

Bubble power!

Master the science behind blowing bubbles.

THE BEST EVER BUBBLE MIX

What you will need:

- 300ml water (six parts)
- 50ml washing-up liquid (one part)
- 1 tsp glycerin
- A big tub
- Wooden spoon

Instructions

- 1** Mix together the water, washing up liquid and glycerin in a big tub.
- 2** To scale up the bubble mixture, add water in a proportion of six parts to every part washing-up liquid. Add another tablespoon of glycerin every time you double the mix.
- 3** Leave the mixture somewhere safe overnight before using the next day.

A bubble inside a bubble

How many bubbles can you create?

What you will need:

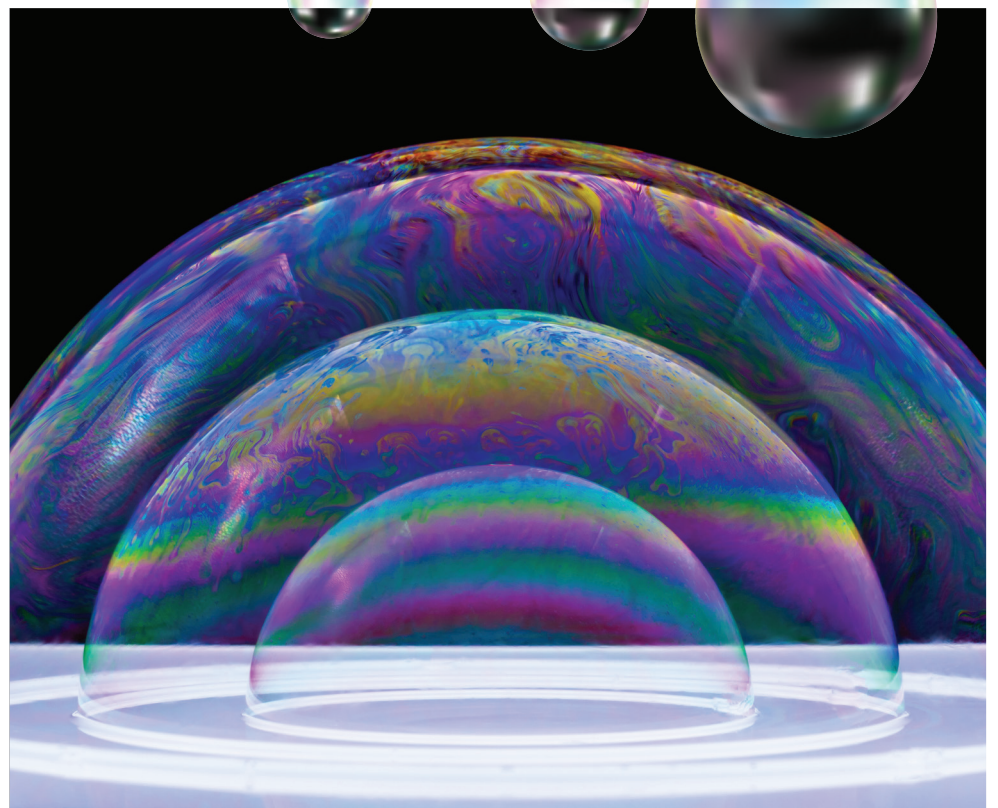
- Bubble mixture
- Plastic pipette
- Scissors
- A flat surface

Instructions

- 1** Find a smooth and flat surface, then rub a bit of bubble mixture onto the surface. This will stop your bubbles from popping.
- 2** Snip the top off the bulbous end of your pipette and dip it into the mixture. Gently blow a bubble onto the flat surface, through the small end of the pipette.
- 3** Carefully, push the pipette through the bubble and blow a smaller bubble inside. See how many bubbles you can fit inside the first.

How does it work?

When you blow a bubble inside another bubble, the additional volume of air you add forces the outer bubble to expand. Because bubbles are elastic (up to a point), they are able to stretch to allow multiple bubbles to be blown inside them.



Giant bubbles

Take your bubbles to the next level.

What you will need:

- Bubble mixture
- Two long sticks
- Two metres of string
- One steel washer
- Bucket

Instructions

1 Thread the steel washer through the string. This helps weigh the string down.

2 Tie one end of the string to the top of one of the long sticks. Tie the other end of the string to the other long stick.

3 Pour some mixture into a bucket. Put the sticks side by side, and dip the strings into the liquid. As you lift the string out, part the sticks and you should create a massive bubble.

How does it work?

Bubbles are made when soap is added to water. This is because one end of a soap molecule (two or more atoms joined together) is attracted to water and the other is repelled by water. This creates a film with soap on the outside and water in the middle, like a sandwich. This flexible film can trap air inside itself, forming a bubble.



Bouncing bubbles

Learn how to bob bubbles up and down.

What you will need:

- Bubble mixture
- Bubble wand (you can use a pipette for this experiment, too)
- Soft gloves

Instructions

1 Put on your gloves. Pop your bubble wand in the bubble mixture and gently blow a bubble.

2 Catch the bubble in your hands, and slowly bounce the bubble up and down.

3 See how many bubbles you can catch and bounce up and down wearing your gloves.

How does it work?

Bubbles burst because the water in the middle of the "soap sandwich" evaporates (turns from a liquid into a vapour). They also pop when the soap comes into contact with the natural oils on your hand, which break the surface tension (an invisible force which makes a layer of liquid act like an elastic sheet). Gloves make it possible to bounce bubbles, because they protect bubbles from your oily hands.



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