

Make your own weather station

With your own weather station you can measure the rainfall, wind and temperature.

Why don't you have a go at making a weather station with the help of the instructions below?

Before you start make sure you tell an adult about your project.



Make your own rain gauge

You can find out how much rain falls where you live by making your own rain measure.

What you will need:

- An empty plastic bottle (litre fizzy drink bottle would be ideal)
- Scissors
- Jelly (3 or 4 cubes made up as directed)
- Sticky tape
- Ruler
- Paper
- Pencil

What to do:

1. Cut around the plastic bottle about two thirds of the way up.
2. Your bottle needs a flat bottom to be able to measure the rainfall properly. Pour a few centimetres of jelly into the bottle to create a flat bottom.
3. Turn the top part of the bottle upside down and place it inside the bottom part - fix it in place using the tape.
4. Make a scale in centimetres on a piece of tape, using a ruler, and fix it to the side of your bottle.
5. Find a place outside to put your rain gauge. It must be open and away from trees.
6. Dig a hole and bury your rain gauge so that the top is sticking out of the ground. This will stop the rain gauge from blowing down on windy days.
7. Check the rain gauge every day at the same time, measure the amount of rain collected, and empty the bottle.
8. Don't forget to write down the amount of rain collected in your weather diary.



Make your own wind vane

Measure wind direction by making your very own wind vane.

The instrument used for measuring wind direction is called a wind vane.

What you will need:

- A ruler
- Super glue / normal glue
- A plastic fizzy drink bottle
- Card
- A knitting needle or large straight wooden stick
- Matchsticks or tooth picks
- A cork
- Sand or salt
- Blu-Tack (or similar)



What to do:

1. Draw an arrow 25 cm long on the card and cut it out.
2. Make another arrow by drawing around the first arrow and cutting it out.
3. Place the pen top between the arrows, in the centre facing down, and glue together.
4. Push four matchsticks into the long edge of the cork at right angles to each other.
5. Cut out four small squares of card and label with the four main points of the compass; N, E, S, W. Attach these to the end of each matchstick with Blu-tack.
6. Fill the bottle with sand.
7. Push the knitting needle into the cork and push the cork in the top of the bottle. Now balance the wind vane arrows on top of the needle.
8. Choose an open area, perhaps near your rain gauge, to place your wind vane. Ask an adult or use a compass to point the N label on the bottle towards North.
9. The arrow always shows the direction the wind is blowing from.



Make your own thermometer box



You can make your own special box to house a thermometer.

What you will need:

- A sturdy plastic or wooden box that can stand on its side
- White paint
- A thermometer (buy one as in lockdown cannot get chemicals to make own, mine was from Pound Stretcher).
- Blu-Tack (or similar)

What to do:

1. Paint the outside of your box white and wait until it's dry.
2. Stick the thermometer to the back of the inside of the box using Blu-Tack.
3. Take the box outside and find a safe, shady place to keep it.
4. Stand the box on its side so that the thermometer is upright at the back of the box and protected from direct weather conditions.
5. Now you can take temperature readings at the same time every day.

➤ Did you know?

- To measure the temperature accurately we keep thermometers in Stevenson screens, this is a white box, with slats in it to allow air to flow through the box. Stevenson screens face north, which combined with their colour and slats, give us the best measure of the current temperature, without getting too hot in direct sunlight or being too cool in the shade.



Make your own barometer



You can tell if a day will be clear or stormy.

What you will need:

- One clean 2-litre plastic bottle
- One clear plastic cup
- Marker pen
- Any colour food colouring (I used blue)
- ½ litre of water

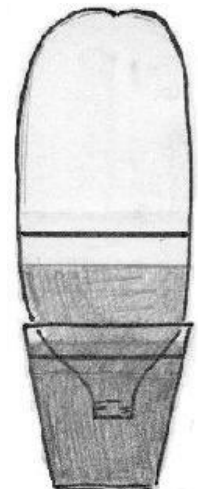
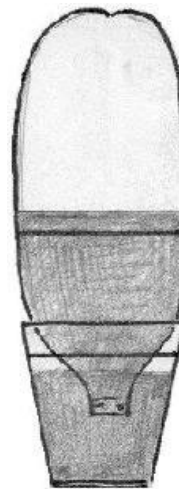
What to do:

- Mark on the side of the bottle measurements from the cap to the bottom of the bottle, every 2cm
- Pour a couple of inches of water into a plastic cup. Add a few drops of food coloring to the water.
- Place the 2-liter bottle upside down inside the cup. Check to make sure it fits snugly but is not airtight (i.e., the mouth of the bottle must be below the waterline but not touching the bottom of the plastic cup).
- Use a marker to note the water level on the side of the plastic cup and the water level on the side of the 2-liter bottle
- In the case of an approaching storm, the air pressure drops, causing the water level in the plastic cup to rise and the water level in the 2-liter bottle to fall (see figure, right).
- Use your barometer to observe changes in air pressure over a period of time.
- Keep track of the water level inside the plastic cup.
- The general rule of thumb is as follows: clear weather results in higher air pressure, which tends to push down the water in the plastic cup, causing the water level to fall in the plastic cup and rise in the 2-liter bottle (see figure, left).



**Clear weather /
high pressure**

**Stormy weather /
low pressure**



Collect your weather results from your homemade weather station, for a week and create your own weather report.



On your report record the following things daily:

1. What is rainfall level?
2. What is the wind direction
3. What is the temperature?
4. What is the air pressure?