Height and Weight. Finding the Relationship between Weights of a Cylinder of Fixed Diameter Filled to Different Heights

**Purpose:** The purpose of this lab is to determine the relationship between the weight of water in a cylinder compared to the height of the water in the glass. You are also going to learn how to develop an experiment, gather materials, collect data and analyze using technology.

**Outline:** For Part A you will be developing the method for collecting the data you need. For Part B you will gather the data, record your methods, and make a table of values. For Part C you will be analyzing the data.

**Topical Objectives:** Measurement, linear regression, residuals, error analysis. Hypothesizing, formulating and conducting an experiment.

**Instructions:** Answer the following questions. Provide a cover page (date, project title, names)

Now that we have seven other projects under our belt, you will have less guidance on this project. It is also your goal with this project to conduct your own experiment, gather data in your own fashion, analyze that data, and determine the validity of your experiment.

**Part A:**
1. Determine the best way to gather the data.
2. Determine what materials will be needed.
3. Gather the materials needed.

**Part B:**
1. Gather and record data in an organized way that facilitates analysis.
2. This section should include:
   a. Materials used
   b. A section describing your method for gathering data.
   c. A table of data values (no less than 8 data points should be used).

**Part C:**
1. Analyze the data and draw conclusions.
2. This section should include:
   a. An analysis of the data values in (5c), including a graphical representation and a description of the relationship (in words).
   b. A comparison of the values you found with the known formulas for volume of a cylinder, weight of water, etc.
4. Are you satisfied with your experiment? If not, what would you change?