

# Ames Public Library @HOME Activities

## Science of Bubbles

A bubble is air wrapped in a soap film. Bubbles reflect light and the world around them! How do bubbles form? What conditions and materials make the best bubbles?

Let's find out! See a related video on the Library's YouTube Channel at

<http://bit.ly/APLvideos>.

## Books and media:

Title	Author / Performer	Call Number:
<i>Bubble Trouble</i>	Mahy, Margaret	E MAH
<i>How to Make Bubbles</i>	Shores, Erika L	ETR 507.8 SHO
<i>Pop!: A Book About Bubbles</i>	Bradley, Kimberly Brubaker	J 530.4 BRA
<i>The Ultimate Bubble Book: Soapy Science Fun</i>	Levine, Shar	J 530.4 LEV
<i>Super Simple Things to Do with Bubbles: Fun and Easy Science for Kids</i>	Doudna, Kelly	J 541.33 DOU
<i>Amazing Science! (DVD). Volume 1</i>	(DVD)	J 507.8 (DVD) AMA Volume 1
<i>National Geographic Science of Everything: How Things Work in Our World from Cell Phones, Soap Bubbles &amp; Vaccines to GPS, X-rays &amp; Submarines.</i>	(National Geographic Society (U.S.))	500 NAT 2014
<i>Easy Science Experiments Book</i>	Mills, J. Elizabeth	e-book

## Websites:

URL	Notes
<a href="http://www.ted.com/talks/li_wei_tan_the_fascinating_science_of_bubbles_from_soap_to_champagne/transcript?language=en">www.ted.com/talks/li_wei_tan_the_fascinating_science_of_bubbles_from_soap_to_champagne/transcript?language=en</a>	
<a href="http://www.youtube.com/watch?v=6-Ub_r_GFZY">www.youtube.com/watch?v=6-Ub_r_GFZY</a>	( <i>The Science of Bubbles / Spark</i> ) (58 mins)

## Vocabulary

Sphere – A sphere is a geometrical figure that is perfectly round, 3-dimensional, and circular—like a ball.

Liquid – Liquid is one of the states of matter. A liquid is free flowing and it conforms to or takes the shape of the container in which it is held.

Evaporation – Evaporation takes place when liquid turns into gas.

Surface Tension – Surface tension is the tendency of liquid surfaces to shrink into the minimum surface area possible.

Hydrophobic – The tendency to repel or fail to mix with water.

Hydrophilic – Having the affinity for water or the tendency to mix with water

Elasticity – The ability of an object or material to resume its normal shape after being stretched or compressed.

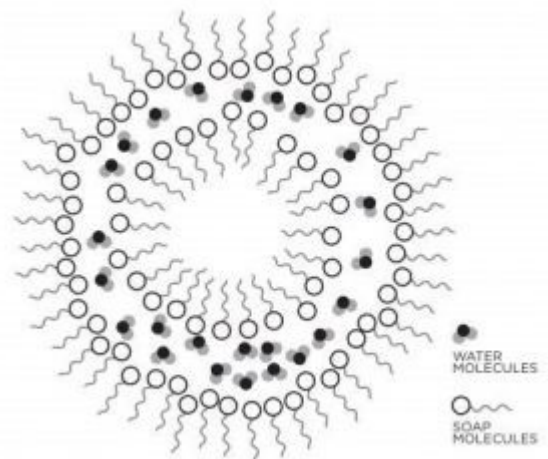
## The Science of Bubbles:

All you need to make a bubble is soap, water, and air. A bubble is a soap and water sandwich. When a bubble is formed, a layer of water is sandwiched together by two layers of soap. So the water molecule is the jelly that is sandwiched between two slices of bread – the soap molecules.

## Why is a bubble round?

Bubbles can stretch to form many different shapes. When you seal a bubble by letting it hang down from the wand it will make a sphere. This is because the tension in the bubble skin shrinks to the smallest possible shape for the volume of air it contains. That is why when if the bubble had a goofy shape before, once it is sealed a bubble will shrink into a sphere shape.

(Source: *The Science Behind Bubbles* by Robin Koontz)



# Bubbles!

Pick up your own @HOME activity kit at the Library after it reopens July 1!

*The kit contains:*

- Bubble bottle

Enjoy the bubbles! You can experiment by blowing in different places, indoors, outdoors and in different conditions, in the sun, in the wind, when it's raining, to see how the bubbles behave.

*To make the bubble solution in the video, you need:*

- 1 cup water
- 1 tablespoon dish soap (we used Dawn)
- ½ tablespoon glycerin (available in craft stores and some grocery stores)

*Steps to make the bubble solution:*

1. Mix the three ingredients together well.
2. Let the mixture sit for at least 24 hours. Stir it periodically.
3. Once the solution is ready, enjoy blowing bubbles!

You can also test how the homemade solution compares to the commercial mix. Which one makes bigger bubbles? Which bubbles last longer? Why? Let us know what you find out!