

Wind Station



Topic

Measuring and recording wind direction using a wind vane

Introduction

Wind is moving air. Air moves from an area of high pressure to low pressure. When this happens on a global scale, it sets up the prevailing winds. As well as these winds, which blow from mainly one direction, other winds can influence the weather patterns we experience. The winds take on characteristics from the land or sea (e.g., winds originating or moving over seas will contain more water vapor and thus have the potential to develop clouds and rain). In this experiment, you will construct a wind vane and use it to record wind directions over a week.

Time required

35 minutes to make wind vane
1 week to record wind data

Materials

12-mm dowel approximately 1 meter long
3 × 5-mm dowels (30 cm long)
3-mm index card (30 cm × 30 cm)
adhesive tape or glue for wood/card
push pin
bead (at least 2 mm diameter)
compass
wood drill
1-mm and 5-mm drill bit

Safety note



Ask an adult to help drill holes in the wooden dowel.

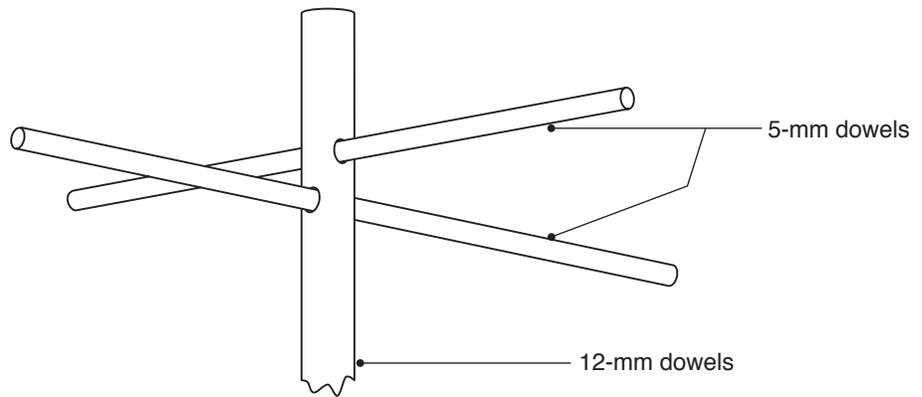
Procedure

Part A: Making the wind vane



1. With an adult's help, drill two 5-mm holes at right angles to each other through the 12-mm dowel about 15 cm and 21 cm from the top (i.e., 6 cm between them).
2. Push two of the 5-mm dowels through these holes to make a cross as in diagram 1 on the next page.

1



Position of cross dowels for showing compass directions

3. Cut out four pieces of card and mark them north, south, east, and west.
Alternatively use different colored card for the four directions.

4. Glue or tape these cards to the four ends of the 5-mm dowels.



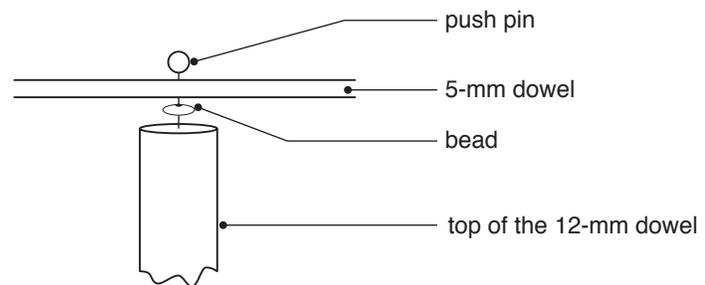
5. With an adult's help, use the 1-mm drill bit to drill a fine hole through the halfway point of the third 5-mm dowel.

6. Make an arrow and tail from the card and glue or stick them to either end of this dowel.



7. Slot the push pin through the hole in this dowel and then through the bead. Then push the pin into the top of the 12-mm dowel as in diagram 2 below.

2



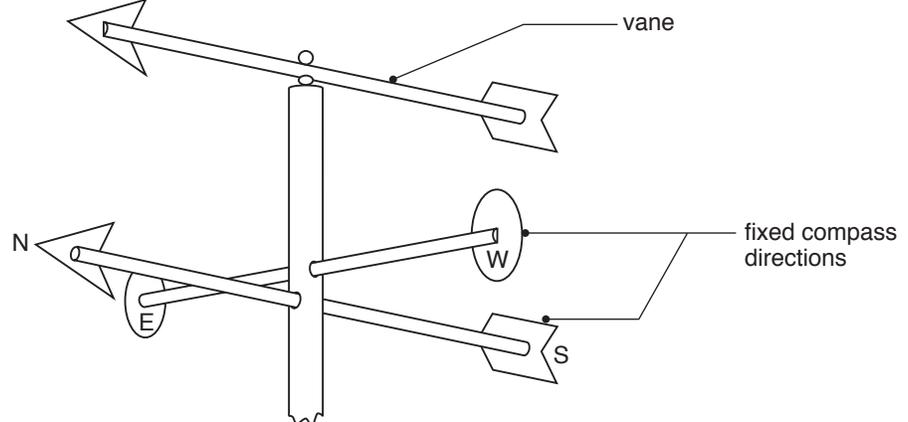
Attaching vane to top of main pole

8. Go outside and use the compass to check the positions of north, south, east, and west.

9. Push the 12-mm dowel into the ground so that the cards on the ends of the cross point in the correct direction. Chose a position where the wind vane will catch the wind.

10. Check that the vane can swing round freely (see diagram 3 below).

3



Completed wind vane

Part B: Collecting data

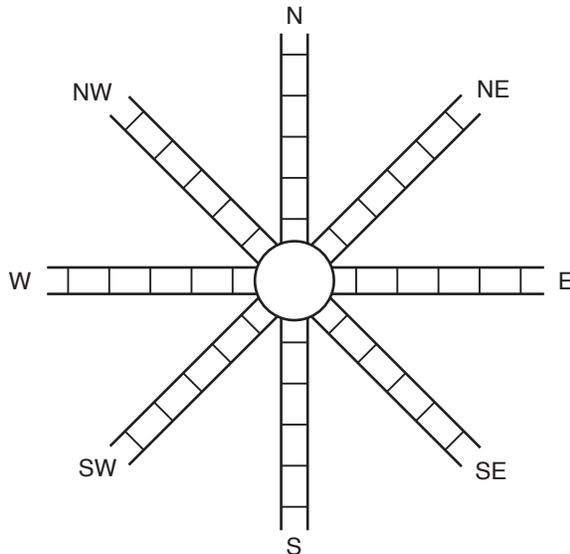
1. Over a week, record the wind direction by looking at the direction of the swinging arrow and comparing it with the compass points. Do this at the same time each day.
2. Note the type of weather at the time of the readings in the data table below.

| DATA TABLE | | |
|----------------------------------|----------------|---------|
| Location of site: | | |
| Time of day readings were taken: | | |
| Date | Wind direction | Weather |
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |

Analysis

1. Diagram 4 below shows the points of the compass as a wind rose. Each day, shade in a square on this diagram to show the direction of that day's wind.
2. Is there a pattern of winds showing a prevailing wind?
3. Are there weather patterns linked to wind direction?

4



Wind rose

Want to know more?