MAKE A DIY WEATHER INSTRUMENT

Measure wind speed with a homemade Robinson anemometer

What you'll need:

- 1 plastic pop bottle (any size) with cap that fits
- 6 plastic bottle caps of the same size and weight
- 1 small styrofoam container large enough to fit over the top of the plastic bottle
- Hot glue gun or tape
- Nail (or drill with 1/8 drill bit)
- 4 wooden skewers
- Flower pot (optional)

Note: Have a look in your blue bin and upcycle materials wherever possible to reduce waste.

Activity setup:

1. Using a nail or a drill, and with adult supervision, make a hole in the middle of the pop bottle cap. The hole should be big enough for a wooden skewer to slide through.
2. Fill the bottle with water for stability and screw on its cap. (Optional: For even more stability, place the water-filled plastic bottle inside a flower pot.)
3. Place one skewer through the hole in the cap.
4. Using this skewer, poke a hole in the bottom of the styrofoam container, right in the centre.
5. Take another skewer and thread it through the styrofoam container from one side to the other, so that the ends poke out equal amounts in both directions. (Try not to run the skewer directly above the hole you poked in the bottom.) Repeat this until you have three skewers threaded through the styrofoam container, roughly forming a star shape.
6. Hot glue or tape one plastic bottle cap to each of the six protruding ends of the skewers. Make sure all the caps face the same direction and are at the same angle.
7. Now place the styrofoam container—complete with skewers and caps—onto the skewer sticking straight up out of the pop bottle cap, using the hole you poked in the container.

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8 Time to test it out... Use your finger to ensure that the container rotates smoothly. Then go outside on a windy day—or use a fan indoors, trying out different power settings.

9 Make observations and record your findings.

Try replacing the plastic bottle caps with larger or smaller lids, or dixie cups. Does the size of the lid make a difference? What happens when you attach the lids or cups at an angle? Are you able to capture the wind for optimal rotation? Remember: the wind travels in different directions, so experiment with different angles.

How does it work?

An anemometer is a device that is used to measure wind speed. There are many different types of anemometers suited for different environments, situations and measurements. Meteorologists use anemometers to study predictable or repeating changes of weather and climate patterns in Earth's atmosphere.

The anemometer you've made is commonly called a Robinson anemometer. It uses bowl-like shapes to catch the wind, causing the device to spin. How many times it spins in a given time interval can tell you how fast the wind is moving. High-tech anemometers use lasers and ultrasonic measuring technology to provide the most accurate measurements possible.