

Name:

Date:

Sheet 13 - Wind Measurements

Wind speed is measured by an anemometer on the top of a wind turbine's nacelle. It is usually measured in metres per second (m/s) or sometimes in miles per hour or Kilometres per hour.









Hand held anemometers can be used to measure wind speed in the school grounds, but they can be expensive. Instead we can use a wind sock or windicator. Make your own version using Sheet 16.

These can measure wind speed using the Beaufort scale, which was created by a British Naval commander, Sir Francis Beaufort around 1806.

- Take a windicator or wind sock and a weather vane into the school grounds
- Look carefully at the way the wind sock or windicator is moving in the wind and compare to the diagrams and descriptions in the table on sheet 14.
- Check other signs around you - how are the trees moving?
- Record the Beaufort number in the table below.
- Use the wind vane to find out the direction the wind is coming from and add to the table. Remember if it points North, then it is a North wind and the wind is coming from the North.
- See how it changes from day to day - record for 5 days below:

	Day 1	Day 2	Day 3	Day 4	Day 5
Wind speed (Beaufort number)					
Wind direction					

Sheet 14: The Beaufort Scale

Windicator	Strength	Land conditions	Beaufort No	Km/hour	m/sec
	Calm	Calm	0	0 - 1	0 - 0.3
	Light air	Wind motion visible in smoke	1	1 - 5	0.3 - 1.5
	Light breeze	Leaves rustle	2	6 - 11	1.5 - 3
	Gentle breeze	Smaller twigs in constant motion (Wind farms start generating)	3	12 - 19	3 - 5
	Moderate breeze	Small branches begin to move	4	20 - 29	5 - 8
	Fresh breeze	Smaller trees sway	5	30 - 39	8 - 11
	Strong breeze	Large branches in motion (Wind farms at maximum power)	6	40 - 50	11 - 14
	Near gale	Whole trees in motion	7	51 - 61	14 - 17

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Sheet 15 - Recording the Weather (7 days)

Use weather measuring equipment to record the weather for seven days - they don't have to be in the same week.

Wind Speed

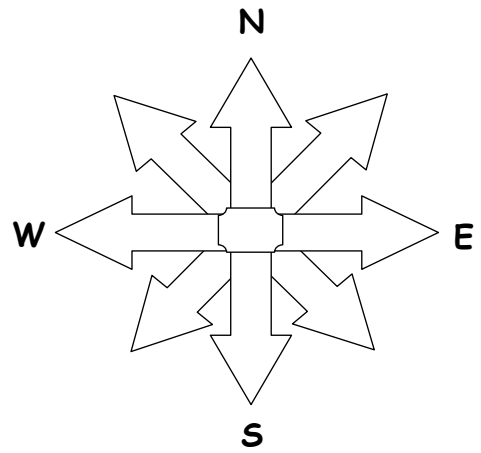
(Beaufort Scale)

7							
6							
5							
4							
3							
2							
1							
	1	2	3	4	5	6	7 (Day)

Wind direction

Measure the wind speed and put a coloured dot on the right arrow each day:

Day 1 - red Day 2 - blue Day 3 - yellow Day 4 - green
Day 5 - orange Day 6 - purple Day 7 - pink



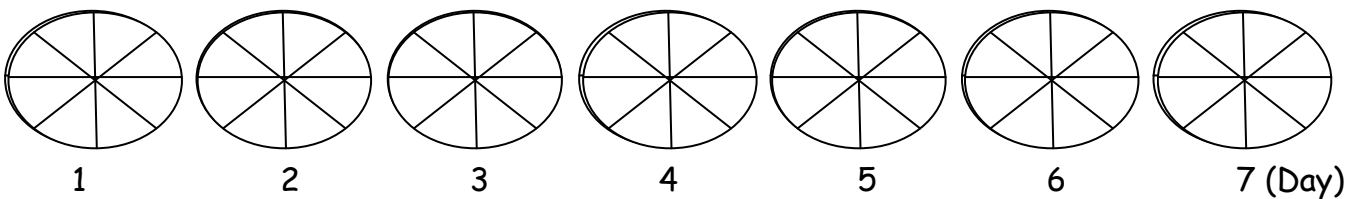
Cloud type and cover

Colour in the octas

Red = cumulus cloud

Blue = stratus cloud

Green = cirrus cloud



Temperature (°C)

30							
25							
20							
15							
10							
5							
0							
	1	2	3	4	5	6	7

Rainfall

(mm)

12							
10							
8							
6							
4							
2							
	1	2	3	4	5	6	7 (Day)

Sheet 16 - Make your own weather kit

Windicator

You will need:

- 1 cm diameter dowelling or a stick about 30 cm long
- 3 ribbons (1cm wide and about 25 cm long)
- Tape - masking or electrical tape



1. Take the three ribbons and put them on top of each other.
2. Tie them together at one end.
3. Tape the ribbons to one end of the stick so that the knot is above the tape. The ribbons will then be flat against the stick.
4. Go outside, hold up the stick and see how the wind moves the ribbons.
5. Can you measure the wind speed using the Beaufort scale?

Wind sock

You will need:

- 1 sheet of printer paper
- 1.2 m of very thick strong thread
- 1 piece of tissue paper or piece of plastic bag (28 cm x 28 cm)
- Glue, sticky tape, scissors and a ruler
- Paper punch and a paper clip

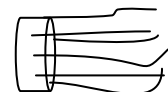
1. Roll the A4 sheet of printer paper width ways into a tube and put tape around both ends.

2. Lay the tissue paper or plastic flat on the table and draw a line 3 cm from one edge.

3. Make 2 cm wide cuts from the side furthest away from the line to the line to make strips - don't cut them off! There should be about 14 strips.

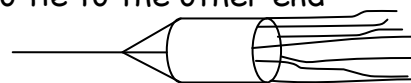


4. Make the tissue paper/plastic into a cylinder to just fit over the end of the paper cylinder with a 2 cm overlap and secure with tape.



5. Punch 3 holes evenly round the paper cylinder at the opposite end to the tissue paper/plastic.

6. Knot 3 threads (25 cm long) through the holes, tie the loose ends together to the paper clip. Use the rest of the thread to tie to the other end of the paper clip.



7. Take outside and tie the long thread to a pole or fence post.

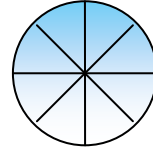
8. Use a compass to check where the wind is coming from (wind direction) or use the Beaufort scale to measure wind speed.

Sheet 17 - Make your own weather kit 2

Octameter

The amount of cloud cover is measured in octas. The sky is viewed through a tube which gives a circular view cut into eighths - known as octas. The number of octas of cloud cover is simply the number of the octas which have clouds in them. For example, the view here shows 4 octas with clouds in them.

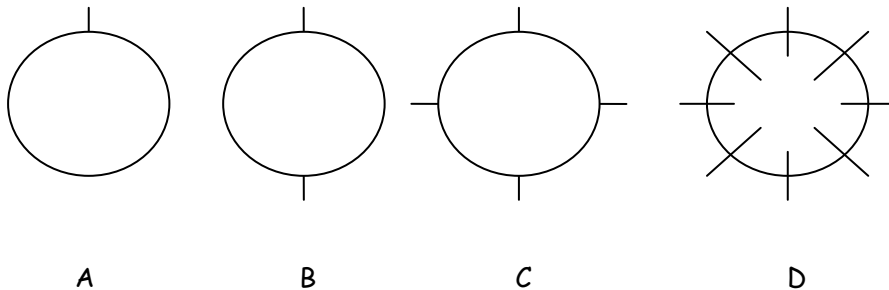
Make your own octameter:



You will need:

- A cardboard tube open at both ends
- String, sellotape and scissors

1. Cut a 1cm slot at one end of the tube (see A).
2. Cut another 1cm slot at the opposite side of the circle (B)
3. Cut two 1 cm slots each side of the circle half way between the first two slots (C)
4. Cut four 1cm slots, each one half way between two of the slots (diagram D)



5. Cut 4 pieces of string or wool 4 cm longer than the diameter of the circle.

6. Thread one piece of string through one slot and the opposite slot so that there is an overhang each side

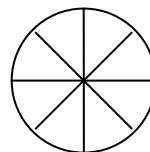
7. Tape the overhanging thread to the side of the tube.

• Repeat for the other three pieces of string so that all the slots have been used.

• The octameter should look like this:

• Go outside and test

• REMEMBER never look directly at the sun!



Name:

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Sheet 18 - Weather Symbols

- Name the symbols below and then design your own for the missing ones.
- Can you use them to tell the weather forecast to the rest of the class?

