How to Make a Wind Vane

Two Methods: Making a Paper Wind Vane Making a Permanent Wind Vane

Wind vanes are also referred to as weather vanes, since, when the wind changes directions, it often brings a change in weather. They are often attached to the tops of buildings, where the wind isn't affected by the many objects close to the ground. You can make a simple weather vane as a science project or as a yard decoration or cut a more permanent design out of wood and mount it on a post or roof.

Method 1 Making a Paper Wind Vane

1 **Cut a slit in each end of a drinking straw.** Take a straight plastic drinking straw, and use scissors to cut a slit on each end. Make each slit about 1 cm (or 1/2 inch) long. This doesn't need to be exact, so if you don't have a ruler, just cut a small piece, about the width of the pink section of a fingernail.

- If you have a drinking straw with a bend in in, cut the bendy part off, then cut slits in the remaining straight section.

2 **Cut thick paper into a triangle and a square.** Cut these from a manila folder, index cards, or thin cardboard such as posterboard or a cereal box. Make the triangle a wide "arrow" shape (isosceles), and keep it smaller than the square. If you have a ruler, make the arrow about 5 cm (2 in.) long, and the square about 7 cm (2 3/4 in.) on each side.[1]

- You can cut the square into a different shape as long as it is still larger than the arrow. You could also draw on them or add stickers for fun.

3 **Stick the paper triangle and square into the slots on the straw.** Put the triangle on one end, so it makes a point like an arrow. Put the square into the other slot. If they slip out, add a little glue and lay the straw flat on a piece of scrap paper. Keep following the instructions below, and this wind vane arrow should be dry and stuck together by the time you need it again.

- Put down scrap paper or newspaper before using glue, to avoid spilling glue on the table.

4 **Fill a container with small rocks.** Take a yoghurt container, a plastic drinking cup, or another small, plastic container that no one plans to use for another purpose. Fill this about halfway full with pebbles, sand or other heavy objects that will keep the wind vane from slipping.

- If you don't have the right container, you can use a big piece of soft clay instead.[2] Stick the sharp side of a pencil into the clay to keep it in place, then skip ahead to the step that starts "Attach the drinking straw."

5 **Make a lid for the container.** If the container already has a lid, put it on tightly. Otherwise, you can make a lid by gluing a paper plate or a piece of cardboard over the open end of the container. Make sure the glue is dry and the lid is attached before you continue.

6 **Stick a pencil through the bottom of the container.** Pick a pencil with a rubber (an eraser) at one end. Turn the plastic container upside down and make a hole through the bottom, asking an adult for help if you need to. Stick the pencil through this hole, writing side down, and into the pebbles or sand to keep it from slipping.

- Add glue or putty around the hole if the pencil is still falling over.

Stick a pin through the straw into the eraser. Take a thumbtack or a sharp pin. Stick it through the center of the

7 drinking straw, then into the eraser. If the straw won't spin when you blow on the paper square, or if it falls over, try sticking the pin closer to the center of the straw, or cut a small piece off the paper on the end that falls over.

8 **Use a compass to mark the directions on your wind vane (optional).** If you have the kind of compass that finds directions, use it to find out where north is. Write "North" on that side of your plastic container, or on that side of the lid. You can skip this step if you don't need to know the compass direction of the wind.

- Remember, if you move the container, you'll need to use a compass again so you can line the "north" side in the right direction.
- You can also write "east", "south", and "west" around the container, in clockwise order when looking down from above.

9 **Watch the wind vane spin.** Take the wind vane outside, away from walls and large objects that might block the wind. If there's any wind, it should push against the paper square, spinning the straw until the arrow points in the direction the wind is blowing *from*. If the arrow is pointing west, that means the wind is a "west wind", blowing from west to east.

Method 2 Making a Permanent Wind Vane

1 **Create a design for the arrow.** Wind vane designs have two requirements: one side of the vane must have a larger surface area than the other, and you must be able to balance the vane.[3] Both of these are easiest to accomplish if the vane is composed of a narrow stick with a decoration at each end, usually a pointing arrow at one end and a larger design at the other.

- Alternatively, purchase a wind vane design online or from a metalworker or woodcarver.
- Three-dimensional designs are not recommended unless you are an experienced craftsman, since the vane must be balanced from side-to-side as well as front-to-back.

2 **Cut the design from wood.** Trace your design onto a flat piece of wood at least 5 cm (2 in.) thick, using a lightweight but strong material such as balsa wood. Use a jigsaw or coping saw to cut out your design.

- Optionally, use sandpaper to smooth the edges of your design after cutting.

3 **Paint the design.** Painting your wood will help preserve it from decay. Choose a color that will stand out against the sky and the roof, if you are mounting the wind vane in a high location.

- Optionally, decorate it with multiple colors of paint, letting each color dry before applying the next.

4 **Use a dowel and block of wood to create a base.** Take a wooden block, heavier than the wind vane. This will be the base of the wind vane. Select a thick, sturdy dowel or rod, then drill a hole of the same size into the block. Fit the dowel into the hole, using wood glue to fix it in place.

5 **Find the center of balance of the arrow.** Hold your hands with your palms facing each other. Place the wind vane arrow on top of your index fingers, then move your hands together until they touch. When your arrow is balanced in this position, mark that point.

6 **Drill a hole at that point.** This hole will fit the other end of the dowel, so use the same size drill bit. Drill the hole partway through the arrow at the balance point, from the underside of the arrow.

7 **Attach the arrow loosely to the dowel, making adjustments if necessary.** Lower the hole in the arrow over the top end of the dowel or rod, but don't force it in. This fit should be loose, so the arrow can spin freely. Use sandpaper to narrow the dowel at this end if necessary. If you are using a metal rod instead, use your drill to widen the hole in the arrow.[4]

- If the arrow feels unsteady or falls off the dowel or rod, make the hole deeper.

8 **Mark the base with compass directions (optional).** Adding the cardinal directions can be useful if winds from a particular direction are associated with storms, cold, or other weather phenomena. If you decide to do this, make sure you've decided where to mount the vane, and create North, East, South, and West markers. Depending on how visible the wind vane will be from the ground, you may carve or paint these onto the base, or cut out four flat pieces of wood with "N", "E", "S", and "W" designs at the end, and nail them into the base.

9 **Test and mount the wind vane.** Place the finished wind vane on a hilltop or high stand, and watch it move with the wind. Once you're satisfied that the fit is sturdy, but loose enough for the vane to spin, you can mount the vane permanently. Nail the wooden block to wooden surfaces, tie the vane with wire onto fence posts, or come up with your own method of attachment.

- The higher the wind vane is located, the more it will spin.

Community Q&A

How could I improve the wind vane and make it turn better?

wikiHow Contributor

Make the the top lighter and the bottom heavier. This will allow it to move more easily.

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The wind vane is awful and rigid. Why is that?

wikiHow Contributor

Most weather-vanes are made out of stamped sheet metal -- not something easily done by people without expensive machinery. Make the arrow lighter, and give it more surface area for the wind to grab onto. Add bearings to help it turn more easily.

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Can I make a tornado?

wikiHow Contributor

Yes, using a water bottle with water of course, glitters and joy, and if you shake it in a rotating way a tornado happens in the bottle.

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Tips

- Wind vanes typically indicate the direction from which the wind is blowing. So if the wind vane points north, the wind is blowing from north to south. However, wind vanes are occasionally made the other way around. If you'd like the arrow to point in the direction the wind is *going*, make the pointer side larger than the design on the opposite end.
- Weather vanes are often made out of metal as well, but this requires welding, which should only be done with proper training and supplies.[5]

Warnings

- Use a stable ladder when attaching the wind vane to a high location, tall enough that you can avoid stepping on the top two or three rungs. Have a friend stand at the bottom and hold the ladder steady, even if it is a stepladder.

Things You'll Need

Paper Wind Vane:

- [ ] A drinking straw
- [ ] Plastic drink cup or food container
- [ ] Lid or paper plate
- [ ] Sturdy paper (such as index cards, a manila folder, or posterboard)
- [ ] Scissors
- [ ] Pencil with a rubber (an eraser)
- [ ] A pin
- [ ] Glue
- [ ] Permanent marker
- [ ] Magnetic compass (optional)

Permanent Wind Vane:

- [ ] Flat, lightweight wood (at least 5 cm (1 in) thick)
- [ ] Jigsaw or coping saw
- [ ] Dowel or rod
- [ ] Wooden block
- [ ] Glue
- [ ] Magnetic compass (optional)
- [ ] Nails, wire, or other attachment method

Sources and Citations

1. http://ciese.org/curriculum/weatherproj2/en/docs/windvane.shtml
2. http://ciese.org/curriculum/weatherproj2/en/docs/windvane.shtml
3. http://www.denninger.com/whatis.htm

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