



The Mercurial Barometer: Measuring Pressure

Based on a principle developed by Evangelista Torricelli in 1643, the [Mercurial Barometer](#) is an instrument used for measuring the change in atmospheric pressure. It uses a long glass tube, open at one end and closed at the other. Air pressure is measured by observing the height of the column of mercury in the tube. At sea level, air pressure will push on the mercury at the open end and support a column of mercury about 30 inches high. If you used [water](#) instead of mercury, you would need a glass tube over 30 feet in length.

As atmospheric pressure increases, the mercury is forced from the reservoir by the increasing air pressure and the column of mercury rises; when the atmospheric pressure decreases, the mercury flows back into the reservoir and the column of mercury is lowered.

Control the Weather

To see how weather and pressure are linked, move your mouse over the scale lines on the barometer to the left and observe what happens to the picture above. (*JavaScript Required.*)

Make Your Own Barometer

Materials Needed:

- Drinking straw (clear plastic).
- Narrow-neck glass bottle.
- A rubber or cork stopper which fits in the neck of the bottle

Instructions

1. Insert a drinking straw into the bottle.
2. Fill the bottle about half-way full of water.
3. Seal the neck of the bottle around the straw either with the rubber stopper or a cork.
4. Make sure the end of the straw is immersed in the water and that the water level in the straw is above the top of the bottle.

As the air pressure outside the bottle decreases, the trapped air inside the bottle will push the water up the straw. As the air pressure outside the bottle increases, it will push the water farther down the straw. See [Figure 1](#).

Please Note: You'll need to keep your barometer's temperature constant, since temperature will also affect the water level.

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This is a picture of the *Admiral Fitzroy Barometer* first introduced in 1860. The actual length of the barometer is about 3.5 feet. (Photo courtesy of *Saunders and Cooke*.)

Find out more about [air pressure](#).

Simple barometer

