

MAKING WEATHER INSTRUMENTS

Click on a link below for instructions on the instrument you want to build

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MAKING A BAROMETER

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Do you know what the air pressure is today? You can find out for yourself by measuring the air pressure on a Barometer.

You will need-:

Small empty can or tin/a milk tin could be used

Plastic wrap

Scissors

Straw

Index cards

Rubber bands

Instructions

1. COVER the top of the can with plastic wrap. USE a rubber band to hold the plastic wrap in place. The cover should be taut making the can airtight.
2. PLACE the straw horizontally on the plastic wrap so that two-thirds of the straw is on the can.
3. TAPE the straw to the middle of the plastic wrap.
4. TAPE the index card to the can behind the straw.
5. Carefully RECORD the location of the straw on the index card.
6. After 15 minutes, RECORD the new location of the straw on the index card.
7. Continue CHECKING and RECORDING the straw location as often as desired.
8. Be careful not to place your Barometer near a window, as the barometer is sensitive to temperature as well as air pressure.

What's happening?

High pressure will make the plastic wrap cave in, and the straw go up. Low pressure will make the plastic wrap puff up, and the straw go down. Check your measurements with a real barometer.

What happens to your barometer when a big storm comes? Can you use your barometer to predict a storm?

MAKING A WIND CHIME

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Wind can move silently, or wind can roar. Making a wind chime will make it easy to hear the wind blow. Use the wind chime to remind you to observe the wind

You will need-:

- A variety of small metal objects, like nuts, bolts, washers, screws, nails, jar lids.
- Fishing line, various lengths 25-28 cm (10-11 inches)
- Scissors
- Tree branch
- Windy day

Instructions

1. TIE one end of a piece of fishing line to each metal object.
2. TIE the other end of each of the fishing lines to the tree branch so the objects are hanging freely, approximately 1.25 cm (1/2 inch) apart from each other.
3. TIE two additional pieces of fishing line of the same length to each end of the tree branch to use to hang your wind chime from your favourite tree.

What's happening?

When the wind blows, the movement of the wind causes the objects to move. When the objects hit each other, you can hear the wind blow. Listen and enjoy the sound.

MAKING A RAINGUAGE

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Rain clouds are made of droplets of water so small there are billions of them in a single cloud. How much rain falls during a shower, or during a day, week, or month? You can find out by measuring it with a rain gauge.

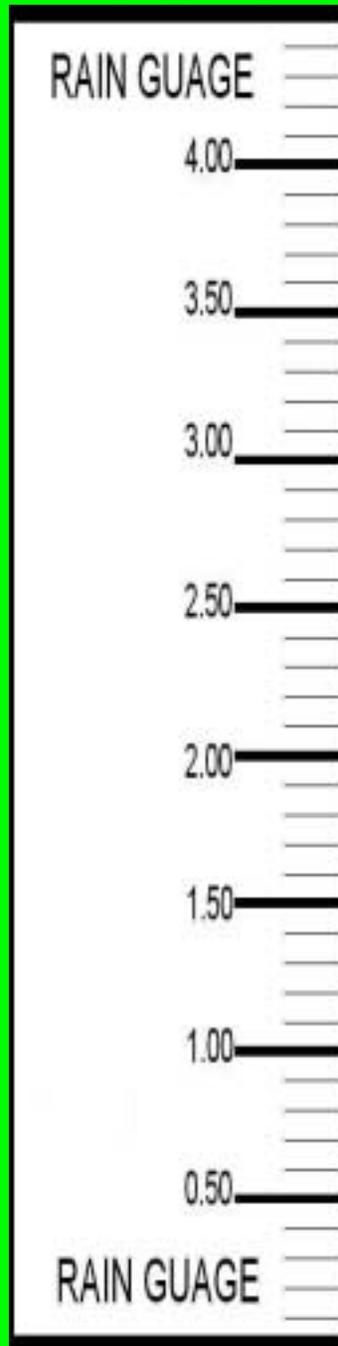
You will need-:

- A printed copy of the “Rain Gauge Ruler” below
- A straight-sided glass container, such as a horlicks bottle
- Scissors
- Clear cellophane or plastic sandwich bag
- Tape
- Rainy day
- **[Rainy graph \(see attached ruler\)](#)**

Instructions

1. PRINT and CUT out the Rain Gauge Ruler attached
2. COVER the ruler with clear cellophane, front and back. This will protect it from the rain, and make it sturdy so that the ruler can stand straight.
3. STAND the ruler inside the glass container so that the ruler rests on the bottom of the container.
4. TAPE it at the top, to the inside of the jar, so that the ruler does not fall.
PLACE your rain gauge outside
5. MEASURE the amount of rainfall each day.

RAIN GAUGE RULER



MAKING A THERMOMETER

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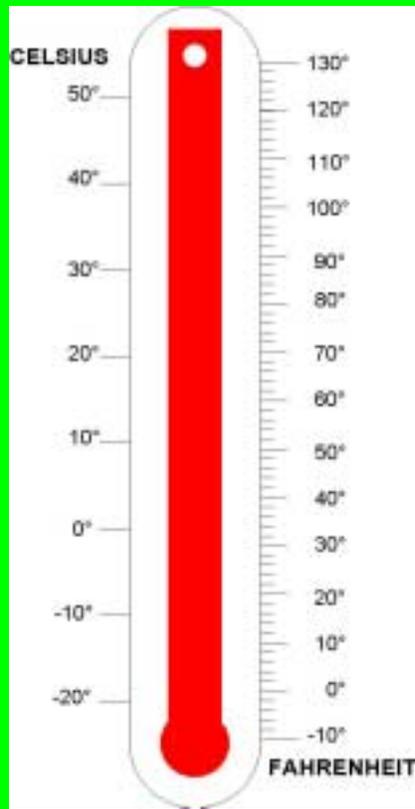
You can find out how cold/hot it is by measuring the temperature on the **thermometer**. Temperature is measured in both centigrade and Fahrenheit.

You will need-:

- Printed copy of the “Thermometer”, attached
- Heavy cardboard
- Scissors
- Ruler
- Yarn, white and red
- Paste

Instructions

1. PRINT and CUT out the thermometer
2. PASTE it to the heavy cardboard, and cut away the extra cardboard to the size of the thermometer.
3. PUNCH OUT the two black dots on the top and bottom of the thermometer.
4. MEASURE the distance between the two holes.
5. CUT a piece of white yarn and a piece of red yarn, both two inches longer than the distance between the two holes.
6. TIE the white yarn to one end of the red yarn
7. On the side with the numbers, THREAD the yarn through the top and bottom holes, making sure the red piece is at the bottom and the white on top.
8. TURN the thermometer to the back, and loosely tie the yarn ends together.
9. MOVE the yarn up and down to show different temperature on the face of the thermometer.
10. PRACTICE reading the temperature in both Celsius and Fahrenheit. If it's 80 degrees Fahrenheit, how many degrees Celsius is it?



THERMOMETER

MAKING A WIND STREAMER

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The wind streamer makes it possible to tell which direction the wind is blowing. It acts like a wind vane.

You will need-:

- A paper plate
- Permanent marker
- Scissors
- Crepe paper
- Crayons
- Paste or tape
- A printed copy of Windman, attached
- A windy day

Instructions

1. CUT OUT the windman along the black circle
2. COLOR the windman if desired
3. DRAW a large, straight cross through the centre of the bottom side of the plate.
4. CUT a 2.5 cm (1 inch) square at each of the four ends of the cross, 1.5 cm from the edge of the plate.
5. CUT eight crepe paper streamers 1 meter each in length.
6. PLACE two streamers together and THREAD them through one square hole.
7. TIE them to the edge of the plate.
8. REPEAT steps 6 and 7 until all 4 square holes have streamers tied to them.
9. WRITE the capital letters N, E, W, S. next to each hole
10. PASTE or TAPE your colored Windman at the middle of your wind streamer, over the cross. Remember: All of your work is on the BOTTOM flat side of the plate.

Using your wind streamer

11. Hold your wind streamer in front of you, with your thumb on top, near the letter "S". Make sure your arm is straight out and the plate is parallel to the ground.
 12. Turn so the "N" on your WIND STREAMER is pointing to the North.
 13. Watch the wind go to work.
 14. The direction of the wind is determined by which way the crepe paper blows. If the crepe paper blows out to the south, the blowing from the **north**. Use the same principle for all other directions.
- Is today a windy day? Use your new wind streamer to determine in which direction the wind is blowing.

WIND STREAMER



MAKING AN ANEMOMETER

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You will need-:

- Five 3 ounce paper cups or hot-cold cups
- Two straight plastic soda straws
- A pin
- Paper punch
- Small stapler
- Sharp pencil with an eraser

Procedure

Take four of the paper cups. Using the paper punch, punch one hole in each, about a half inch below the rim.

Take the fifth cup. Punch four equally spaced holes about a quarter inch below the rim. Then punch a hole in the center of the bottom of the cup.

Take one of the four cups and push a soda straw through the hole. Fold the end of the straw, and staple it to the side of the cup across from the hole. Repeat this procedure for another one-hole cup and the second straw.

Now slide one cup and straw assembly through two opposite holes in the cup with four holes. Bend the straw and staple it to the one-hole cup, making certain that the cup faces in the opposite direction from the first cup. Repeat this procedure using the other cup and straw assembly and the remaining one-hole cup.

Align the four cups so that their open ends face in the same direction (clockwise or counter clockwise) around the centre cup. Push the straight pin through the two straws where they intersect. Push the eraser end of the pencil through the bottom hole in the centre cup. Push the pin into the end of the pencil eraser as far as it will go. Your anemometer is ready to use.

Your anemometer is useful because it rotates at the same speed as the wind. This instrument is quite helpful in accurately determining the wind speeds because it gives a direct measure of the speed of the wind. To find the wind speed, determine the number of revolutions per minute. Next calculate the circumference of the circle (in feet) made by the rotating paper cups. Multiply the revolutions per minute by the circumference of the circle (in feet per revolution), and you will have the velocity of the wind in feet per minute. The anemometer is an example of a vertical-axis wind collector. It need not be pointed into the wind to spin.