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Build Your Own Weather Station

Building a Barometer

Background

Air exerts pressure on Earth's surface. In fact, it exerts pressure in all directions—down, up and sideways—at the same time! At sea level, air weighs 14.7 pounds per square inch. That means that a desktop area 2 inches by 2 inches has almost 59 pounds of air sitting over it. Standard copy paper (8.5 x 11 inches) has close to 1,375 pounds of air holding it down AND up at the same time.



Materials

- Empty coffee can
- large, heavy-duty latex balloon
- heavy rubber band
- scissors
- coffee stirrer
- 3x5 card
- duct tape
- white glue

Procedure

Read all [Precautions](#) before beginning this activity.

1. Smoothly tape the rim of the coffee can so the metal edge is completely hidden but remains open. Be sure the tape smoothly extends down the side of the can an inch or more. To effectively do this, tape around upper side of the can leaving at least 1/2 inch of tape sticking up over the rim. Use scissors to make 8 to 10 cuts in the protruding tape straight down to the can rim. Fold the tape down and smoothly stick it to the inside of the can.
2. Cut the filler hole off the balloon and discard.

Stretch the balloon tightly over the taped edge and secure it with a rubber band. Make the rubber band as tight as you can.

3. Put a drop of white glue in the center of the stretched balloon. Put the coffee stirrer on the glue and position it so that it protrudes about 1/2 inch over the edge of the can.
4. Tape the 3x5 card on the side of the can so that it extends over the top and is close but not touching the coffee stirrer.
5. Mark the card at the tip of the stirrer. It isn't necessary to put numbers there.
6. Write the current barometric pressure in a journal. Determine if the pressure is high, low or "somewhere in between." This will be your baseline pressure. Be sure to note the position of the mark on the 3x5 card corresponding to the pressure.
7. Repeat step 6 through several cycles of weather. Be sure you have several highs and lows marked on your card and that you have entered all information in your journal.

When you become accustomed to the way your barometer works, you will have a tool with which to predict the weather. Determine how the barometric pressure correlates to present weather.

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