

CURIOSITY AT HOME

DIY WEATHER VANE

Make your very own weather vane using some common materials and track the wind in your neighborhood!

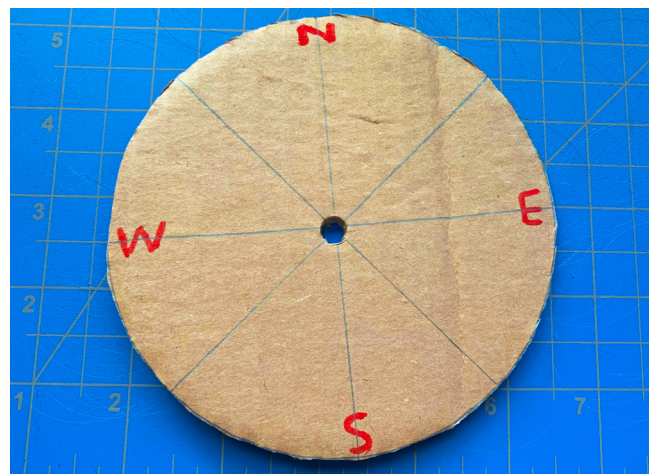
MATERIALS

- Thin cardboard or cardstock
- Markers (optional)
- Pencil
- Drinking straw
- Push pin
- Scissors
- Ruler and/or protractor (or a piece of paper to use as a guide)
- Science notebook or paper
- Something to write with



PROCEDURE

- Draw a circle on the thin cardboard or cardstock. Your circle should be roughly 6 inches wide, but can be smaller or larger. A circular object like a roll of masking tape or a small plate can come in handy to trace.
- Cut out the circle using a pair of scissors.
- Using a ruler or protractor as a guide, draw a line through the middle of the circle. Turn the circle 90 degrees (one quarter turn) and draw another line, so that there are four equal sized sections drawn onto the circle. It will be more precise if you use a protractor to measure these lines, but if you don't have one, you can use the corner of a piece of paper as a guide.
- Now write an N, E, S, and W going clockwise around the lines on your circle to signify North, East, South, and West. Feel free to write or trace these letters with markers so that they really stand out. You've essentially created a compass to show direction!
- Optional: Divide these sections in half like you're cutting a pie into multiple equal sized pieces. These can help you figure out more specific directions than just North, East, South, and West. Now you'll have NE, SE, SW, and NW!



Show us how you're being curious! Share your results with us.

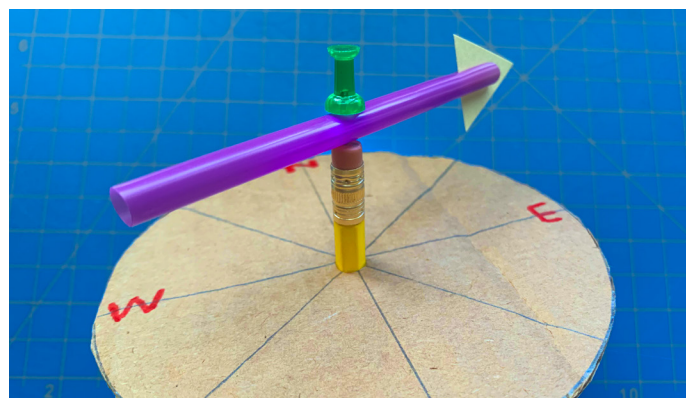
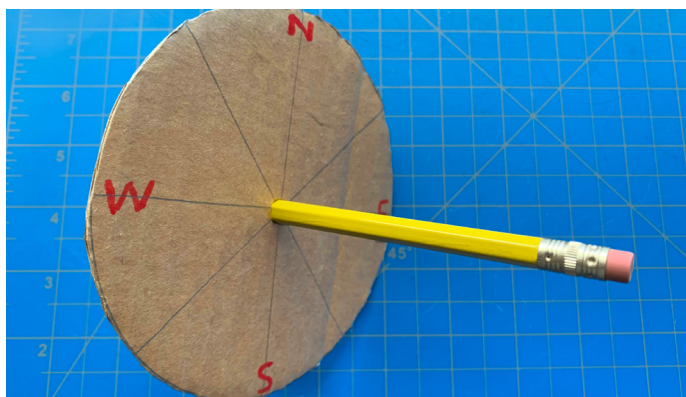
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- Take a pencil and poke it through the center of your circle where the lines you drew intersect. Leave the pencil in the hole you created with the eraser end sticking out of the top of the circle.
- Next, take a drinking straw and cut it so that the length of it is about the same as the width of the cardboard circle you created. You'll also want to cut a small slit in one end of the straw.
- Take a small piece of leftover cardboard or cardstock and cut it into a small triangle. If you want, you can color in the triangle so that it is easy to see.
- Slide the triangle into the slit you cut at the end of the straw. It should look like the shape of an arrow.
- With help from a grown-up, poke a push pin through the midpoint of the drinking straw. Make sure the push pin goes all the way through and that the straw can spin freely on it. When completing this step, it's up to you if you'd like the point of the arrow to be rotated vertical or horizontal. Either direction will work.
- Now have your grown-up poke the end of the push pin into the eraser on the pencil. Again, make sure the straw can rotate easily.
- Congratulations! You now have your very own weather vane! Now you're ready to take it outside. If you have a directional compass or a map app, use it to figure out which direction to point your weather vane outside. If you don't have a directional compass, wait for a sunny day and know that the sun rises roughly in the east. If the wind is blowing, you should notice that the triangle on your weather vane is pointing in the direction the wind is blowing! Feel free to push your pencil into the ground and check on your weather vane periodically to check on the current wind direction.
- As an optional extra step, make a simple base for your weather vane by placing some weight in a small box and poking the pencil on your weather vane through a hole in the top.



EXPLORE MORE

There's lots of ways you can tell what direction the wind is blowing! In addition to weather vanes, you may have noticed other tools such as windsocks. Windsocks not only show the direction the wind is blowing, but also the wind's speed based on the angle that the windsock is moving. Can you think of other ways in which you could determine the direction the wind is blowing?

DID YOU KNOW?

Weather vanes are really old! They were likely invented at some point during the 2nd century BCE. They are often not only functional, but also decorative. Can you think of a way to change the look of your weather vane so that it is uniquely yours?



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K–2 GRADE EXPLORATION

- Take your weather vane outside a few times throughout a day. Is the wind blowing hard enough to move the vane? Is it blowing the same direction each time you take it outside? Keep track of the wind direction in your science notebook and look for patterns.
- On a windy day, stand outside and make a guess about what direction you think the wind is blowing. Then get out your weather vane. What direction of wind is your weather vane reporting? How close was your guess?



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3–5 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

- Check the direction that the wind is blowing with your weather vane multiple times in one day. Is the wind blowing the same direction throughout the day or is it changing? Make a table in your science notebook. Use today's data to make predictions about the wind direction tomorrow, and then come back to check if you're right.
- Weather stations track wind direction, wind speed, amount of precipitation, temperature, humidity, and more. Can you think of any ways in which you could measure and keep track of these conditions at home?
- Look at predictions from a local weather station and a few weather stations in very faraway places. Are the predictions for the weather similar or different? Why might that be?



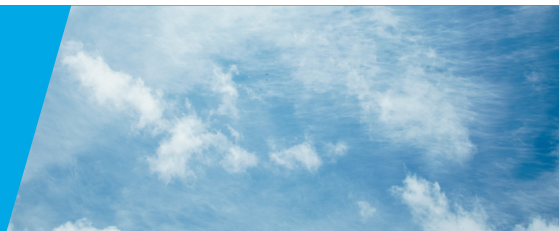
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6–8 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

- Check the direction that the wind is blowing with your weather vane multiple times in one day. Is the wind blowing the same direction throughout the day or is it changing?
- Weather stations track wind direction, wind speed, amount of precipitation, temperature, humidity, and more. Can you think of any ways in which you could measure and keep track of these conditions at home?

Explore the NOAA Weatherview application [here](http://www.nnl.noaa.gov/weatherview/index.html)¹ and explore recent global wind patterns, as well as predictions for upcoming wind patterns. Make a table in your science notebook to compare predictions for the next few days against real wind directions. Were the predictions always accurate? Why or why not? Did you notice any patterns in your part of the world?

¹ www.nnl.noaa.gov/weatherview/index.html

