



Bubble-ology

Become a bubble scientist! Make your own bubble solution, engineer your own bubble wands, and put them to the test!

Materials

- String
- Disposable plastic straws
- Reusable straws
- Pipe cleaners
- Plastic cups
- Single-use plastic water and soda bottles
- Scissors
- Tape
- Homemade Bubble Solution
 - Large cup or bowl
 - ½ cup dish soap (Dawn dish soap works the best!)
 - 1 ½ cups of water
 - 2 teaspoons of sugar

Introduction

- Have you ever wondered, what exactly is a bubble?
 - A bubble is just air wrapped in a soap film. Soap film is made from soap and water!
 - The outside and inside surfaces of a bubble are made up of soap molecules.
 - A molecule is simply **the smallest amount of a substance** that contains all the properties of that substance.
 - A thin layer of water sits in between the two layers of soap molecules—think of it like a water sandwich, and instead of bread it has slices of soap!

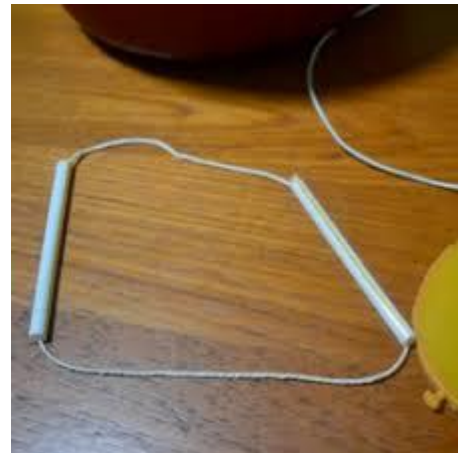
Activity—Homemade Bubble Solution

- To ensure better bubbles, **make the solution first** and let sit while creating your bubble wands.
- Grab a large cup or bowl to make the bubble solution. Be sure to wear protective eye gear if necessary.
 - Pour ½ cup dish soap
 - SLOWLY add 1 ½ cups of water
 - Add 2 teaspoons of sugar
 - SLOWLY mix everything together, making sure not to create any foam or bubbles.
- If you have

Activity—Bubble Wands

- You can use almost anything to make a bubble wand! Take a look back at the materials list and grab whatever you have at home!
 - String & Straws
 - Grab some disposable straws and cut them up into 3-4 pieces
 - Put string through the straws to connect them and see what shape you can make—diamond, square, trapezoid, etc.

- Dip the shape into bubble solution using both hands, then blow bubbles to see what shape works best.
- Reusable straws
 - Grab some straws and bunch them together. Either hold them or tape them in a bunch.
 - You'll be able to dip one end of the straws into bubble solution.
 - These wands will create small, fast flowing bubbles.
- Pipe cleaners
 - You can create just about any shape with pipe cleaners—just be sure to keep a section as a handle. Try making circles, stars, hearts, and triangles.
- Plastic cups
 - Cut or punch a hole through the bottom to blow air through.
 - Dip the large open end of the cup into the bubble solution and blow air through the hole you cut on the other end.
- Plastic water and soda bottles
 - Cut the bottom off the bottle and dip into the bubble solution.
 - Use the end of the lid end of the bottle to blow bubbles.
- Try out new ideas combining the materials!



*Example images retrieved from Google