

Make your own Aneroid Barometer

Measure Air Pressure

Aneroid barometers do not use fluids such as mercury or alcohol.

Equipment

- ◇ An empty food or coffee tin (washed!) – the wider the better. Make sure that it doesn't have a sharp edge where the top was removed.
- ◇ A large balloon
- ◇ A rubber band that will fit snugly around the tin
- ◇ A pin
- ◇ Glue (runny paper glue is best)
- ◇ A drinking straw (the longer the better)
- ◇ Paper

Method

- 1 Cut a large piece of the balloon and stretch it over the tin. Hold the balloon in place with a rubber band stretched around the tin, over the balloon. Make sure that there is a tight seal around the rubber band, with no air leaks.
- 2 Use a little glue and attach the straw to the middle of the balloon (see photo). Then use a little more glue and attach the pin to the other end of the straw (see photo)
- 3 Take a piece of paper and, using a ruler, place some regularly spaced lines on it. Set up the tin and paper as shown in the photo.



How can I use this to measure temperature?

The needle rises and falls because of air pressure. As the air presses down (increased atmospheric pressure) on the balloon, the needle will rise. When the air pressure decreases on the balloon, the needle will fall. The change in barometric pressure will help you to forecast the weather. Decreasing air pressure often indicates the approach of a low pressure area, which often brings clouds and precipitation. Increasing air pressure often means that a high pressure area is approaching, bringing with it clearing or fair weather.

Note that this barometer will be sensitive to changes in temperature as well as to changes in air pressure. It will work best in a place where the temperature stays pretty constant. Small pressure changes could well be masked by temperature changes, but you should be able to observe large pressure changes (for example as a weather system passes through) with it.

You could try and calibrate your barometer by finding out the current pressure at your location (have a look at the Met Office local published data at http://www.metoffice.gov.uk/education/archive/uk/observation_0.html) and then seeing how much it moves as the pressure changes.

The air pressure varies between about 970-1040mb as weather systems pass over. Pressure also falls with height. At the top of Mount Everest the pressure is only 330mb.

Find out More

There is lots more information about barometers on the Barometer World website at <http://www.barometerworld.co.uk/faq.htm>



one of the things you need to make your barometer.

www.rmets.org/experiments