

The Longest Lasting Bubble



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INTRODUCTION

Bubbles have always been a summer tradition for kids having fun in their backyard. You can find videos on how to make your own bubbles and you can buy them at a store or online. However, which solution is the best at making longer lasting bubbles? When you watch videos on how to make your own, they include ingredients such as dish soap, corn starch, glycerine, baking powder, and water. But what is the best combination for a longer lasting bubble? **In this experiment, we will test different solutions of bubbles to see which is the best way for backyard fun bubbles.**

HYPOTHESIS

If the solution contains more glycerine, **then** the bubbles will last longer without popping.

MATERIALS

Bubble bottle with wands (3)	Large mixing container (3)
Water	Glycerine
Dish Soap	Baking Powder
Corn Starch	Tablespoon
Measuring Cup	Stop watch

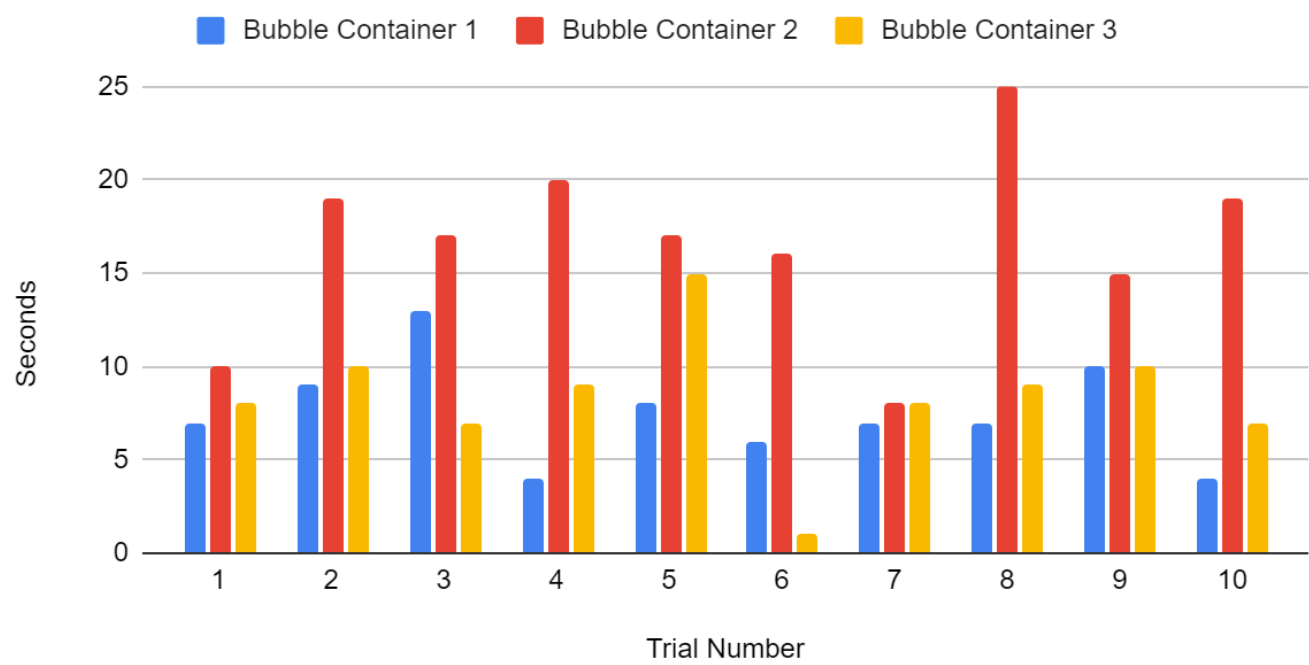
PROCEDURE

1. Open the bubble containers for the solutions to be put in.
2. Label the bottles with #1, #2, #3.
3. In each large mixing container, measure 6 cups of water.
4. Add $\frac{1}{2}$ cup corn starch to each mixing container and stir until dissolved.
5. Add in each of the mixing containers the following: $\frac{1}{2}$ cup dish detergent and 1 tablespoon of baking powder.
6. In mixing container 1- add 1 tablespoon of glycerine.
7. In mixing container 2- add 2 tablespoons of glycerine.
8. In mixing container 3- add 3 tablespoons of glycerine.
9. From each of the containers, pour into the marked bubble containers.
10. Blow the wands with solutions from container 1 gently to create a bubble. Time how long it lasts with a stopwatch until it pops.
11. Repeat this 10 times for each container for a total of 30 data points.

DATA

Trial Number	Bubble Container 1 (in seconds)	Bubble Container 2 (in seconds)	Bubble Container 3 (in seconds)
1	7	10	8
2	9	19	10
3	13	17	7
4	4	20	9
5	8	17	15
6	6	16	1
7	7	8	8
8	7	25	9
9	10	15	10
10	4	19	7

How Long Do Bubbles Made of Different Bubble Solutions Last?



ANALYSIS OF RESULTS

Based on our data collected, the average times were calculated to be for bubble 1- 7.5 seconds , for bubble 2- 16.6 seconds , and for bubble 3- 8.4 seconds. The independent variable of the amount of glycerine did seem to have an effect on the bubble not bursting. However, there does seem to be a maximum amount of glycerine since bubble 3 did not last longer than bubble 2 with more glycerine. Each bubble type had some outliers where some bubbles burst quickly and some lasted longer.

CONCLUSION

When we set out to do our bubble experiment, we wanted to see if we could produce a longer lasting bubble with a homemade solution. Our hypothesis was that if we add more glycerine, the bubbles would last longer. Our data was supported from solution 1 to solution 2, but was not supported when it came to solution 3.

With this data we have collected, we can look at the labels of bubbles for sale at retail locations and determine which is a better product for the money we are spending or just create a solution at home with the proper amounts of ingredients.

SOURCES OF ERROR

1. We used tap water, which has ingredients besides water. Next time we should use filtered water
2. We tested the bubbles in the hallway, where there is a lot of air movement. Next time we should test them in a room with a closed door and windows
3. When the mixed solutions were poured from 1 container to another, not all of it went into the new container. Next time we would do a better job of making sure it all made it into the new container.

GOOD SCIENTIFIC QUESTIONS

1. Is there a perfect amount of glycerine for a bubble recipe? If so, what is it?
2. Is there an ingredient besides glycerine that might be even better for bubbles? If so, what is it and how can we test it?