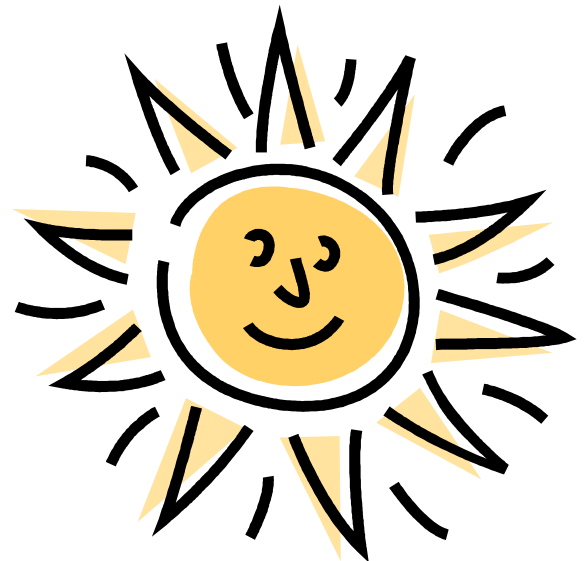




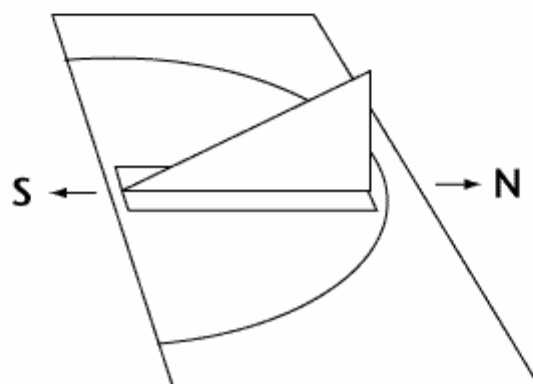
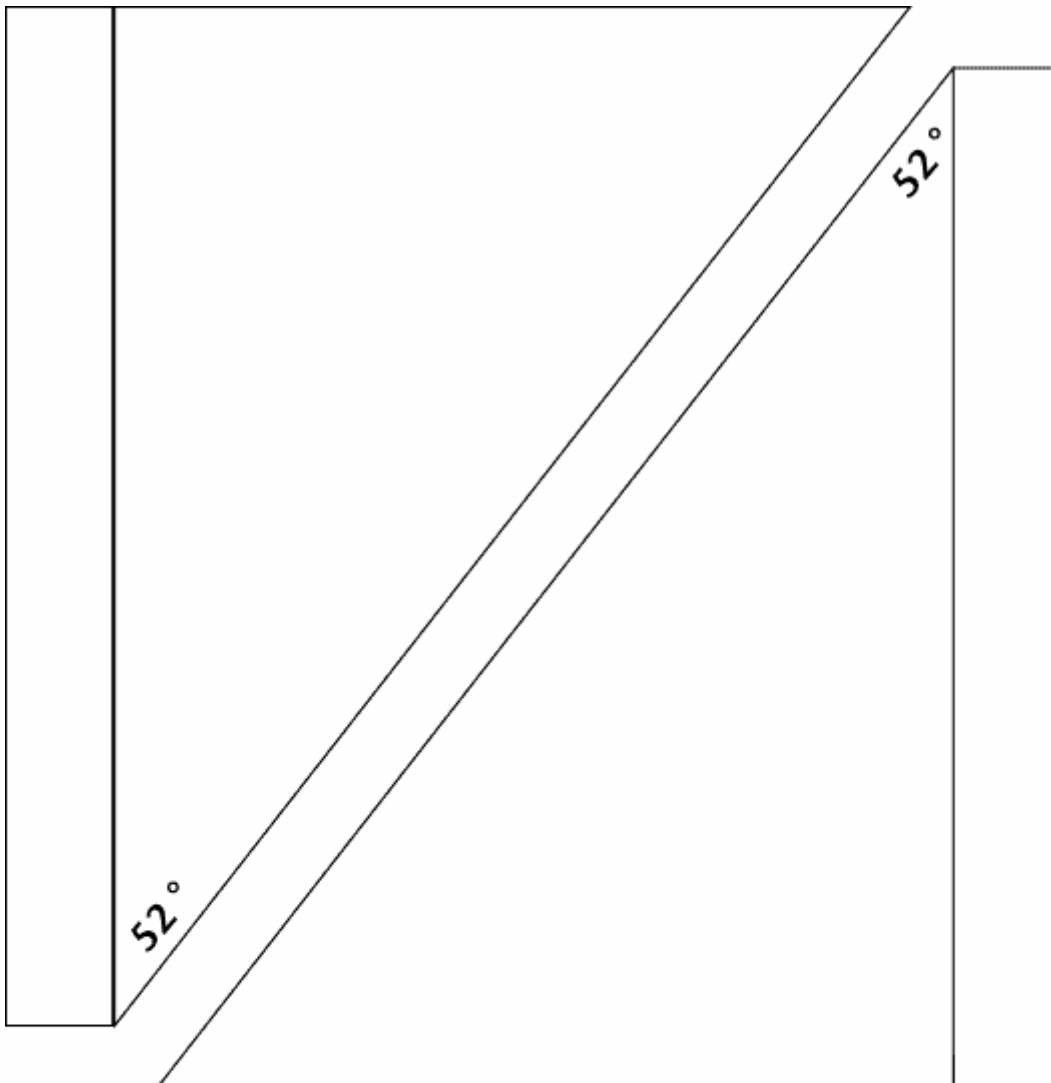
# Weather Night

Contributed by Sarah Ward



**To make a sundial you will need:** card, glue, a direction compass (to find north and south) a drawing compass (to draw a circle with) **1.** Using the template provided below, cut out the two shapes from the cardboard. **2.** Fold out the two long straight flaps so that they are in opposite directions. **3.** Glue together the two triangles. **4.** Draw a semicircle on the cardboard base. **5.** In the centre of the semicircle, with the thin point of the triangle at the edge of the card, glue the sundial to the base. Make sure you assembled sundial looks like the one in the diagram below.

**How to use your sundial** **1.** Place your new sundial in the sunshine, making sure it is on something level. **2.** Turn the sundial until it is facing south, use your compass to do this part (use the picture below to make sure you have the right side facing south). **3.** Now you can use the sun to tell what the time is. Every hour mark the time and the position of the shadowing on the card. Don't worry if you miss an hour, you can estimate where that hour is by seeing how far there is between the shadows of the other hours. **4.** Once you have marked down where all the daytime hours are, you will have a fully working sundial. <http://www.metoffice.gov.uk/education/primary/teachers/sundial.html>



### To make a rain gauge you will need:

- a large plastic drink bottle (2 litres is ideal)
- a smaller plastic bottle (500 ml is ideal)
- a pair of scissors

Cut around the large bottle about two thirds of the way up. Turn the top upside down and check that it fits into the bottom, like a funnel. Place the small bottle inside the bottom part of the large bottle. Bury the large bottle so that the top is about 5 cm above the ground, in order to prevent large raindrops splashing into the gauge. This will also stop the rain gauge blowing away on windy days.



When siting your rain gauge, choose a position in the open and away from trees. Fit the funnel so that the end is in the top of the small bottle.

Check the rain gauge every day, preferably at the same time. Meteorologists do this at 9 a.m. Measure the amount of rainfall collected in the small bottle. It is important to check the rain gauge even if there has been no rainfall. This is because small amounts of dew may accumulate in the bottle, leading to false readings when rain does fall. You also need to check that leaves or spiders have not fallen into the funnel, as this may block it.

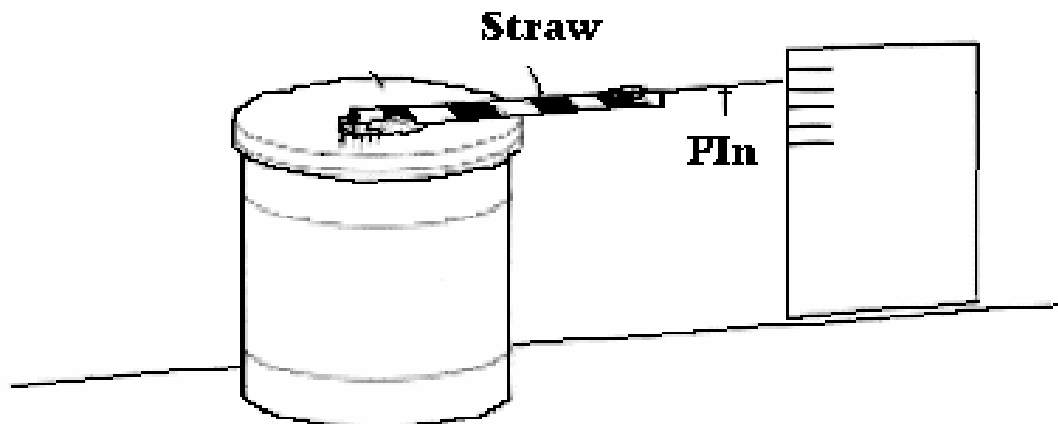
<http://www.metoffice.gov.uk/education/primary/teachers/raingauge.html>

### To make a Barometer:

*Air has weight. It exerts pressure on us and on everything around us. As air pressure rises, it forces the balloon down into the jar, making the end of the straw rise.*

**MATERIALS:** 1. jar 2. large piece of balloon rubber 3. strong rubber band (to fit around the jar) 4. short drinking straw 5. adhesive tape 6. cardboard and paper

**DIRECTIONS:** 1. Stretch the balloon rubber over the jar and secure it with a strong rubber band. 2. Tape the pin to the end of the straw and glue it to the centre of the balloon. 3. Support the cardboard upright and write your scale on the paper. 4. Look at the scale of the barometer the same time each day. Note where the pin is pointing compared to the day before. If the pin is lower on the scale, it means the atmospheric pressure is increasing. If the pin is higher, pressure is decreasing. 5. If the pin is lower on the scale, it means the atmospheric pressure is increasing. If the pin is higher, pressure is decreasing. 6. Record your results daily (whether the air pressure is falling, rising or steady). [http://homepage.mac.com/pattysue/egs/athome\\_archieve/instruments.html](http://homepage.mac.com/pattysue/egs/athome_archieve/instruments.html)



## To Make an Anemometer

### What You Will Need

- Five styrofoam cups –
- Two straight plastic soda straws
- Straight pin
- Paper punch
- Stapler
- Sharp pencil with eraser
- Felt tip marker
- Watch or timer

### How to Do It:

1. Using a paper punch, punch a hole in four cups about 1.5cm below the rim of the cups.
2. Punch four equally spaced holes in a fifth cup about half a centimeter below the rim, and a fifth hole in the center of the bottom of the cup (you will probably need to use the pencil to make the hole in the bottom).
3. Push a soda straw through the hole in one of the first four cups. Flatten the end of the straw and staple it to the side of the cup opposite the hole. Repeat this step with the other straw and another of the first four cups.
4. Slide one of the cup and straw assemblies through two opposite holes in the side of the fifth cup. Push another one-hole cup onto the straw, and turn this cup so that the open ends of the two cups on the straw face in opposite directions. Flatten the end of the straw, and staple it to the side of the second cup. Measure the distance between the centers of the two cups. This is the diameter of your anemometer. Repeat Step 4 with the remaining cup and straw assembly and the remaining one-hole cup. Before stapling the end of the straw to the last cup, turn the cups so that the open end of each cup faces the closed end of the next cup.
6. Adjust the cup and straw assemblies so that they are centered inside the fifth cup. Push the straight pin through the two straws where they intersect.
7. Push the eraser end of the pencil through the hole in the bottom of the fifth cup, and push the straight pin into the eraser as far as it will go. Now your anemometer is ready to use.
8. To use the anemometer, hold the pencil vertically in a wind, and count the number of revolutions per minute (use the felt tip marker to make a mark on one cup so that you can easily see when the cup has travelled through one complete revolution).

<http://celebrating200years.noaa.gov/edufun/book/BuildyourOwnWeatherStation.pdf>

