



HOME DEMO NO. 11

Barometer in a Bottle

Our Earth's atmosphere is held next to the Earth's surface by gravity. When we measure atmospheric pressure, we're measuring the weight of air above us. The energy of the Sun and the spin of the Earth keep the atmosphere in motion. When we measure high atmospheric pressure, it usually means water in the air will remain a vapor, and we'll have sunny or nice weather. When we measure low pressure, water in the air turns to tiny liquid droplets, and we have cloudy weather. When the droplets stick together, we get rain or snow. We measure atmospheric pressure with an instrument called a "barometer" (ber-AHM-ih-ter). Build your own:

What you need:

1. Clean glass jar with a wide open mouth (top), like a jelly or jam jar
2. A balloon, any color you like
3. Scissors
4. Rubber cement (not absolutely needed, but it helps)
5. Straw
6. Tape
7. Paper
8. Pencil or marking pen

What you do:

1. Cut the neck-end of the balloon off.
2. If you have rubber cement, brush a little of it around the rim of the jar.
3. Stretch the hollow piece of the balloon over the jar, and fit it so that you get a nearly flat sheet of rubber stretched over the mouth of the jar. (You may have to clean your hands now.)
4. Tape the straw to the balloon with the end of the straw right in the middle of the jar and the long part of the straw going over the edge of the jar.
5. If you'd like, tape a piece of index card to the jar and trim the straw so that it makes a pointer on the card. Mark where your pointer starts.

What's happening?

When the air pressure around us, and around your barometer, goes down, the air in the jar expands. The balloon swells out a little bit, and the pointer tips down on your scale. When the air pressure goes up, the balloon gets pushed in a bit, and the pointer goes up. Watch the pointer as a storm comes through. You can predict the weather. It's an old and accurate first look at a forecast.