



BUBBLE STRENGTH CHALLENGE

5-12 yrs | 20 min | Stage 1-3

Mission Question

Can you discover the strongest bubble recipe?



? Wonder & Predict

Which recipe will make the..

- | | |
|--|--|
| ☐ Make the biggest bubble | ☐ Last the longest |
| ☐ Pop first | ☐ Bounce another bubble |

There are no wrong predictions.

Before you begin

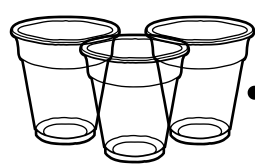
Please make three bubble liquids as shown on the website.

One has:

- only detergent (Solution Alpha)
- one has salt (Solution Beta)
- one has glycerine (Solution Gamma)



What you will need



- 3 plastic cups



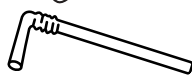
- Concentrated detergent



- Salt



- Spoon



- Straws



- Glycerine



- Water



Investigation Record

Follow the steps carefully while observing.

1 Build your recipes

- Label three cups: Alpha, Beta and Gamma

Add the same amount of detergent mixture to every cup.

- Leave Alpha unchanged.
- Add salt to Beta.
- Add glycerol to Gamma.

2 Bubble Dome Challenge

- Wet a table, then dip your straw into the detergent.
- Place the straw just on the table surface and blow softly to make a dome.

3 Bubble Dome "Hand" Challenge

- Wet your hand and form a dome on your hand by blowing softly.
- Can you make a second bubble inside the first on your hand?

4 Bubble Inside Bubble

Try every recipe.
Which worked best?

Which worked best?

- ☐ Alpha ☐ Beta ☐ Gamma

5 Bubble Trampoline

Can one bubble bounce another?

Tick every recipe that worked.

- ☐ Alpha
☐ Beta
☐ Gamma



Observe & Record

What happened?

- ☐ Alpha made the biggest bubbles.
- ☐ Beta made the strongest bubbles.
- ☐ Gamma made the strongest bubbles.
- ☐ One recipe made bubbles that lasted much longer.
- ☐ One recipe made the Bubble Trampoline easier.
- ☐ One recipe made the Bubble Inside a Bubble easier.





What happened?

Fill in the sentences using words from the box.

recipe | glycerine | salt | bubbles | longer | popped | compare | evidence

1. Scientists _____ different ideas by changing just one thing.
2. Today you tested three different bubble _____.
3. One recipe helped the _____ last much _____.
4. Some bubbles _____ more quickly than others.
5. You used your observations as _____.
6. Now explain which recipe you think worked best and why.



The science behind it

Why Were Some Bubbles Stronger?

Every bubble is made from an incredibly thin layer of water.

Soap helps this thin layer stretch without breaking straight away. That is why bubbles can grow much bigger than you might expect.

But not every bubble is equally strong. When you changed one ingredient in each recipe, you changed how well the bubble film stayed together.

Some bubble films stretched further before popping.

Some stayed wet for longer. Others burst much more quickly.

That is why one recipe made bigger bubbles, stronger Bubble Trampolines and easier Bubble Inside a Bubble challenges.

Scientists discover the best materials by changing just one variable at a time and comparing the results.

That is exactly what you did today.

You weren't just blowing bubbles...

You were investigating materials like a real scientist!

★ Continue your ★

BUBBLE SCIENCE ADVENTURE...

THE CRAZY SCIENTIST LAB™

Go beyond this experiment and unlock a world of **bubble science**!



DR PUDDLED RIP'S
BUBBLE LABORATORY

Mix • Compare • Discover



Investigate amazing bubble recipes, stretchy slime, polymers and other weird materials!



PROFESSOR
PICKLEBOTTOM'S
BIG INVESTIGATIONS

Question • Test • Analyse



Answer bigger questions and design your own investigations.



ALEX'S
INVENTOR WORKSHOP

Design • Build • Improve



Build awesome bubble tools and take on fun engineering challenges!



MACKEY'S
MYSTERY FILES

Observe • Solve • Discover



Solve real science mysteries and uncover the secrets of bubbles and more!