# Weather Vanes

**Recommended grade level:** K-3

**Goal:** Students will be able to identify the direction from which the wind is blowing.

**Process skills:**
Collecting data
Making graphs
Observing

**Frameworks:** Force and Motion

**Materials:** (per student or student group)

one magnetic compass
one pencil with eraser
one straight pin
one plastic straw
one feather
sidewalk chalk
tape

**Teacher background information:**
When relying on wind to produce energy, one uncontrollable factor is the direction from which the wind is blowing. Windmills, hot air balloons, and sailboats, for example, all are dependent on the direction of the wind.

**Procedure:**

1. Students will draw a compass rose on the sidewalk in the correct position using the magnetic compass. **(See Figure 1)** Talk with students about the cardinal directions.
2. Teacher will explain that students will build a device, called a weather vane, to indicate the direction of the wind.
3. Students will tape the feather to one end of the straw so that the feather points along the long part of the straw.
4. Students will push the straight pin through the center of the drinking straw, attaching it to the top of a pencil eraser. **(See Figure 2)** This is a weather vane.
5. Students will take the weather vane outside and will use the compass rose to test the direction from which the wind is blowing.

**Figure 1.**

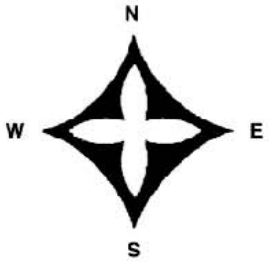
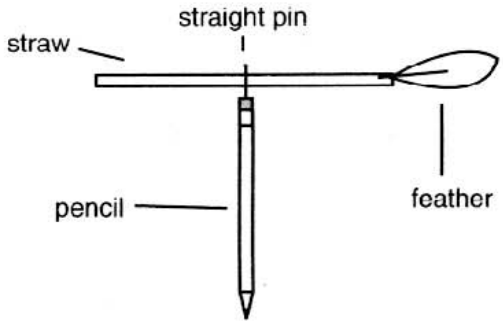



**Figure 2.**




## Discussion:

1. How did you know from which direction the wind was blowing?
2. Does a weather vane tell us anything about the speed of the wind?
3. If the breeze is very slight, can you tell from which direction the wind is blowing?
4. How would the direction of the wind affect windmills, wind turbines, or other wind-powered objects? What happens if the wind shifts?
5. Can the direction of the wind be predicted far in advance?

## Extensions:

1. Have students test wind direction several times during the day or week and graph the results.
2. If the direction of the wind can not be predicted or controlled, how must we be prepared to respond to changes in the direction of the wind? (eg. Windmills and wind turbines rotate to capture the wind, and sailboats have booms/masts that pivot.)

## Teacher resource:

Dorros, Arthur. *Feel the Wind*

Gr. 1-2. This book explains what causes wind and how it affects our environment. Instructions for making a weathervane are included.

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