

Weather Scope

Make and Use an Anemometer to measure Wind Speed

Overview

Wind is the horizontal movement of air. The instrument used to measure wind speed is called an *anemometer*, which is an indicator that will spin in the wind. The anemometer rotates at the same speed as the wind. It gives a direct measure of the speed of the wind. Wind speed is measured by using the [Beaufort Wind Scale](#) which is a scale of 0-12 based on visual clues. Depending on the ability of students, it is probably sufficient that they recognize calm air, and gentle, moderate, and strong breezes. For example, students can use a simplified scale such as the following:

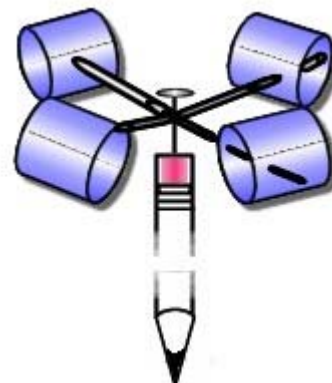
Wind Speed (KMPH)	Term	Description
0-5	Calm	Smoke goes straight up
6-20	Light	Wind is felt on face; weather vanes turn, leaves rustle
21-39	Moderate	Raises dust; flags flap
40-61	Strong	Large branches move; umbrellas turn inside out
62 or more	Gale / Whole Gale	

Make an Anemometer

(if you already have an anemometer, you can skip to the [Use an Anemometer to measure Wind Speed](#))

A. Materials

- 4 small paper cups
- 4 plastic drinking straws
- tape
- scissors
- straight pin
- pencil with a new eraser
- stapler



B. Procedure

1. This anemometer has four cups which catch the wind and cause the anemometer to spin. The inward curve of the cups receives most of the force of the wind. That's what makes the cups move. The more spins per minute, the greater the wind velocity.
2. Arrange four (4) plastic drinking straws to form a cross and tape them together at the center.
3. Staple the top side of one drinking cup, such as the small paper cups designed for bathroom dispensers, to the end of each straw, so the open ends of the cups all face the same direction.
4. Push a straight pin through the center of the straws into an eraser on the end of a

pencil. This provides the axle.

5. Mark one of the cups; this will be the one they use for counting when the anemometer spins. NOTE: When using this anemometer, 10 turns per minute means the wind speed is about one mile per hour. If possible, it would very useful to use a commercial anemometer to determine an approximate determination. For example, "when our anemometer read 20 spins a minute, the commercial anemometer read 2 miles per hour."
6. Blow on the anemometer or turn an electric fan on low to make sure that it spins easily. How many times the anemometer will spin in one minute? Can you make a statement connecting the number of spins of your anemometer and the speed of the wind? (you can use the table below to record your practice trials).

The photos below show the students from Mrs. Clarizio's fourth grade class in Garfield, New Jersey making their anemometers. Click on the picture to view a larger image.



Use an Anemometer to measure Wind Speed

A. Materials

- Anemometer (above)

B. Procedure

1. Divide the into small groups with the following roles (optional)
 - One time keeper who will be responsible for timing one minute for each trial.
 - One official "counter" for the day. The others may count on their own, but the counter's readings will be the ones recorded.
 - One holder who will hold the anemometer while the spins are counted; the holder should make sure that he holds the anemometer so that the wind is unobstructed.
2. Mount or hold the anemometer in a place that has full access to the wind from all directions.
3. When the time keeper says "Go", the counter in each group will count how many times the marked cup passes them in one minute and write it down.
4. If possible, repeat the above step four (4) times and record the average number of spins