

OUR WEATHER SYSTEM

MAKING A RAIN GAUGE

Introduction

Rain gauges measure rainfall over short or long periods of time. Short-term gauges are checked after each rainfall. They can simply be open jars left outside to collect rain and measured each day.

Materials

- Sharp scissors
- fine mesh screen
- nail file
- 2 two-litre bottles (tops removed)
- permanent marker
- ruler
- duct tape
- vegetable oil (optional)



Method

Carefully cut a two-litre bottle into half to make a funnel. File any sharp edges.

1. Place the cut bottle on the uncut bottle so that spouts are touching and in line.
2. Tightly tape the bottle spouts together. Place the screen over the funnel opening and press it slightly inward. Tape it in place.
3. Mark the rain gauge up the side in $\frac{1}{4}$ -inch (or $\frac{1}{2}$ -cm) graduations with the permanent marker. For more accurate readings, tape a ruler to the side of the bottle.
4. Pour in enough vegetable oil to cover the bottom of the rain gauge in a thin layer. Put the screen in place over the gauge.
5. Place the rain gauge outside, preferably in a shaded, but not covered spot.
6. Keep a record of rainfall totals for each day and the average amount of rainfall over the time period you specify.

A BAROMETER

Introduction

Air exerts pressure on Earth's surface. In fact, it exerts pressure in all directions down, up and sideways at the same time! At sea level, air weighs 6.66kg per square inch. That means that a desktop area 2 inches by 2 inches has almost 26.76kg of air sitting over it. This atmospheric pressure can be measured using a Barometer. Pressure tendency can forecast short term changes in the weather. High air pressure in a region indicates fair weather while low pressure indicates that storms are more likely. When used in combination with wind observations, reasonably accurate short-term forecasts can be made.

Materials

- Empty coffee can a glass jar
- large balloon
- strong rubber band
- scissors
- coffee stirrer or straw
- 3x5 card
- duct tape
- glue



Method

1. Blow up the balloon carefully and then let the air out of it again. This is to stretch it. Deflate balloon completely.
2. Smoothly tape the rim of the can/jar so the metal edge is completely hidden. To effectively do this, tape around upper side of the can/jar leaving at least 1/2 inch of tape sticking up over the rim. Use scissors to make 8 to 10 cuts in the protruding tape straight down to the can rim. Fold the tape down and smoothly stick it to the inside of the can.
3. Cut the deflated balloon in half. Discard the piece with the neck on it.
4. Take the remaining piece of the balloon and stretch it across the can or jar. Keep it stretched firmly across and seal it down with the rubber (elastic) band, around the rim of the can/jar. To make an airtight seal, avoid gaps between the balloon and the can/jar.
5. Put a drop of white glue in the center of the stretched balloon. Put the straw on the glue and position it so that it protrudes about 1/2 inch over the edge of the can. The straw is your indicator "needle". You can trim the straw if it is too long, but leave more length off the jar as on it.
6. Put the finished can/jar next to a wall and tape a piece of paper or card to the wall behind it.
7. Mark the current position of the straw on the card. Place the card in such a manner that there is room above and below the straw for you to make more marks when the straw moves.
8. Write the current barometric pressure in a journal. Determine if the pressure is high, low or "somewhere in between." This will be your baseline pressure. Be sure to note the position of the mark on the 3x5 card corresponding to the pressure.
9. Check your straw regularly and keep marking its location on the paper for a few days. Add notes in your journal that tell you what the weather is like (e.g. "rainy," "windy," or "sunny,") next to the mark.

When you become accustomed to the way your barometer works, you will have a tool with which to predict the weather. Determine how the barometric pressure correlates to present weather.

A WIND VANE

Introduction

A wind vane is really just a flat piece of metal or wood on a swivel that catches the wind and points toward and away from the wind. You have probably seen pictures of a wind vane on top of a building. It is usually shaped like a farm animal such as a horse or a rooster. It usually has an arrow to point in the direction the wind is blowing. However, wind is described in terms of where it is blowing from. For example, a west wind blows east.

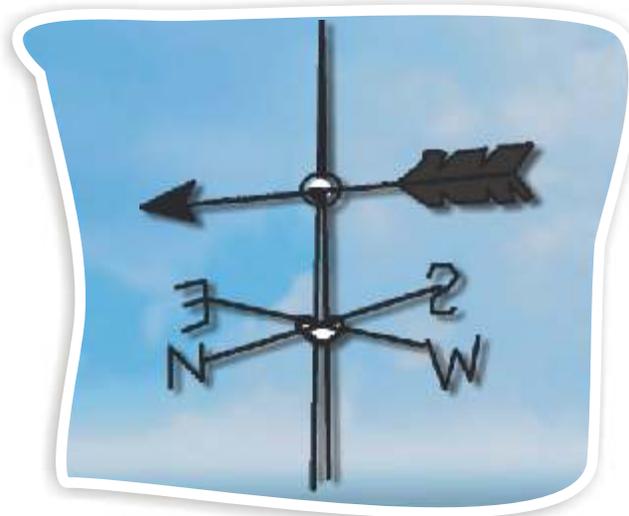
Materials

- 3 ft x 3 ft piece of thin wood or plastic
- bicycle wheel or similar item
- saw
- screws
- plastic or metal letters, "N, E, W, S"
- sand paper or file

Method

Cut an interesting shape from wood or plastic. Be sure to include a pointer. Round all edges except the bottom.

1. Mount the shape to your chosen swivel.
2. Install your wind vane on top of a tall pole or on the roof of a shed or house.
3. Keep a log of the wind direction as observed several times a day.



WEATHER CHART

Fill the daily temperature, rainfall and humidity levels of your city from the newspaper for 10 days atleast take an average and record your findings

Do a similar exercise for another period of time

Now check with data available for the previous year study and discuss the differences

	Rainfall	Temperarure	Humidity
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			
Day 6			
Day 7			
Day 8			
Day 9			
Day 10			
Average			