



Measuring the weather teacher notes

Key Stage 2

Science:

- Obtaining and presenting evidence
- Considering evidence

Key Stage 2

Mathematics:

- Represent data using graphs and diagrams

Overview

These activities look at how the weather can be observed and measured:

1. Using words to describe the weather
2. Measuring the weather

NOTE: a suitable risk assessment must be performed before carrying out any practical activity.



Activity 1: Using words to describe the weather

This activity encourages children to observe and describe the weather using their own words. In this way, it is possible to see that different people have different points of view. Subjective or personal descriptions could lead to misunderstandings.

Preparation

- Weather description prompt cards

Activity Notes

Have children go outside and observe the weather. At this stage don't give them any clues on what to look for.

Return to the classroom and have the children work in small groups. Each group discusses the weather and how they would describe it using the prompt cards.

When completed, have groups talk to each other and compare how they have described the weather. Are they all the same? How could the descriptions mean different things to different people?

Conclude by seeing if the children can think of ways to make the description of the weather more reliable. i.e. by taking measurements that can be repeated and are reliable.

Have children think about and discuss what the terms 'reliable' and 'accurate' mean in the context of describing the weather. What things could they readily measure to describe the weather? For example:

- air temperature (taken in the shade, out of direct sunlight)
- wind speed
- wind direction
- rainfall over a 24-hour period
- light intensity / hours of sunshine

Extension

Have children draw symbols to represent the weather. Each symbol should have an associated description. Each day, children can update a display that describes the weather.



Freezing cold	Very cold	Cold
Warm	Hot	Very hot
Very rainy	Hard rain	Rainy
Drizzle	Dry	Very dry
Windy	Very windy	Still
Calm	No wind	Little wind
Very cloudy	Cloudy sky	Light clouds
Dark clouds	Fluffy clouds	Clear sky
Foggy	Misty	Clear
Snowy	Icy	Slushy



Activity 2: Measuring the weather

In this activity, children use simple methods to gather data on the weather. These can be used to update a classroom or 'information for pilots' display on the daily weather.

This type of activity is excellent for incorporating the use of ICT in the form of dataloggers. Measurements of temperature and light intensity can be gathered over an extended period of time and viewed graphically.

The measurement of weather data can be taken to quite sophisticated levels with commercially available instruments. Complete weather stations are available that deliver data electronically for use with associated software.

Preparation

The degree of preparation will depend on the activities that are undertaken (see the notes below). To take weather observations, children will typically need some of the items below:

- Thermometer (alcohol)
- Wind speed measuring device.
Children make one using activity sheet below, copied onto thin card. Or purchase a commercial anemometer.
- Wind sock (see activity sheet) for indication of speed and direction.
- Light meter
- Compass (North, South, East, West) to measure the wind direction
- Rain gauge (see instructions below)

Activity notes

What type of weather is good for flying?

Link to activity 1 by having children re-cap on weather factors that could be measured to give pilots an indication of the weather. This could include things such as:

- Air temperature (taken in the shade, out of direct sunlight)
- Wind speed and direction (especially for take-off and landing)
- Visibility
- Cloud cover
- Ground ('runway') conditions such as snow, ice, wet or dry.

Have children use the instruments to take measurements of the weather. This gives an opportunity to discuss the reliability and consistency of measurements as well as the need for standardised methods.

TAKE FLIGHT

Exploring our aviation heritage

Using their observations, children work in groups to write and present a weather report for local TV or a radio bulletin for pilots using a local airfield. Alternatively they make a presentation to the class, an audio recording or video clip.

This activity offers a wide range of possibilities to use ICT in gathering data and presenting the information. Links with mathematics include the presentation of data using graphical methods.

Extension

Have children watch a local weather forecast on TV and make a note of the prediction for the following day. Compare this prediction with the actual weather they observe the next day. How accurate was the weather forecast? How could children judge and report the accuracy of the forecasts over a period of time?

Making a rainfall gauge

This should be prepared by an adult before the session.

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.

1. Take a 2-litre plastic drinks bottle.
2. Use a plastic funnel, with a large diameter, and secure it into the bottle.
3. Place the bottle and funnel outside where it is exposed to any rainfall. Secure the rain gauge so that it does not fall over, e.g. to a tent peg in ground.
4. Collect rainfall over a 24-hour period.
5. Measure the volume of water using a measuring cylinder.
If a measuring cylinder is not available, draw a centimetre scale up the side of the plastic bottle (in permanent felt-tip pen).
6. Measure rainfall over several days and plot results using a bar chart.

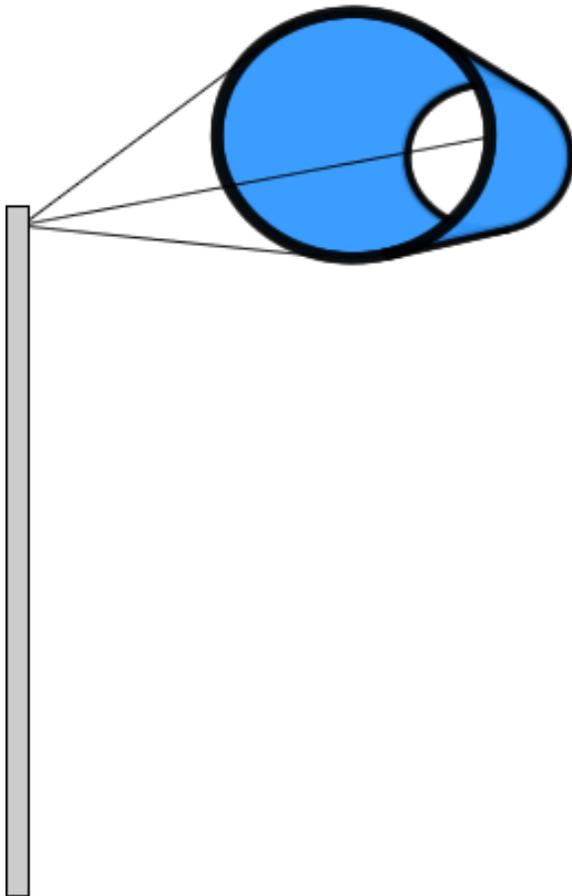
TAKE FLIGHT

Exploring our aviation heritage



Wind sock

Airfields have a wind sock.
It shows the direction and speed of the wind.



Make your own wind sock

1. Roll a sheet of paper into a tube.
2. Stick it together using some sticky tape.
3. Attach three pieces of string to the tube, like in the picture.
4. Attach the other ends of the string to a metre stick.
5. Hold your wind sock into the air to find out how windy it is.

TAKE FLIGHT

Exploring our aviation heritage

Wind speed gauge

1. Use sticky tape to attach the top of a piece of string to the spot shown on the gauge.
2. Make sure the string is long enough to go past the scale.
3. Hold the gauge so that the line next to the string is horizontal (flat).
4. Let the string get blown by the wind.
5. Observe the wind speed using the scale.



What is the wind speed?

How can you improve your scale to allow reliable comparisons?

