



How to Make a Wind Vane

Written by GEF Staff

Grades: Pre K-2

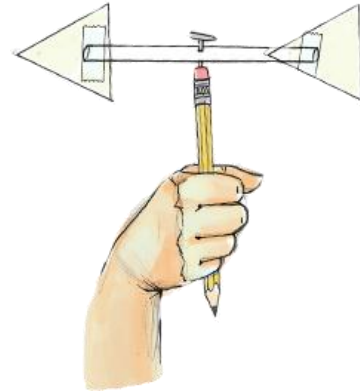
Subject: Science, Social Studies

Time: 20-30 minutes

* **Standards:** Students will...

Science Standard 10: Understand force and motion.

Benchmark # 1: Know the effects of forces (e.g., wind) in nature.



Science Standard 12: Understand the nature of scientific inquiry.

Benchmark # 1: Know learning can come from careful observation and simple experiments.

Benchmark # 2: Know that tools (e.g., wind vanes) can be used to gather information and extend the senses.

Geography Standard 16: Understand the changes that occur in the meaning, use, distribution and importance of resources.

Benchmark # 1: Know the role that resources play in our daily lives (wind used to generate electricity).

Objectives: Students will be able to:

- Identify and describe air as a mixture of invisible gases that surrounds us.
- Describe wind as air that is in motion.
- Identify wind as a renewable energy source that can be used to generate electricity.

[Please click here to view both the creative artwork for this great lesson and the downloadable PDF.](#)

Materials:

- 1 Straw
- 1 Straight pin
- Index card
- Pencil with eraser
- Tape
- "How to Make a Wind Vane" directions worksheet (provided below)

Overview: A wind vane, a weather vane, or weathercock is an instrument used for showing the direction of the wind. For accurate readings, a wind vane should be located high above the ground and away from buildings, trees, or any objects that could interfere with the true wind direction. The sun warms the Earth's surface and the atmosphere also warms. Some parts of the Earth receive direct rays from the sun all year and are always warm. Other places receive indirect rays, so the climate is colder. Warm air, which weighs less than cold air, rises. Cool air then rushes in and fills the gap left by the rising warm air. This movement of air is what makes the wind blow. Knowing and observing changes in wind direction is an essential part of predicting weather because wind brings us our weather.

Wind is a clean fuel that produces no air or water pollution. It is a renewable energy source used to generate electricity. In 2008 wind turbines or wind machines produced electricity in 31 states. As the use

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of wind power continues to grow, new wind farms will be built. Wind farm owners will need to be aware of wind direction and speed in order to carefully locate future wind farms.

Kid's Speak: Wind is air in motion and a renewable energy source that can be used to generate electricity. The uneven heating of the earth's surface by the sun produces wind. Since the earth's surface is made of various land and water formations, it absorbs the sun's radiation unevenly. A wind vane indicates the direction in which the wind is blowing.

Eco-Fact: In the United States the amount of electricity generated from wind has nearly doubled between 2006 and 2008.

Procedure:

Before Making a Wind Vane:

- Discuss definition and causes of wind.
- Discuss the purpose of a wind vane as a tool for measuring wind direction.
- Discuss wind as a renewable energy source. Ask students if they have ever seen large wind turbines. Show pictures of wind turbines or wind farms. Explain to students that as the use of wind power continues to grow, new wind farms will be built. Wind farm owners will need to be aware of wind direction and speed in order to carefully locate future wind farms.
- Explain to students that we are going to build a simple tool or instrument to measure the direction of the wind. More complicated tools would be used by wind farm builders.

Making a Wind Vane:

1. Cut out both the point and tail of an arrow out of an index card.
2. Tape the tail on one end of the straw and the point onto the other.
3. Push the pin through the middle of the straw.
4. Stick the pin into the eraser of the pencil. Make sure the straw can turn freely.
5. Try out your wind vane. You can either go outside or blow on your wind vane while indoors.

After Using Wind Vane:

- Discuss the results of measuring the wind direction with the wind vane.
- Discuss why knowing wind speed and direction could be important in the future for helping our environment.

Adaptations:

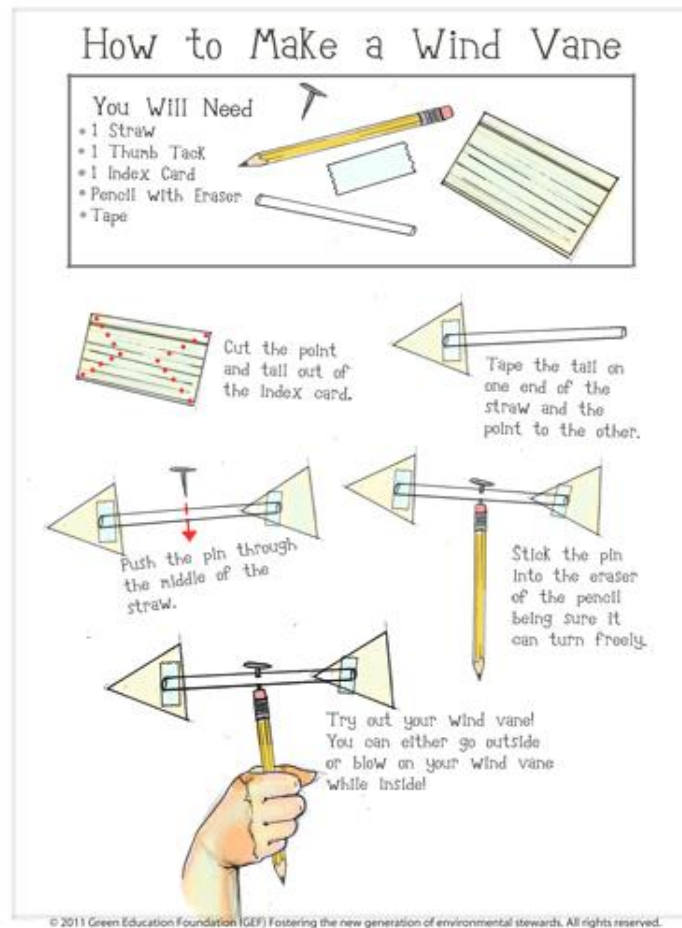
- Students can place their wind vanes in a variety of different areas and conditions.
- Students can try placing their wind vanes behind trees and other objects to see how the objects can affect wind conditions.

Extensions:

- Students can take a field trip to a local news station to see how meteorologists observe weather conditions and develop weather forecasts based on wind direction.
- Students can create anemometers as well to measure wind speed along with wind direction. See the directions on this GEF site.
- Students can learn more about wind as a source of energy by reading "Wind Power Energy for Today" by Tea Benduhn.



GEF Community: Students can share pictures of their wind vanes with the GEF Community. Students can discuss wind conditions in the areas where they placed their wind vanes.



To view full-size lesson plan and print, follow these directions:

1. Click on the image above
2. Click on the small "print" icon at the top left of the lesson
3. Make sure your "Page Scaling" is set to "Fit to Printable Area"
4. Click "OK" and your lesson will be printed!

Click on the second icon from the print button to save your lesson to your computer.

For technical assistance with printing any of the GEF lessons, please contact:

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