

How to Make a "Recycled" Rain Gauge

Let's see if this November, December, and January get 23 inches of rain, then keep monitoring to compare results to July, August, and September!

Materials:

- ✂ Plastic, straight-sided plastic bottle (Water or pop bottles work fine.)
- ✂ Scissors
- 📏 Ruler
- ✂ Duct tape (optional)
- 🖋 Permanent marker
- 🌀 Wire clothes hanger
- 📄 Paper to record rainfall by date and inches (or smallest fraction possible)



Directions: (See below for each step's illustration.)

1. Pinch the bottle together near its "shoulders" and snip that with scissors. If the plastic is too thick, have an adult poke a hole into the bottle to give you a place to start cutting.
2. From the snip, cut a pretty straight line all around the bottle, cutting off the top. Trim jagged parts off.
3. Lightly tape the ruler (with zero at bottom of bottle) to the outside of the bottle or have someone hold it for step #4. (You could use duct tape and tape a ruler to the bottle permanently instead of doing step #4.)
4. Using the ruler and the marker, mark 1-inch segments on the bottle and number them. If you want, include fractions or decimals of an inch like $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, .25, .5, .75.
5. To make a holder for the bottle, bend the bottom (wide flat part) of the clothes hanger into loops that stack on top of each other, and you can fit the bottle inside of them. Pliers are helpful.
6. Use the hook part of the hanger to hang/attach your rain gauge to a fence or other place outside. Make sure the top of the bottle is completely open to the sky above it. Nothing should block rainfall, such as trees, or an overhanging roof.
7. Now measure the rain amounts—every day if possible. Keep a record of the dates and the number of inches (format below). Empty the gauge each time.



step # 1



step # 2



step # 3



step # 4



step # 5



step # 6

Date	Inches-of-Rain	Date	Inches-of-Rain
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐

step # 7



STEM Challenge:
Make a more accurate rain gauge.
 There are design problems with how this rain gauge is made.

- ❖ The bottoms of the bottles are NOT flat. Many have bumps, others have a center indentation.
- ❖ The sides on many bottles, have ridges, and some taper inwards making them thinner in the middle. Because of these issues, design something better.