Curiosity Guide #602
Bubble Science

Accompanies Curious Crew, Season 6, Episode 2 (#602)

Spherical Suds

Investigation #4

Description

Have a try at making bubbles that are cube- or triangle-shaped. Can you do it?

Materials

- Pipe cleaners
- Bubble solution
- 12 Q-Tips
- Hot glue
- Scissors
- Bowl
- Straw

Procedure

1) Bend and twist the end of a pipe cleaner so that the pipe cleaner forms a closed square with a handle.
2) Be sure to twist the bent end back onto itself to remain closed.
3) Put the square wand into the bubble solution.
4) Predict what the bubble will look like.
5) Blow through the square wand to form a bubble.
6) What do you notice?
7) What if you shape the wand in a triangle or skinny rectangle?
8) Pull the cotton off each Q-tip. Then cut the cotton end off to make 12 sticks the same length.

9) Hot-glue the ends of 4 sticks together to make a square.
10) Repeat with a second set of 4 sticks.
11) Place one of the squares on the table as a base. Hot-glue a stick at each corner of the base and perpendicular to the base.
12) Hot-glue each corner of the second square to the tops of the perpendicular supports. Your structure should be a cube.
13) Dip the cube into a bowl of soap solution.
14) Use the straw to blow into the center point of the cube.
15) What do you notice?

My Results

Explanation

The bubble solution will stick to the surfaces of the bubble wand, even if the wand is in a cube shape with linear faces. However, no matter what the shape of the bubble wand is, a bubble will release the wand into a sphere. This is because bubbles will take up the least amount of surface area around the trapped volume of air. The spherical shape has less space than the square, triangle, or rectangle, so a bubble will always form a sphere.

Think about this. When you first begin to blow a bubble, the solution can stretch in all kinds of directions. However, when the bubble gets free, the bubble quickly shrinks into a sphere, like a little bubble ball. This is because there are air particles hitting both the inside and outside walls of the bubble with the same frequency. Because the spherical bubble has the least amount of surface area to surround a volume of air, even a square bubble wand will produce a round bubble. That's one round bubble!

Parents and Educators: use #CuriousCrew #CuriosityGuide to share what your Curious Crew learned!

Curious Crew is a production of Michigan State University.
Learn more at WKAR.org.