



Science at Home



Bubbles

What You Need

- 1 gallon of water
- 1 teaspoon of Guar Gum—found in the baking aisle
- 2 teaspoons of baking powder
- $\frac{3}{4}$ cup of Dawn dish detergent

What You Do

1. Add baking powder to the water.
2. Add the Guar Gum to the Dawn dish detergent. Then, add this mixture to the baking powder and water.
3. Mix vigorously, but try to avoid making foam on top.
4. Grab a bubble wand and get ready to see the biggest bubbles!
 - a. **Tip:** This recipe improves with time as the Guar Gum fully hydrates and dissolves in the water. You'll see the bubbles get even bigger in a day or so.

Questions to ask

- *What do you need to make a bubble?*
- *What do you think would happen if you used more water? What about more dish detergent?*

What's The Science?

Have you ever tried blowing a bubble with only water? If you have, you know that this is a difficult feat! Water has a unique property called **cohesion**, which refers to the attraction of **water molecules** to one another. Cohesion is responsible for the **surface tension** that causes water to form spherical droplets. That's because water molecules would much rather clump together than stretch out into a bubble.

That's where the Dawn dish detergent comes in! The dish detergent separates the water molecules to reduce the surface tension. Then, the water is much more willing to form big, beautiful bubbles, rather than clump together.

Try This

Use science vocabulary: Use related science words such as molecule, cohesion and surface tension as you complete this experiment.

Keep In Mind

- Children are natural scientists; let them lead the way in their experimentation!
Encourage them to ask questions and make suggestions only when they are stuck/discouraged.
- The order suggested is not the only right or perfect way. Make adjustments based on the age, ability, and interests of the children.

Additional Resources

Curly's Fun with Bubbles by Sherry Boddie

Pop! A Book About Bubbles by Kimberly Brubaker Bradley

The Big Bad Bubble by Adam Rubin

