



# Build Your Own Barometer

## Building Activity

A barometer is a tool that meteorologists use to study pressure. This is useful for tracking storms and monitoring daily weather. You can be a meteorologist while stuck at home by learning about and constructing one of the tools they use every day. Visit the University of Nebraska State Museum YouTube page, [www.youtube.com/user/UNLArchie/videos](http://www.youtube.com/user/UNLArchie/videos), for a demo on how to build and use your own barometer.

### What you need:

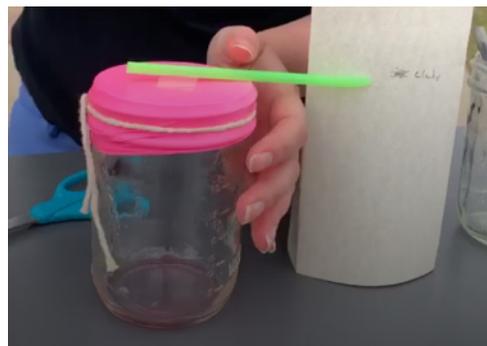
- A balloon (if you have slightly larger balloons of ~12 inches this may help ensure that they fit over the mouth of the jar)
- A wide-mouth jar without a lid (mason jar, peanut butter jar, tin can, etc.)
- One straw
- One piece of 8.5" x 11" cardstock or paper
- A piece of string long enough to be wrapped around the jar
- Scissors
- Tape
- Writing utensils

MEASURE

### What you'll do:

1. Use the scissors to cut the neck of the balloon off and stretch the main belly of the balloon over the jar, leaving a little bit of excess balloon hanging over the side. Take your time with this so that the balloon stays taut. We want all the air molecules in the jar to stay in the jar.
2. After you have the balloon tight on the jar, take the piece of string and tie it around the balloon on the neck of the jar to secure it in place.
3. Next, cut one end of the straw diagonally so that you have a point at one end of the straw. If you have a straw with an end that bends, use the scissors to cut off that section before cutting the end to a point.
4. Once your straw is cut, gently tape it to the balloon on the top of the jar so that the straw is parallel to the ground. The pointed end of the straw should be hanging over the edge of the jar and the other end of the straw should be in the middle of the stretched balloon.

BUILD



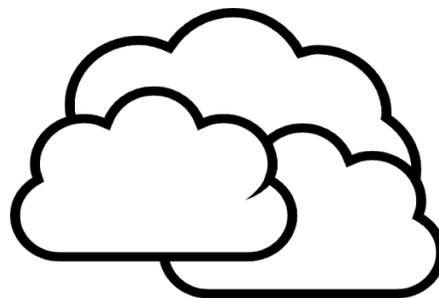
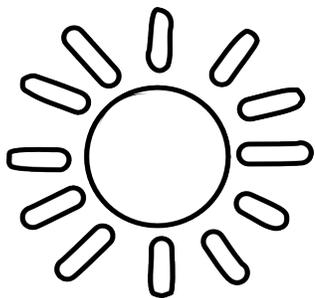


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### **Congratulations! You now have a barometer! But how do you use it?**

1. Take the paper or cardstock, turn it horizontally and fold it into three sections. Fold the two sections at either end of the paper back so that they meet and allow the paper can stand up by itself. You may wish to tape the ends of the paper together.
2. Place your barometer next to the cardstock so that the pointed end of the straw is perpendicular to the cardstock.
3. Take your writing utensil and mark a dot where the pointed end of the straw reaches on the cardstock. Now you have your first data point!
4. Put your barometer outside and check in the morning, at midday, and in the evening and mark where the end of the straw is pointing on the cardstock. You can check your barometer once a day, just be sure to check it at the same time each day.
5. Write the weather conditions (warm, cold, windy, cloudy, sticky or wet) on the cardstock next to the data point so that you can see how weather changes with pressure.
6. The marks on the cardstock give you information about the pressure of the atmosphere outside.
  - a. When the straw is pointing down, the pressure inside the jar is greater than the pressure outside of the jar, so the pressure inside the jar pushes up on the balloon (which makes the straw point down.) This means that there is low pressure outside in the atmosphere.
  - b. When the straw is pointing up, the pressure inside the jar is less than the pressure outside of the jar, so the pressure outside the jar pushes down on the balloon (which makes the straw point up.) This means that there is high pressure outside in the atmosphere.



### **Some questions to ask your meteorologist at home:**

1. What is a data point and how can we use it to track the weather?
2. Why do you think it is important to check your barometer at the same time each day?
3. What weather events do you notice happen when the pointed end of your straw is pointed up? What about when it is pointed down? Do you notice any trends in the data?

### **Check out these websites:**

- Learn more about barometers at [www.nationalgeographic.org/encyclopedia/barometer/](http://www.nationalgeographic.org/encyclopedia/barometer/)
- Learn about unique tools meteorologists use at [www.noaa.gov/stories/6-tools-our-meteorologists-use-to-forecast-weather](http://www.noaa.gov/stories/6-tools-our-meteorologists-use-to-forecast-weather)