Name _____ Date _____

Student Worksheet
Activity 3.1.1, Making Simple Weather Instruments
Barometer

OBJECTIVES

To build a simple weather instrument relying on the same principles found in professional meteorologists' instruments.
To observe how weather instruments work.
To relate how and why these instruments work to fundamental scientific principles, i.e. air has weight.
To compare the accuracy of hand-made instruments with actual weather instruments.

MATERIALS

- glass jar with straight sides
- balloon
- rubber band
- straw
- glue
- a piece of cardboard or oaktag
- scissors
- goggles (for the building part only)
- barometer or access to current pressure reading on the Internet
- WEATHERLog

PROCEDURE

1. Cut the tube part of the balloon leaving the bulb end and a little of the neck.
2. Have your lab partner hold the jar tightly while you stretch the balloon over the mouth of the jar. Be careful that the jar does not slip and drop on the floor.
3. Secure the balloon with a rubber band. Don't worry if you have a slight bump in the balloon after stretching it over the jar. The important thing is that the balloon is stretched tightly over the jar.
4. Cut one tip of the straw to form a point.
5. Place the uncut end of the straw in the middle of the stretched balloon and attach it with glue.
6. Place your "barometer" on a shelf where it will not be disturbed. This should not be a windowsill since temperature will affect your instrument.
7. Set up the cardboard or oaktag so that it stands up and can be positioned next to the pointer on your "barometer."
8. Make a mark on the cardboard or oaktag where the pointer is touching. Be careful not to move the cardboard while you're doing this. Your instrument should not be disturbed or moved over the next several days while you are recording your measurements.
9. In your WEATHERLog draw a picture of your instrument. Use a "real" barometer to find the current air pressure or look it up on the Internet. Record the date and a short summary describing today's weather.

10. Continue to take readings using your "barometer" and compare them to the current readings over the next couple of days. Also record the date and a short summary describing each day's weather.

OBSERVATIONS
Make a drawing of your "barometer" in your WEATHERLog.

Record your daily measurements. Include the current barometric reading and a short summary describing weather conditions.

CONCLUSIONS
At the end of the week or whatever the period of time in which you'll be taking your measurements write a summary paragraph (or two) explaining how the accuracy of your "barometer" compared to the accuracy of the "real" barometer.

Use your data to draw conclusions about the relationship of changes in pressure and the weather.

Water Barometer:
http://sln.fi.edu/weather/todo/barometer.html
The Franklin Institute: Franklin's Forecast

http://nyelabs.kcts.org/teach/guides/9798/print97_11.html
Bill Nye: Barometer in a Bottle Activity

http://www.schools.ash.org.au/paa/instruments.htm#wbarom
Project Atmosphere Australia

Air Barometer
http://www.schools.ash.org.au/paa/instruments.htm#airbarom
Project Atmosphere Australia

http://www.mattdennis.com/skywarn/tormake10.html
Kansas Tornado Chasers Activities: weather instruments you can make.