



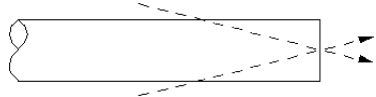
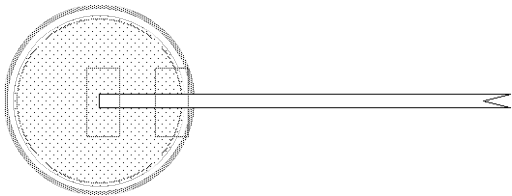
CUB SCOUT ACHIEVEMENT BADGE – WEATHER

Make a simple barometer

Resources

- Glass jar
- Balloon
- Drinking Straws
- Sticky tape
- Blu•Tack
- Bond copy paper

Instructions

1. Cut the neck (about a quarter of the way into the ball of the balloon) off a standard, round party balloon;
2. Stretch the balloon tightly over the top of the glass jar. The surface should be perfectly flat—if not, if there is even a little ‘dimple’ in the middle of the surface, remove the balloon and stretch it more tightly;
3. Cut a drinking straw to a length of about 15 cm, and cut one end as illustrated to create a point;

4. Attach the ‘flat’ end (*not* the one you just cut) of the straw to the middle of the ‘balloon cover’ with a piece of sticky tape, taking care to ensure that the “V” (*cf.* Step 3) in the far end of the straw is aligned as illustrated;

5. Apply a second piece of sticky tape to hold the straw on the ‘balloon cover’ at the edge of the jar as illustrated;
6. Cut a second straw to a length of about 15 cm (the length may vary a little, depending on the size of the glass jar being used) and fix it to the top of the jar lid with a piece of Blu•Tack;
7. Attach the barometer scale to this straw (*cf.* Step 6). To locate the scale at an appropriate point (so that the barometer will use the full extent of the scale), it will be an advantage (although not essential) to know the approximate pressure at the time the scale is attached. At a barometric pressure of around 1018 kPa, the scale should be attached so that the barometer reads “0”. If you don’t know the local pressure, just set the scale at “0”;
8. Record the reading on the barometer, and the weather conditions, at the same time each day for the next week and notice the relationship. To complete one of the Weather Achievement Badges, check the “Book of Cub Scout Challenges” for other weather conditions that need to be recorded over the observation period.



Resource Preparation

Glass Jar

Any Glass Jar	~500 ml	\$0.00	Recycle
---------------	---------	--------	---------

The jar doesn't actually need to be glass, but it must not deform under even small pressure changes, and glass is the only commonly used material that I know of which satisfies this requirement. There are many supermarket products that come in appropriately sized jars. The trick is simply to collect enough of them! The deflection of the straw, and hence the pressure reading, may vary somewhat with the size of the bottle used (more specifically, the size of the top/opening relative to the size of the bottle), but this is not a critical issue in the present case.

Round Balloon

Clown Balloons (Round)	80 pk	\$Cost	Woolworths
------------------------	-------	--------	------------

See Step 1 above for preparation instructions.

Drinking Straws

Brand/Part Number	150 pk	\$0.63	Woolworths
-------------------	--------	--------	------------

Straws need to be cut to around 15 cm in length, as per the instructions above. The length of the straw attached to the balloon will govern the deflection measured with pressure change—the longer the straw, the larger the deflection.

Sticky Tape

Sellotape	18 mm x 25 m	\$2.18	Woolworths
-----------	--------------	--------	------------

Blu•Tack

Bostik	75 g	\$1.64	Woolworths
--------	------	--------	------------

Copy Paper

80 gsm (or heavier) Copy Paper	A4	\$6.00/ream	Stationery Store
--------------------------------	----	-------------	------------------

Print off the Barometer Scale template ([BarometerScale.pdf](#)) and cut out the individual scales.