STEAM project.

Science: Understanding how air moves.
Technology: Understanding how to measure wind speed.
Engineering and Art: Construction of the anemometer.
Math: Measuring and cutting out the parts needed to construct your anemometer.