



Giant Bubbles

Learn the science of bubbles and test your ability to make a large bubble. This is a great outside activity for the summer. Adult supervision is required for this activity.



Fun Facts/Information:

- Bubbles form when air gets trapped in a thin film of liquid.
- A bubble is always round (spherical). Though some bubble wands are different shapes, the bubble will always be a sphere. This is because the air inside of a bubble is working against the outer forces.
- One of the reasons a bubble will pop without coming into contact with anything is because the liquid will begin to evaporate.
- Sunny and windy weather can affect the success of your bubbles. If your bubbles are popping easily, move to a shady area and wait until there is very little wind.

Learning Objectives:

- Students will explore how air and liquid interact to form bubbles and observe what affects their shape and size.



Materials:

- 6 cups of water
- ½ cup of dish soap
- ½ cup of cornstarch
- 1 tablespoon of baking powder
- 1 tablespoon of glycerin (corn syrup can act as a substitute)
- 1 large container to hold the bubble solution.
- 1 large spoon
- 1 shallow baking pan
- 2 jumbo smoothie straws
- 1 strand of twine or string (at least 3 feet in length)
- 1 pair of scissors
- 5 plastic beads
- 1 sharpened pencil

Safety Consideration:

- An adult must supervise this activity. Only an adult should be poking the holes in the straws.

Procedure:**Making your Bubble Solution:**

1. Add the water to the large container.
2. Mix cornstarch into water until it is fully dissolved. Use a large spoon to stir.
3. Now add dish soap, baking powder and glycerin to the bubble solution container.
4. Stir until the ingredients appear to be well mixed. Do not over stir as it could result in foam.
5. Let the bubble solution sit for a few hours before using.
6. After this time, stir the solution again.
7. Pour some of the solution into the baking pan. You will only need to put enough to fully cover the bottom of the pan and deep enough to allow your bubble wand to fully submerge in the solution.

Bubble Wand:

1. Ask an adult to poke a hole about a half inch down from the top of the straw. Use the sharpened pencil to poke the hole. The hole should go through one side of the straw, not both.
2. You will repeat the 1st step with the second straw.
3. Next you will string the 5 beads onto your piece of string.
4. Fold your string in half so that the ends are touching. Hold the ends securely between your fingers.
5. Thread the ends of your string through one of your straws, placing it in the hole that you made.
6. Once you can grab the string on the other side of the hole, you will tie a knot as close to the string ends as possible.
7. Trim the string ends so that there is very little string after the knot.
8. Pull the knot into the straw. The string should now be secured to the straw.
9. Hold this same straw in your right hand and use your left hand to pull the string away from the straw. The string should form a triangle with the beads hanging at the bottom between your hands.
10. Once you have a triangle shape, pinch the string in your left hand and thread it through the other straw.
11. Once you can grab the string on the other side of the hole, you will tie a knot.
12. Trim the string so there is very little string after the knot. The knot should now be in the straw.

Creating your Bouncing Bubbles:

1. Retrieve your sheet pan of bubble solution and your bubble wand.
2. Before beginning to blow bubbles, it is important to make sure you are standing so that any breeze is at your back.
3. Gently dip your wand into the solution so that the string and tips of your straws are completely submerged. Make sure not to stir your wand in the solution, as this will create foam and will make it more difficult to create bubbles.
4. When you remove the wand from the solution, keep the straws close together.
5. Bring the wand to eye level and slowly open it.

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6. Slowly walk backward to fill your bubble with air. If there is any breeze or wind present, you may not need to move to fill your bubble.
7. Once the bubble is at your desired size, bring the straws together to close off the bubble.
8. Continue these steps to see how large of a bubble you can make!

Discussion Questions:

Question 1: Try changing the length of your string. How does this change your bubble?

Extensions:

- Use a standard sized bubble wand and try out the following challenges:
 - Catch a bubble.
 - Attach two bubbles together.
 - Have a bubble land on the surface without popping.