How do you measure wind?

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What causes wind?

- Differences in air pressure cause **wind** or moving air.
- Air moves from an area of high pressure to an area of low pressure.
- The greater the difference in air pressure, the harder or faster the wind blows.

- Wind speed readings are very important to people who work on the water.
- Wind speed and direction can play an important role in water levels.
  - It can cause waters to create big waves; these create large swells, making it very dangerous for fishermen or anyone else out on the waters.

How is wind measured?

- Francis Beaufort developed a system that allowed sailors to estimate wind speeds in 1805.
- The system that he created is called the **Beaufort wind scale**.
- Originally the Beaufort wind scale only measured wind on the sea; now it has been modified to measure on land as well.

Beaufort Wind Scale

- The Beaufort wind scale is an estimate of wind speed, based on the motion of the sea and the motion of objects on a ship or on land.

- Refer to page 524 of textbook.

- Meteorologists need a very accurate reading of wind speed in order to predict weather.
- Therefore they use an instrument called a **anemometer** to measure wind speed.
- They also use **wind vanes** to measure wind direction.

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- Wind vanes and anemometers are often combined to one device.
- Anemometers measure wind speed by calculating the rotation rate of the cups or propellers.
- The tail of the wind vane points in the direction from which the wind is coming.

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- In order to collect accurate data, an anemometer should be placed at a height about 10m.
- It requires an open space so that no buildings or trees will alter the wind direction or speed.
- Meteorologists usually report wind speed in knots, which is short for “nautical miles per hour”.
- One knot equals 1.85 km/hr