

BUBBLE LAB

WHAT TO TURN IN: Hypothesis, Data Table, Error Analysis, Conclusion, Questions 1-7

Purpose

To see how bubble-making can be affected by adding chemicals to a soapy mixture.

Materials

graduated cylinder

liquid dish soap

plastic cups

ruler

spoons

straws

table salt (sodium chloride, NaCl)

table sugar (sucrose, C₁₂H₂₂O₁₁)

water

Procedure

- 1) Write a hypothesis: Which cup do you think will produce the best bubbles?
- 2) Label three cups: SUGAR, SALT, PLAIN SOAP.
- 3) Measure one spoon of dish detergent into each cup. Use the graduated cylinder to add 50 mL of tap water to each cup. Swirl each cup gently for one minute to mix.
- 4) Add ½ spoon of SUGAR to the SUGAR cup. Add ½ spoon of SALT to the SALT cup. Swirl each cup gently for one minute to mix.
- 5) Designate a bubble-blower person in your group.
Dip the straw into the SUGAR cup, withdraw it, and blow gently into the straw to make the biggest bubble you can. Practice blowing bubbles before your group measures the size.
Record the diameter of three bubbles in data table.
- 6) IMPORTANT – Rinse out the straw before putting it into a different cup.
Dip the straw into the SALT cup, withdraw it, and blow gently into the straw to make the biggest bubble you can. Practice blowing bubbles before your group measures the size.
Record the diameter of three bubbles in data table.
- 7) IMPORTANT – Rinse out the straw before putting it into a different cup.
Dip the straw into the PLAIN SOAP cup, withdraw it, and blow gently into the straw to make the biggest bubble you can. Practice blowing bubbles before your group measures the size.
Record the diameter of three bubbles in data table.
- 8) Dispose of the straw. Rinse out all three cups and save them for the next class.

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Data Table

	SUGAR	SALT	PLAIN SOAP
<u>Bubble size, attempt #1 (cm)</u>	_____	_____	_____
<u>Bubble size, attempt #2 (cm)</u>	_____	_____	_____
<u>Bubble size, attempt #3 (cm)</u>	_____	_____	_____

Questions

- 1) Describe any differences in the bubbles between the sugar and salt cups.
- 2) Which cup or cups is/are the control group(s)? Why?
- 3) Which cup or cups is/are the experimental group(s)? Why?
- 4) What is the independent variable in this lab?
- 5) What is the dependent variable in this lab?
- 6) Which cup produced the largest bubbles?
- 7) Propose a new hypothesis based on bubble-making. (Ideas: Would you add something different to the water, or use a different liquid, or change the temperature?)