

# HOW-TO GUIDE: Make Precipitation Instruments at Home

## How To Make a Rain Gauge

### MATERIALS NEEDED

Recycled 2-liter bottle (remove the label, bottle cap, and rinse it out well!)

Scissors  
Measuring cup and water  
Permanent marker  
Ruler  
Tape

### Step 1

**Have an adult help you:** Cut the top off the bottle just below where the sides become straight, making it as straight as possible. The edges can be sharp, so have an **adult** do this step. If the edges are too sharp, use some sand paper to smooth the edges.



### Step 2

Fill your measuring cup with 1 cup of water. Pour the water into the rain gauge through the top. This will give your rain gauge weight and give a base level for your measurement if the bottom of the bottle is not flat.



### Step 3

Draw a line at the water level and write the number "0" beside the line.



### Step 4

Temporarily tape a ruler on the rain gauge, with the bottom starting on your "0" line. Then, draw a line going straight up from the "0" mark.



### Step 5

Copy the measurements from the ruler along this line every 1/4 of an inch. After you are done copying the measurements, remove the temporary ruler from the rain gauge.



### Step 6

Flip the top section over and set it into the bottom section to act as a funnel for the rain. This will also help prevent evaporation of the rain and base water. The funnel should fit and not move, but if it is not secure, put a couple pieces of tape on the top to join them together.



### Now you are ready to measure the rainfall during your next rain event!

After you measure the amount of rainfall, empty the bottle for your next rainstorm, but do not forget to refill your rain gauge to the base level of "0" or 1 cup of water!



Be sure to place your rain gauge in an open area, away from water that could drop from a roof or from trees.



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## How To Measure Snowfall

### How to measure the amount of new snow:

### Step 1

Find a flat piece of ground at least 20-30 feet away from buildings.

### Step 2

Set your snow board on the grass and mark its place with a tall flag or pole in the ground near the snow board. This way, you can find the board after it snows.



### Now you are ready to measure the amount of snowfall during the next snow event!

### Step 3

After it snows, find your snow board using your marker.

### Step 4

Measure the snow depth with a ruler or yardstick and record the result and time of observation.

### Step 5

After you are done measuring, clear the board and set it in a nearby location on top of the snow you just measured. This way, you can measure the amount of new snow during the rest of the snowstorm or the next snowstorm.



### MATERIALS NEEDED

Ruler or yardstick  
Tall flag or pole

Snow board (any flat board with a size of at least 12" by 12", ideally painted white)

### Why should a snow board be painted white?

The snow board should be painted white to reflect sunlight. This will reduce the amount of heat that is absorbed by the board, therefore reducing the amount of snow that melts.

### When should you measure snowfall?

As snow falls, the snow on the ground will begin to settle. This will reduce the actual amount of snow that fell and cause your reading to be off. In addition, snow can melt.

Therefore, it's best to measure during or soon after snow ends in order to capture an accurate measurement of how much fell.

### What if there is drifting snow?

If there are high winds and snow is drifting, you should take measurements from a variety of locations and average them.

### How to measure snow depth:

In addition to the amount of new snow, weather observers also report the snow depth every day, which is the amount of snow on the ground.

To measure snow depth, you simply find a level piece of ground and measure how much snow there is with a ruler or yardstick.



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