

Bubbleology

This lab is designed to introduce the scientific method and effective science communication in the form of a formal lab report. Use the Biology Laboratory Rubric. You will need it in your notebook: (3 points each x 8 = 24 points)

ID (Identification)

P (Purpose)

H (Hypothesis)

ML (Material List)

DT (Data Table)

G (Graph)

AQ (Analysis Questions)

C (Conclusion)

You will test the strength of liquid dishwashing soap by measuring the size of bubble-domes that can be created by using solutions of the various brands. For the sake of this lab, we will assume that the larger the dome, the better the soap works for cleaning dishes. In addition, you will determine which brand is the most cost-effective (the best buy). This can be accomplished by simply determining the bubble-dome to cost ratio (divide the cm diameter of the dome by the cost in dollars).

Procedure:

1. Measure 10 ml of solution in a graduated cylinder and pour on you table. Spread evenly with your hand to create a 50cm diameter filmy area.
2. Touch the end of your straw into the center of the film and gently blow a bubble until it pops.
3. Measure the diameter of the circle with a meter stick (average several diameters if the dome was not a circle).
4. Record data in your data table.
5. Repeat the procedure three times for each brand. (three repetitions for each brand)
6. Complete the data table by calculating the cost effectiveness using the average dome size for each brand.
7. Create two bar graphs: A. Average dome size B. Cost effectiveness

Analysis Questions:

1. What is the independent variable?
2. What is the dependent variable?
3. Which soap appears to be the better cleaner?
4. Which soap appears to be the best buy?
5. Did the experiment support or negate your hypothesis?
6. Was this a valid or fair test of soaps? List some experimental errors that may cause you to doubt the validity of your findings.
7. What suggestions would you make for further studies of this kind? What changes or extensions would you recommend?