

“Streaming” Wind Vane

4th Grade

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References:

- Ohio Curriculum guide

Benchmarks:

SLC/GLI #: 4th grade: ES-1, ES-4

Objectives:

This lesson objective is to help explain that air surrounds us, and moves around us in different directions as wind. Once this lesson is completed, the students should be able to describe the wind by measurable quantities such as direction and speed. They will build a wind vane made from a paper plate and streamers attached to a dowel rod coming out of the top of the plate.

Materials:

- Paper plates
- Markers
- Scissors
- Crepe paper
- Tape
- Dowel rods, 12 inches long
- A compass

Initial Demonstration:

The teacher should conduct an inquiry-based discussion of air and students’ perceptions of air and how it moves around. Use a balloon and blow it up to show the students that air is a gas and takes up space. You should also determine through directed questions the students’ prior knowledge of wind and its relation to air, and lead them to understand that wind is a measurable quantity. The teacher can use a fan to create wind. The teacher should also discuss wind speed, even if students will not measure it in this lesson.

Target Observations:

- Students should understand by the end of discussion that air takes up space and is all around us.
- Students should understand that wind blows and moves the air around and is a quantity that we can measure.

Procedure:

1. Draw a large, straight cross through the center of the top side of the plate.
2. Correctly label the directions N, S, E, and W at each end of the cross
3. Tape the dowel rod to the center of the plate so that it's protruding vertically out of the plate, like a flagpole.
4. Tape 1-2 pieces of about 10 inch long streamer to the top of the dowel rod, as if they're flags.
5. Take your wind vane outside and hold it out in front of you, parallel to the ground and turned so that the "N" on your wind streamer is pointing to the North; use a compass if necessary to make sure your facing the right direction.
6. Determine the direction of the wind: if the crepe paper blows to the south, the wind is coming out of the north.

Target Observations:

- Wind direction is determined based on the standard cardinal directions
- We always measure the wind based on the direction it **comes from**.
- The streamer moves when the wind blows because the wind is pushing the air, and the moving air pushes the streamers.

Target Revised Model:

- Wind is a measurable quantity
- We feel the wind because we actually feel the movement of the surrounding air against our skin.

Summary:

The objectives of this lesson were for the students to be able to understand that air surrounds us, takes up space, and can be moved around as wind. Wind is then a measurable quantity: it's direction and speed can be measured. At the end of this lesson, the students should have made their own wind vane, so that they can measure the direction of the wind and see the movement of the air.