



Bubbles: Wonder and Whimsy  
in Every Pop

Presentation uploaded to the NCTCA site on this session.

“If you trust play, you will not have to control your child’s development as much. Play will raise the child in ways you can never imagine.”

~ Vince Gowmon

IF WE STOP PLAYING WITH THESE  
BUBBLES MY LIFE IS OVER- Grade 12  
Student

# THE SPEAKER?

Jason Zackowski-

Teacher at LTCHS in RDPSD

The Host of

The Science Pawdcast



You can find Bunsen, Beaker, Bernoulli, and Brix on social media!

**bunsenberner.bmd**  

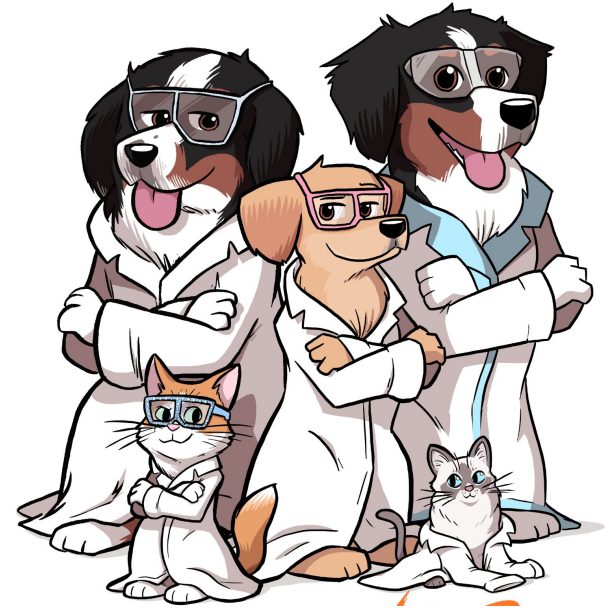
Bunsen, Beaker, Bernoulli & Brix

7,836 posts 269K followers 2,207 following

Digital creator

Follow us for a daily dose of laughter and science.  
(And a huge helping of heart and hope in this world)

Science  ... more





First off What is a Bubble?

Water molecules naturally stick together due to **cohesion**, forming a high surface tension. This strong cohesion prevents plain water from forming bubbles easily. However, when soap is added, it reduces water's surface tension, allowing the formation of stable bubbles.

What does that mean?

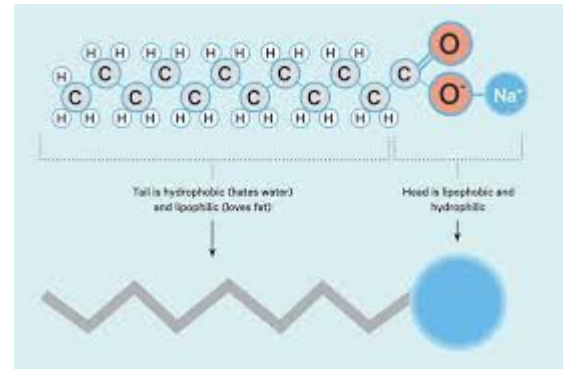
Water **LOVES** itself, and will resist stretching into films as it just wants to be cozy as a blob.

There are complicated bonds called **HYDROGEN BONDS** which keep water together and soap messes with that.

Soap molecules have two ends:

- **Hydrophilic head** (attracted to water)
- **Hydrophobic tail** (repels water, attracted to air/oil)

When mixed with water, soap molecules arrange themselves in a **bilayer** around a bubble, with hydrophilic heads facing water and hydrophobic tails facing outward or inward. This structure stabilizes the bubble film.



A soap bubble consists of **three layers**:

1. An outer layer of soapy water.
2. A thin middle layer of water molecules.
3. An inner layer of soapy water.

This thin **water layer** (called a "lamella"-luh-meh-la) is sandwiched between two soap layers, preventing rapid evaporation and collapse.

# Bubble Solution- Bubble Fun!

Kindergarten – Grade 2

Observing and describing matter interactions

Identifying cause-and-effect relationships

Investigating air and water interactions

## Grade 3 – Grade 4

Exploring forces acting on thin films

Investigating shape stability and pressure

Examining energy transfer and evaporation

## Grade 5

Applying particle theory to bubble formation

Exploring intermolecular forces and surface tension

Investigating gas behaviour in liquids

Grade 6

Analyzing bubbles as interacting systems

Exploring variables affecting system behaviour

Investigating environmental impacts of surfactants

Grade 9: chemical and physical properties

## **Grade 8: Fluids and Pressure**

- **How Bubbles Fit:** Study the behavior of liquids and gases through bubble experiments, focusing on pressure, viscosity, and buoyancy.

## **High School:**

Works great in Chemistry for Molecular Shapes

Manipulating the solution for Scientific Method

# The Plan

1. Make a couple different types of bubbles.
2. Try Some of the Activities!
3. Clean up or at least try to!

BUNSEN'S SUPER BUBBLES!



# Bunsen's Super Bubbles

1. Use the rule of 6 to 1. Six parts water to 1 Part Ultra Concentrated Dawn.
2. Add glycerin (or corn syrup) to give the bubbles strength. ! use 20 mL for 250mL of bubble solution.

# So a typical mix would look like this

600mL water

100mL Soap

50mL (ish) Glycerine/Glycerin

Glycerin can be ordered in 1L containers off Amazon - just make sure it's pure stuff.

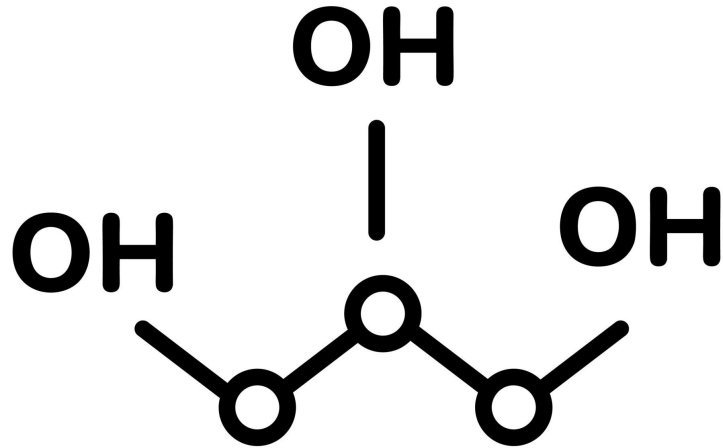
## Why Glycerine (Glycerol)?

1. Glycerine is a humectant (hyoo-mek-tent), meaning it attracts and holds water. When added to a bubble solution, it slows down water loss, making the bubble last longer before drying out and bursting.

2. Soap film needs to stretch to form bubbles. Glycerine acts like a plasticizer, making the soap film more flexible and resistant to breaking.

# OOOH HYDROGEN BONDS!

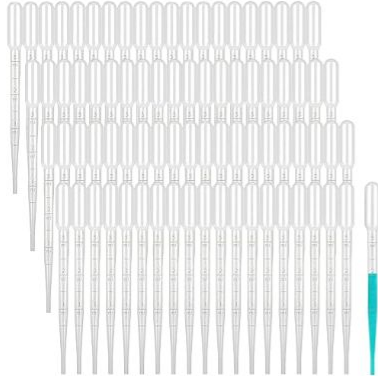
This is Glycerin!



# Bubble Blowers

## Single Use Plastic Pipettes (cut off the bulb)

## Straws



### 400 Pieces Disposable Plastic Transfer Pipettes, 3ML Calibrated Dropper Suitable for Science Laboratory, DIY Art

Brand: ESHATO

4.6 ★★★★★ (293) | [Search this page](#)

Amazon's Choice



\$24<sup>99</sup>

Get \$50 off your order instantly: Pay \$0.00 \$24.99 if approved for the Amazon.ca Rewards Mastercard. No annual fee. Conditions apply.

Number of Items: 400

100

\$11.99

200

\$15.99

400

\$24.99

- Multiple Applications: Ideal for safe and precision transfer of liquids, can be used in many occasions, like extracting essential oils, mixing fragrance, watercolor painting, science experiments, industrial uses, feeding the baby animals, self-made beauty products, etc.
- Easy to Read Graduation: Every number is marked clear, easy for you to read the capacity, good to measure out your oils, lab liquids, save your time when mixing your blends

# Bubble Fun Projects!

1. Bouncing Bubbles
2. Square Bubbles
3. Boo Bubbles (you'll see these later)
4. Molecular shapes!
5. Fun contests!

Today

3 “bathcups” water

$\frac{1}{2}$  “bathcup” Ultra Dawn

A little less than  $\frac{1}{2}$  “bathcup” of glycerine.

# Let's Bounce Some Bubbles!

It may take some experimentation by adding a little bit of soap and tiny bit more glycerine until you have the right mix.

# Square Bubbles!

Make a 3-D square out of the materials at your table.

You can pipe cleaners, straws or wooden skewers.

Dunk it into soap solution.

Blow a bubble in the center of it.

# Boo Bubbles

Sacrifice some of your soap solution into one of those empty cups.

Put in a couple pieces of dry ice.

**BOO BUBBLES!**

Bubble Blowing Contest!

Yes there are prizes!

Molecular Shapes! Or just fun shapes!

# My Frozen Bubble Recipe

I used 30mL corn syrup (to up the solution viscosity -durability)

Then 40mL dish soap (the expensive kind)

Also some sugar 1-2 tablespoons-which may slow the freezing effect down-giving you those nice crystals. Also they act as nucleation points-points where a water crystal can begin.

Finally got water 200mL

Clean up!