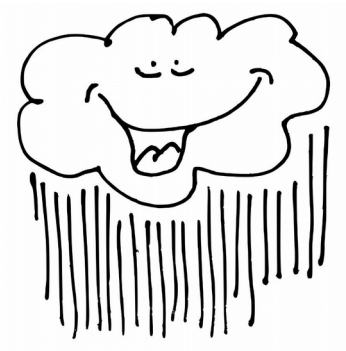
How to Measure Rain

A lesson from the New Jersey Agricultural Society
Learning Through Gardening Program



Objective: The student will be able to:

- Explain that plants need water to grow and that in nature, this water comes from rain.
- Explain how to measure how much water falls on their garden or neighborhood

Grades: 2-5

Materials:
2-liter plastic bottles with tops cut off, one for each group
rulers
permanent markers
duct tape

Preparation: Cut the tops off two-liter soda bottles about one-third of the way down from the top. Turn these tops upside down so they look like funnels. Insert these 'funnels' inside the cut bottles to catch the rain. So that the funnels do not slip down into the bottles, tape the tops securely in two places with duct tape. Before this lesson, the teacher, or the teacher and students, should dig small holes somewhere in the garden away from foot traffic that are big enough to bury just the bottoms of the rain gauges.

Procedure:
Ask students what three things plants need to grow. Ask how our garden would get water if we didn't water it with a hose or watering cans. Ask what would happen to the plants if there wasn't enough rain.

Share these rainfall fun facts:

- *The average yearly rainfall in New Jersey is 40 to 45 inches.*
- *It usually rains on about 100 days in New Jersey.*
- *It rains more than an inch on only about 10 of those days, most of those in the summer.*
- *In New Jersey, Hurricane Sandy brought as much as 8 inches of rain to the southernmost shore towns, while some areas in the northern part of the state got less than two inches.*
- *Hawaii is the rainiest state with about 64 inches average rainfall each year.*
- *Nevada is the driest state with only an average 9 ½ inches of rain each year.*

Tell students that today we are going to make a tool called a rain gauge that will let us measure the amount of rain that falls on our garden.

In small groups of three or four, students measure inches and mark them on the side of the bottle. This is easier for younger students if the ruler is taped to the side of the bottle with the 0 end of the ruler flush against the bottom of the bottle. Students use permanent marker to mark measurements 1 inch apart on the side of the bottle, marking 0 at the bottom of the bottle. Students should mark up to at least three inches. Then add numbers to the marks. (Older students can add measurements of one-half inches.)

Place bottles in the holes in the garden and tamp soil down around them so the wind does not blow them over.

Students check each week to see how much rain has fallen and record their observations.

Evaluation:

The student will be able to describe the three things plants need to grow and how to make a tool to measure the amount of rain.

Extension: Older students can graph the amount of rain that falls over a week or a month.

HOW TO MAKE A RAIN GAUGE

You will need :

a clear, clean plastic bottle
a sharp knife
painting or duct tape
a permanent marker
scissors
a ruler
Scotch tape

STEP 1

STEP 1:
Ask an adult to help you poke a hole at the top of the bottle with a knife, near what looks like the bottle's shoulders.

STEP 2:
Use scissors to cut all the way around the bottle until the top comes off.

STEP 3:
Turn the top upside down so that it looks like a funnel. Insert the funnel into the bottom half of the bottle.

STEP 2

STEP: 4
Secure two sides with painting or duct tape so that the funnel stays in place.

STEP 5
Mark lines for inches on the bottle with a ruler. It is easiest if you tape the ruler to the bottle so that it doesn't slide. Make sure the end of the ruler is at the very bottom edge of the bottle.

STEP 5

STEP 6

STEP 6:
Mark lines on the bottle for every inch up to four or five inches.

STEP 7:
Remove the ruler. Use a permanent marker to write the number of the inches beside the marks on your bottle.

STEP 7

STEP 8:
Now you are ready to take your rain gauge outside to measure rain.