



how to measure wind speed using a cup anemometer

Remove the clear plastic lid from the cup anemometer and decide which of the four scales of measurement you will use:

- ◆ meters per second (m/s),
- ◆ knots (kts),
- ◆ the Beaufort scale, or
- ◆ kilometres per hour (km/h).

Hold the instrument up, at arm's length (picture below) – like the Statue of Liberty – while the cups rotate in the wind.

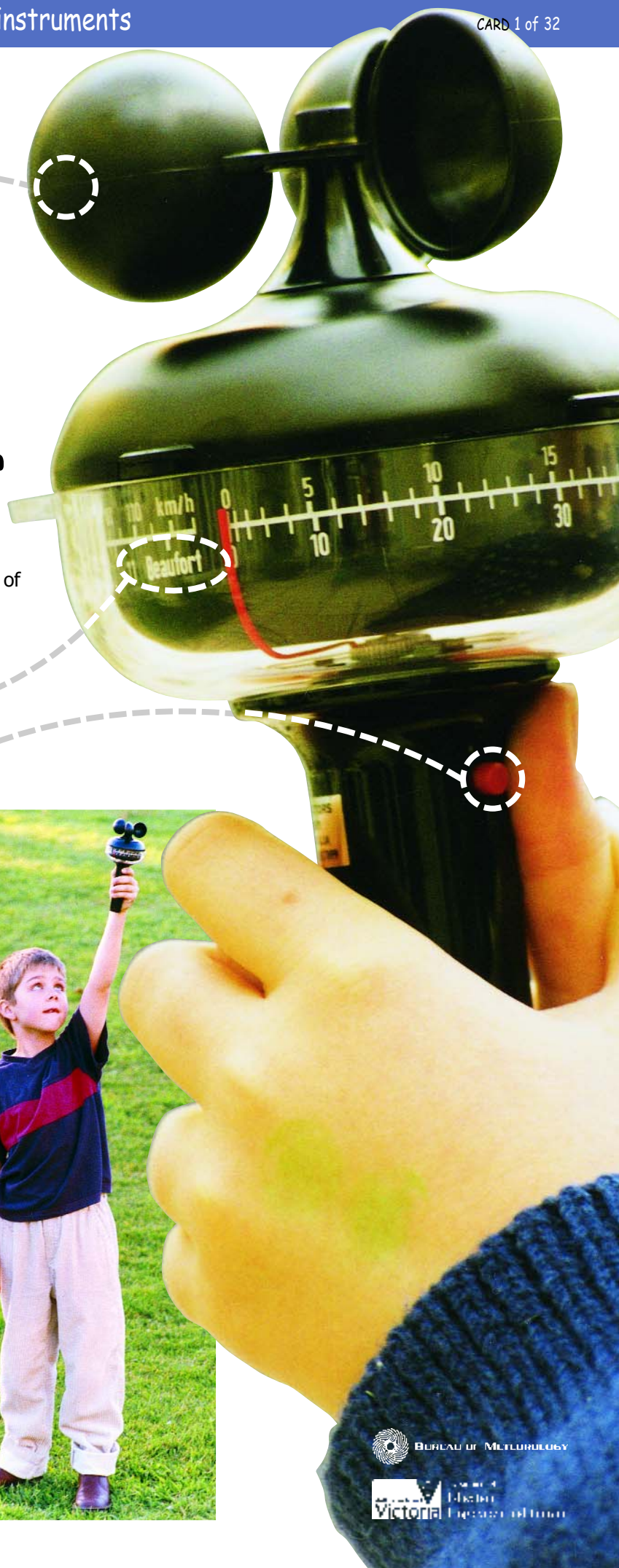
Press and hold the red button to lock the red indicator line in place. Lower the instrument and take the reading. Now release the red button.

do's and don'ts

- ✓ Hold the anemometer up high so your body does not act as a wind-break, giving inaccurate readings.
- ✗ Do not spin the cups with your fingers because you may break the instrument.
- ✓ Replace the protective lid when the anemometer is not being used.

how it works

The most common types of cup anemometer have three or four cups. The wind pushes the cups, which turn the shaft they are connected to. The spin of the shaft is translated into wind speed readings by a system of gears.





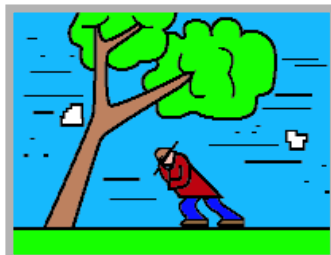
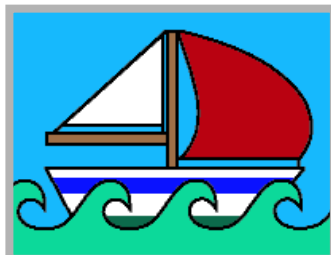
wind

We cannot see the wind, but we quite often see what it is doing or what it has done.

Wind in tropical cyclones and tornadoes can cause enormous damage, but most of the time the wind is gentle rather than destructive.

Knowing about the wind is important for many reasons:

- ◆ for the safety of passengers in aircraft, of building workers in high places, of fishermen at sea, and of residents in cyclone-prone areas.
- ◆ it helps to fly kites, fills the sails of yachts, and influences sports events.
- ◆ for forecasting the weather – to predict when a sea breeze will provide relief on a hot day, or how quickly pollution will be carried away from cities.



Beaufort wind scale

On the Beaufort scale, wind speeds are divided into 12 categories, each of which describes the physical effect of the wind.

0: calm ($< 1 \text{ km/h}$, $< 1 \text{ knot}$)

Smoke rises vertically.

1: light air ($1\text{-}5 \text{ km/h}$, $1\text{-}3 \text{ knots}$)

Wind direction shown by smoke-drift, but not by wind vanes.

2: light breeze ($6\text{-}11 \text{ km/h}$, $4\text{-}6 \text{ knots}$)

Wind felt on face; leaves rustle; ordinary vanes moved by wind.

3: gentle breeze ($12\text{-}19 \text{ km/h}$, $7\text{-}10 \text{ knots}$)

Leaves, twigs in constant motion; wind extends light flag.

4: moderate breeze ($20\text{-}28 \text{ km/h}$, $11\text{-}16 \text{ knots}$)

Raises dust and loose paper; small branches are moved.

5: fresh breeze ($29\text{-}38 \text{ km/h}$, $17\text{-}21 \text{ knots}$)

Small trees in leaf begin to sway; crested wavelets form on inland waters.

6: strong breeze ($39\text{-}49 \text{ km/h}$, $22\text{-}27 \text{ knots}$)

Large branches in motion; whistling heard in telephone wires; umbrellas hard to use.

7: near gale ($50\text{-}61 \text{ km/h}$, $28\text{-}33 \text{ knots}$)

Whole trees in motion; inconvenience felt when walking against the wind.

8: gale ($62\text{-}74 \text{ km/h}$, $34\text{-}40 \text{ knots}$)

Breaks twigs off trees; generally impedes progress.

9: strong gale ($75\text{-}88 \text{ km/h}$, $41\text{-}47 \text{ knots}$)

Slight structural damage occurs (chimney pots and roof tiles removed).

10: storm ($89\text{-}102 \text{ km/h}$, $48\text{-}55 \text{ knots}$)

Seldom experienced inland; trees uprooted; considerable structural damage occurs.

11: violent storm ($103\text{-}117 \text{ km/h}$, $56\text{-}63 \text{ knots}$)

Very rarely experienced on land; accompanied by widespread damage.

12: cyclone/hurricane (118+km/h , 64+knots)