

Scientific Method-DRY-MIX Lab

Standards: SCSH 2, 3, 4

Purpose: To correctly utilize the scientific method to investigate the effect of drop height on the size and shape of water droplet splatters.

When conducting research and using the scientific method, it is common practice to only change one variable at a time. This changed variable is referred to as the manipulated, or independent variable. All other conditions must be kept completely identical. These conditions are called controls or constants. The effect that the manipulation has on the other variables is known as the responding, or dependent variable. The acronym DRY MIX can be used to help you distinguish between these two types of variables. DRY stands for dependent, \ responding, Y axis, while MIX stands for manipulated, independent, X axis.

Materials: transfer pipette, colored water, beaker/cup, white paper, meter stick, ruler

Procedure: Transcribe the data table onto your paper and record your hypothesis for this experiment.

1. Partially fill a pipette with colored water.
2. Measure the heights listed in the chart using a meter stick positioned with one end on the white paper and the other end measuring the dropper height.
3. From each height, drop 3 drops of water clustered together, but not overlapping. Label the splatters on the paper.
4. Measure the diameter of the splatter in millimeters, and record each trial size in your data table.
5. Repeat the process for each height.
6. For each drop height, record qualitative data on the splatter in your data table. Examples: “Drop is very round,” “Drop broke apart and irregularly shaped,” or “Drop is surrounded by little splatters.”

Data Table: Copy down the following data table:

Drop Height	Diameter of Drop Splatters (mm)				Qualitative Data
	Trial 1	Trial 2	Trial 3	Average	
5 cm					
10 cm					
20 cm					
40 cm					
80 cm					

Hypothesis: Record your hypothesis BEFORE conducting experiments.

Post-lab Questions:

1. Create a graph showing the relationship between the average size of water splatter and drop height. Use DRY MIX to remember which data are plotted on the X axis and Y axis.
2. Based on your observations and data collected, what is your conclusion regarding the relationship between size of water splatter versus drop height?
3. How does your conclusion compare to your hypothesis?
4. Describe two things (controls) that you had to do exactly the same for each trial to make sure you were as accurate as you could be.
5. Do you think that measurements or descriptions are “best” for reporting scientific data? Explain why?
6. Describe two other real world ways this experiment could benefit someone in real life.

D.R.Y.

M.I.X.

