Rampion Weather Watch - Wind speed and direction

Rampion
Offshore Wind

Wind

There are two properties of wind that we measure in terms of weather observation: direction and speed.

Wind direction can be measured in many different ways, using a weather vane or simply holding up a light object such as a flag or ribbon. When we talk about wind direction, we talk about where the wind has come from (according to the compass), not where it is going. For example, a westerly wind is blowing **from** the west towards the east.

In general, the weather is strongly influenced by the wind direction, so information about the wind provides an indication of the type of weather likely to be experienced, for example, when the wind is coming from the north, it is usually going to be a colder day, when it is coming from the south it is likely to be a warmer day.

To measure **wind speed,** we use an anemometer – an instrument that spins when there is wind, how fast it spins tells you how fast the wind is; we can also determine the wind speed in terms of the Beaufort Scale.

The Beaufort scale was created by Sir Francis Beaufort in the early 19th century. The scale describes various conditions associated with different wind strengths. These descriptions help us to imagine how windy it is at a particular time.

The Beaufort scale measures wind speed on a scale between Force 0 (no wind) and Force 12 (hurricane).

Instructions for Wind Weather Watch

Speed – use the attached Beaufort scale; depending on where you are, refer to the 'Land conditions' or 'Sea conditions' to determine the wind speed.

Direction – build and use a wind vane or a wind streamer.

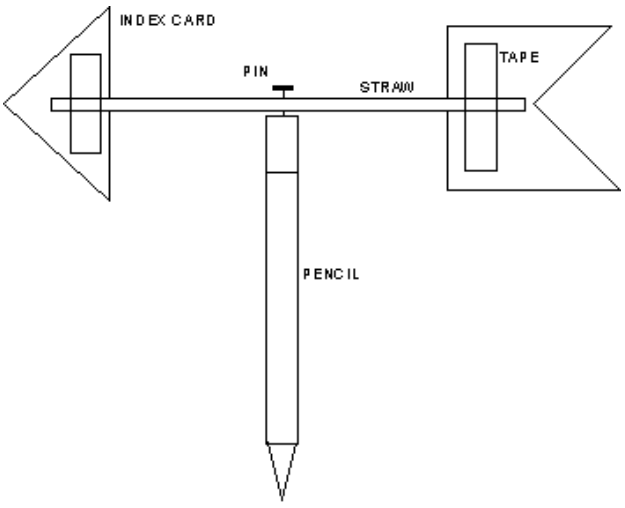
Record your results each day on your Weather Watch Chart.

Wind vane instructions

To determine wind direction, a wind vane spins and points in the direction from which the wind is coming and generally has two parts, or ends: one end that is usually shaped like an arrow and turns into the wind and one end that is wider so that it catches the breeze. The arrow will point to the direction the wind is blowing **from** so if it is pointing to the east, it means the wind is coming from the east. To use a wind vane, you must know where north, south, east, and west are so use a compass to find out which direction the wind is blowing from.

You will need:

- 1 straw
- 1 pin
- a piece of card (e.g. this could be recycled from an old cereal box)
- pencil with eraser
- tape



Method:

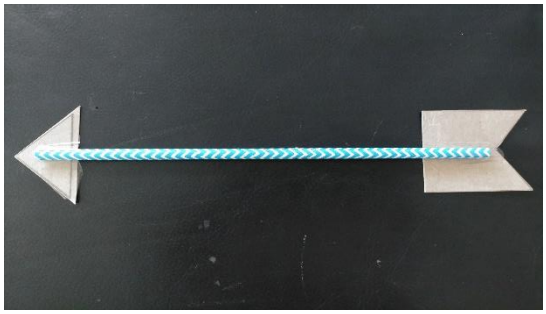
1. Cut the point and tail of an arrow out of the card.

2. Tape them onto the ends of the straw.

3. Push the pin through the middle of the straw.

4. Stick the pin into the eraser of the pencil. Make sure the straw can turn freely (a longer pin works better here).

5. Find a suitable place outside (free from obstructions) and stick the wind vane into the ground.



Recycled wind streamers

Wind direction can also be determined by using a wind streamer and a compass. You can find full instructions on the Rampion website, under the Visitor Centre tab in the 'Resources' section:

https://www.rampionoffshore.com/visitor-centre/resources/

Beaufort Wind Force Scale

Number	Wind speed		Description	Wave height		Sea Conditions	Land Conditions
	mph	kts		m	ft		
0	<1	<1	Calm	0	0	Flat	Calm. Smoke rises vertically.
1	1-3	1-2	Light air	0.1	0.33	Ripples without crests.	Wind motion visible in smoke.
2	3-7	3-6	Light breeze	0.2	0.66	Small wavelets. Crests of glassy appearance, not breaking	Wind felt on exposed skin. Leaves rustle.
3	8-12	7-10	Gentle breeze	0.6	2	Large wavelets. Crests begin to break; scattered white caps	Leaves and smaller twigs in constant motion.
4	13-17	11-15	Moderate breeze	1	3.3	Small waves.	Dust and loose paper raised. Small branches begin to move.
5	18-24	16-20	Fresh breeze	2	6.6	Moderate (1.2 m) longer waves. Some foam and spray.	Branches of a moderate size move. Small trees begin to sway.
6	25-30	21-26	Strong breeze	3	9.9	Large waves with foam crests and some spray.	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. Empty plastic garbage cans tip over.
7	31-38	27-33	High wind, moderate gale, near gale	4	13.1	Sea heaps up and foam begins to be blown in streaks in wind direction.	Whole trees in motion. Effort needed to walk against the wind. Swaying of skyscrapers may be felt, especially by people on upper floors.
8	39-46	34-40	Fresh gale	5.5	18	Moderately high waves with breaking crests forming spindrift. Streaks of foam.	Twigs broken from trees. Cars veer on road.
9	47-54	41-47	Strong gale	7	23	High waves (6-7 m) with dense foam. Wave crests start to roll over. Considerable spray.	Larger branches break off trees, and some small trees blow over. Construction/temporary signs and barricades blow over. Damage to circus tents and canopies.
10	55-63	48-55	Whole gale, storm	9	29.5	Very high waves. Large patches of foam from wave crests give the sea a white appearance. Considerable tumbling of waves with heavy impact. Large amounts of airborne spray reduce visibility.	Trees are broken off or uprooted, saplings bent and deformed, poorly attached asphalt shingles and shingles in poor condition peel off roofs.
11	64-72	56-63	Violent storm	11.5	37.7	Exceptionally high waves. Very large patches of foam, driven before the wind, cover much of the sea surface. Very large amounts of airborne spray severely reduce visibility.	Widespread vegetation damage. More damage to most roofing surfaces, asphalt tiles that have curled up and/or fractured due to age may break away completely.
12	≥73	≥64	Hurricane force	≥14	≥46	Huge waves. Sea is completely white with foam and spray. Air is filled with driving spray, greatly reducing visibility.	Considerable and widespread damage to vegetation, a few windows broken, structural damage to mobile homes and poorly constructed sheds and barns. Debris may be hurled about.