

WHATEVER THE WEATHER

To use an appropriate database within which data may be stored for comparison.

†† Pairs (collecting data) and small groups (analysing results).

⌚ 5 minutes data entry into the computer per day; 15 minutes for daily data collection over about two months.

Previous skills/knowledge needed

The children will need a basic familiarity with databases. They will also find it helpful to have some experience of taking weather measurements.

Key background information

Serious weather forecasting relies on the accurate collection of data on which to base predictions. The activity below involves the children in collecting weather data on a daily basis. To gather a meaningful amount of data they should be collecting observations over at least two months. The activity will illustrate the importance of making accurate measurements and show the children how IT can be used to identify patterns within the data collected.

As the weather data is collected, the children can eventually compare one month with another and investigate the trends. Totals and averages across months may be compared by using the graph plotting facilities within the database software. If you are using a spreadsheet database, the children will find it easier to read the weather data and to make comparisons of data from month to month or week to week as much of the data can be seen on the screen at one time.

Preparation

A simple card index type of database will suffice for this activity. Set this up with one card per day containing fields for the weather data to be recorded. Typically, these may include maximum/minimum temperatures, temperature at a fixed time each day (such as noon), wind speed and direction, cloud cover, visibility and, possibly, humidity and air pressure. (If possible, discuss different fields/headings with the children to decide on the most suitable ones.) Make one copy of photocopiable page 142 for each child.

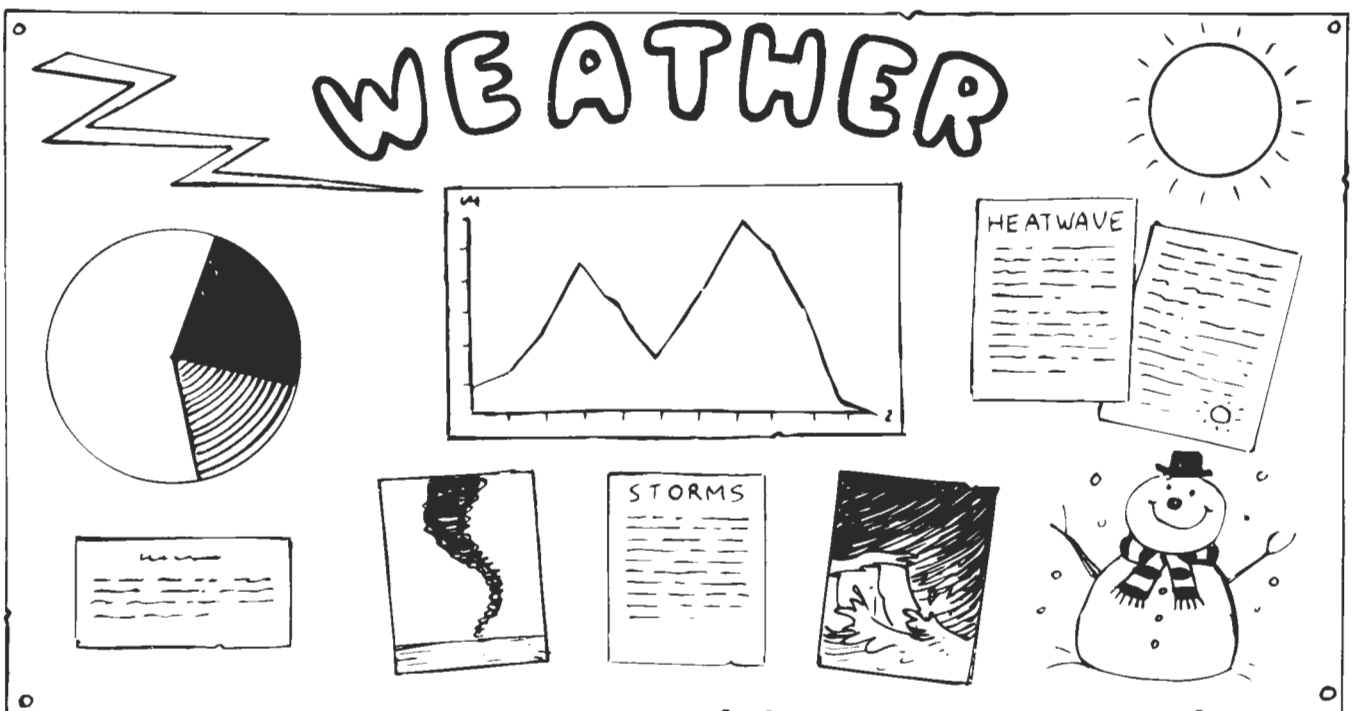
Resources needed

A computer, database software such as a card index type database (examples include *Junior Database* (Archimedes) and *Information Workshop* (PC), or spreadsheet software such as *Sheetwise* (Archimedes and PC), a printer (preferably colour), equipment to collect weather data, photocopiable page 142.

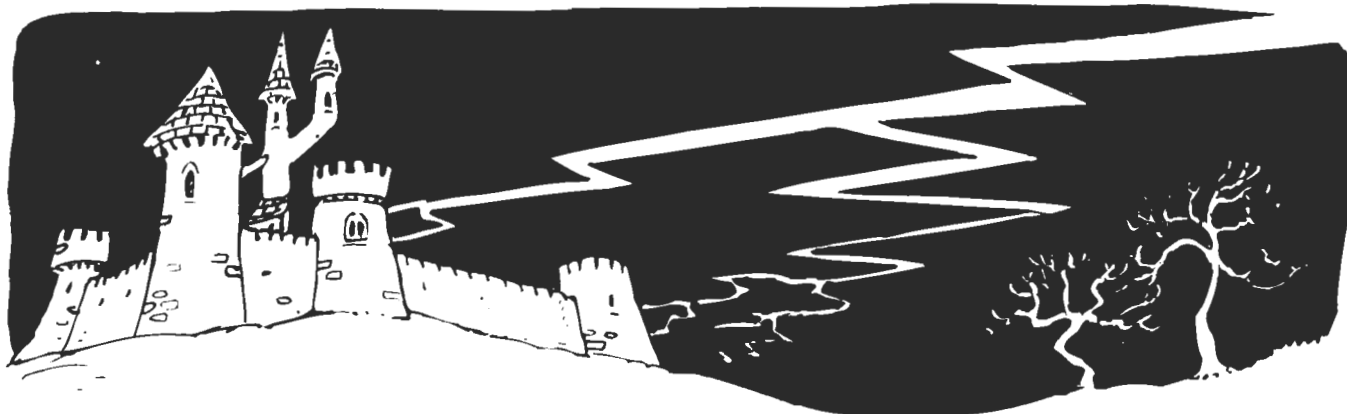
What to do

Give each child a copy of photocopiable page 142. Ask them to look carefully at the data to explain what the weather is doing on each particular day. Use the photocopiable sheet to help familiarise the children with the different weather variables such as rain, temperature, cloud cover and so on. Can they find links between any of the variables on the photocopiable page? For example, does it mean rain is more likely if the wind is in a particular direction? Or what is the connection between cloud cover and rainfall?

Explain to the children that they are going to gather their own weather data over the next two months or so. Provide a whole class introduction to the organisation for this, discussing what is to be collected, at what time of day and



Handling information



who is to carry it out. Make the weather data collectors responsible for entering their readings into the database. Once the children start collecting the data, it can be difficult to sustain their interest over such a long period. You can keep their motivation up by discussing the findings in a superficial way as time goes on. For example, perhaps there is a trend in the daily noon temperature as winter approaches, or the pattern of clear night skies leading to cold and frosty nights.

Once all the data is collected and fed into the computer, the children can begin their analysis in earnest. Guide them through this process or allow them to investigate the results themselves, depending on their age and ability. Ask them to seek out the possible patterns in temperature and cloud cover, air pressure and cloud cover, a trend in the maximum temperature (depending on the time of year), rainfall and wind direction, rainfall and air pressure, cloud and rainfall, wind direction and maximum temperature and so on. Can they discover any other connections or trends? As far as possible, they should produce graphs to illustrate their findings.

Suggestion(s) for extension

Confident children may like to include some more unusual recordings such as the temperature 10cm below the ground surface (using a half-buried thermometer or digital thermometer probe) or pond water temperature. They could use their database to find out how such additional data relates to other more conventional weather readings.

Suggestion(s) for support

For less confident children provide some initial help with their measuring and recording. Pair them up with a more able child and check their results for accuracy (although

mistakes can lead to some important discussions, bringing children's attention to the fact that computers are still more limited in many ways than the human mind and will not warn you of careless mistakes!).

Assessment opportunities

This activity will enable you to assess how well the children use IT to analyse information, check its accuracy and interpret it, choosing elements required for specific purposes such as finding connections and relationships

within the data and considering the consequences of mistakes caused by entering erroneous data. Look to see how confidently the children enter the data and begin to make comparisons of the various findings. Real connections between weather data cannot be made until they have collected information over at least two months; it should then allow them to draw conclusions from their graphs – how accurate are they in their graphical interpretations?

Display ideas

Display the children's results in graph form together with some colourful artwork and word processed descriptions of various weather types. You can also add

in some photographs or posters of different weather conditions.

Reference to photocopiable sheet

Photocopiable page 142 provides six different sets of weather data measured at different times of the year. The children are asked to look at each set of data and describe what the weather conditions are like. They can then try to spot any patterns in the different weather variables.

What kind of weather?

Name _____ Date _____

▲ Describe what the weather is doing from these weather readings
Cloud cover is measured in octas (eighths of sky covered)

October 23rd	July 3rd	June 4th
Wind speed on Beaufort scale: 5	Wind speed on Beaufort scale: 1	Wind speed on Beaufort scale: 6
Wind direction: SW	Wind direction: S	Wind direction: W
Cloud cover: 7/8	Cloud cover: 0/8	Cloud cover: 8/8
Minimum temp: 4°C	Minimum temp: 12°C	Minimum temp: 10°C
Maximum temp: 10°C	Maximum temp: 25°C	Maximum temp: 14°C
Noon temp: 8°C	Noon temp: 23°C	Noon temp: 12°C
Rainfall: 1mm	Rainfall: 0mm	Rainfall: 12mm

January 3rd	April 15th	March 24th
Wind speed on Beaufort scale: 0	Wind speed on Beaufort scale: 3	Wind speed on Beaufort scale: 5
Wind direction: 0	Wind direction: W	Wind direction: SE
Cloud cover: 0/8	Cloud cover: 4/8	Cloud cover: 6/8
Minimum temp: -5°C	Minimum temp: 7°C	Minimum temp: 7°C
Maximum temp: 8°C	Maximum temp: 10°C	Maximum temp: 13°C
Noon temp: 8°C	Noon temp: 8°C	Noon temp: 12°C
Rainfall: 4mm	Rainfall: 14mm	Rainfall: 0mm

What kind of weather?

Name _____

Date _____

▲ Describe what the weather is doing from these weather readings.
Cloud cover is measured in octas (eighths of sky covered).

○	
October 23rd	
Wind speed on Beaufort scale	5
Wind direction	SW
Cloud cover	7/8
Minimum temp	4°C
Maximum temp	10°C
Noon temp	8°C
Rainfall	1mm

○	
July 3rd	
Wind speed on Beaufort scale	1
Wind direction	S
Cloud cover	0/8
Minimum temp	12°C
Maximum temp	25°C
Noon temp	23°C
Rainfall	0mm

○	
June 4th	
Wind speed on Beaufort scale	6
Wind direction	W
Cloud cover	8/8
Minimum temp	10°C
Maximum temp	14°C
Noon temp	12°C
Rainfall	12mm

○	
January 3rd	
Wind speed on Beaufort scale	0
Wind direction	
Cloud cover	0/8
Minimum temp	-5°C
Maximum temp	0°C
Noon temp	0°C
Rainfall	0mm

○	
April 15th	
Wind speed on Beaufort scale	3
Wind direction	W
Cloud cover	4/8
Minimum temp	7°C
Maximum temp	10°C
Noon temp	8°C
Rainfall	14mm

○	
March 24th	
Wind speed on Beaufort scale	6
Wind direction	SE
Cloud cover	6/8
Minimum temp	7°C
Maximum temp	13°C
Noon temp	12°C
Rainfall	0mm

