

Measuring the Weather

Teacher's Notes

Summary	<p>Looks at the difference between weather and climate.</p> <p>Children take measurements of rainfall, temperature and wind. Atmospheric pressure can also be taken if a barometer is available.</p> <p><i>Links to weather forecast activity</i></p>
Aims	To learn the skills involved in collecting reliable weather data.
Activities	<p>Discuss what is meant by weather and climate (see notes below). Children are to look at measuring local weather.</p> <p>Children take measurements (rainfall, wind speed, temperature and pressure). Discuss the best time to make measurements for consistency and reliability.</p> <p>Present results. E.g. an individual diary of the weather or as a class display. Use a variety of methods from pictures and written descriptions to numbers and graphs.</p> <p>If linked to weather forecasting, the same symbols can be used for recording.</p>
Teacher info	<p>Weather and climate.</p> <p>Broadly speaking, weather is the local and day to day conditions. Climate looks at more regional and long-term patterns.</p> <p>Activity can be extended for as long or short a period of time as required.</p> <p>Measurements of wind and temperature should be taken at the same time each day.</p> <p>Rainfall should be collected over a 24-hour period.</p>
Timing	<p>10 minutes per day for measurements</p> <p>Time for presenting results depends on methods chosen.</p>
Resources	<p>Thermometer</p> <p>Rainfall gauge and measuring cylinder</p> <p>Wind speed meter (anemometer)</p> <p>Barometer if available (atmospheric pressure).</p> <p>Instruments required to take the measurement can be bought from commercial suppliers and found in education catalogues. Suggestions for rainfall gauge and wind speed meter are given in the attached sheets.</p>
Curriculum links	<p>Maths: using measures and reading scales</p> <p>Literacy: composition</p> <p>Art: exploring and developing ideas</p>
Differentiation	A varying degree of complexity can be applied to how children represent their results, from simple drawings to numerical measurements and graphical representations to show trends.

Making a rainfall gauge

This gauge allows rain to be collected and measured. It will not be the 'standard' as used by the meteorological office but will allow a comparison over time.

Note: an adult should prepare this before the lesson.

1. Take a 2-litre plastic drinks bottle and cut around the bottle to remove the tapering shoulders and neck. When choosing the collecting vessel better success will be achieved the greater the area of the opening.
2. Cover the sharp edge with sticky tape to prevent cuts.
3. Weight the base with a large piece of plasticine pushed well into place. It should fill and cover the 'dimples' at the base of many bottles.

To collect the rain, place the gauge on an outside surface where it will be exposed to rain and not fall over.

Use a measuring cylinder to measure the volume of rain collected over a 24 hour period. If a measuring cylinder is not available, draw a scale up the side of the plastic bottle (in permanent felt-tip pen) and take readings each day from this scale.

Making a wind-speed gauge

Overleaf is a template that can be used to make an improvised wind speed gauge. It should be made out of card or laminated as it needs to be reasonably rigid.

If available, a light weight such as a ping-pong ball can be attached to the end of the string.

Before using the gauge, discuss how to mark the scale to gauge the wind. Also how to take reliable readings as the wind will generally fluctuate. E.g. point directly into the wind. How can an average be obtained?

Wind speed gauge

1. Cut a hole in the card and thread a piece of string through it.
Make sure the string is long enough to go past the scale.
2. Tie a small knot to stop the string falling out.
3. Hold the gauge so that the line under the string points straight up.
4. Let the string get blown by the wind.
5. Measure the wind speed using the scale.

You will need to think about how you can use the scale to make your measurements reliable.

