Better Bubbles

Mix two different bubble solutions and test which one makes bigger and stronger bubbles.

4-H Project Area: STEM
Time: 20-30 minutes
Life Skills: Critical Thinking–Observing, Comparing

Materials:

- Prepared bubble solutions (see recipes below)
- 2-4 shallow pans or trays
- 1 bubble wand per child

Recommend this activity be done outdoors
NOTE: Do not dump soap onto grass-it will burn plants.

Advance Preparation:
Mix the following solutions the day before you plan to do the activity. Bubble solutions improve with age.

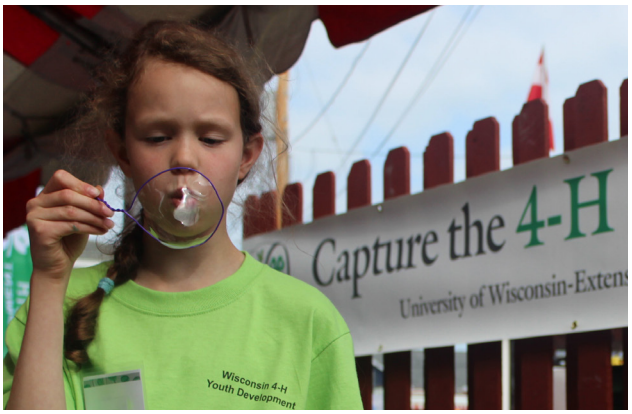
Bubble Solution #1–More Soap *(Bigger Bubbles)*
4 cups water
1/3 cup dish soap (Dawn Pro recommended)
2½ teaspoons glycerin*

Bubble Solution #2–More Glycerin *(Stronger Bubbles)*
4 cups water
1/4 cup dish soap (Dawn Pro recommended)
1/2 cup glycerin

**Glycerin is a natural by-product in soap and is used as a moisturizer in personal care products. You can find 100% glycerin in most pharmacies or supermarkets. Karo Syrup can be substituted but leaves surfaces slightly sticky.*

FOR MORE INFORMATION ON LEADING ACTIVITIES FOR YOUNG MEMBERS, SEE CLOVERBUD LEADER GUIDE

Did You Know?



Bubbles are simply air trapped inside a liquid. The surface of a liquid, like water, has a "surface tension" which makes the surface behave like a stretchy, rubber sheet.

Soap allows the surface of water to stretch more and keeps bubbles from breaking. Adding glycerin to water prevents bubbles from drying out quickly.

You can vary the ingredients to change the characteristics of bubbles. More soap allows for bigger bubbles. Glycerin makes stronger, longer-lasting bubbles.

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THE ACTIVITY

Explain that scientists ask questions and try different ways to answer them by doing experiments.

Tell the group that they are going to investigate the ingredients in bubbles and the types of bubbles that different solutions make.

Ask

What do you think is necessary to make bubbles?

What makes a good bubble? What is the best size bubble? How long should a bubble last?

Investigate

Basic bubble solutions are made of 3 different ingredients – water, soap and glycerin. Allow children to dip a finger in the soap, the glycerin, and each of the two bubble solutions. Invite them to talk about what they observe. Tell them that they are going to test each ingredient to figure out which ingredient makes bigger and stronger bubbles.

Create

- Set up two stations, one for each bubble solution labelled #1 and #2. Explain that one solution has more soap and the other one has more glycerin.
- At each station, **Ask,** ***How big is the biggest bubble you can blow? How long does a bubble last before it pops?*** You can time with a stopwatch or have children count together.
- Encourage the group to make their own observations: **Ask,** ***Does it make a difference if you blow gently or harder?***

Share/Reflect

After all the children have had a chance to blow bubbles at each station, bring the group together to share what they saw.

Ask, ***Was there a difference between the solutions? Which solution worked better?***

Encourage children to explain the differences using questions about size, strength, and number of bubbles they could blow.

Ask, ***What other tests or experiments might they try to make a better bubble?***

Relationship to 4-H

The way club meetings are structured depends largely on the size of the group and the age of the members. However, all meetings should have 3 common "ingredients"—business, education, and recreation.

Whether children participate in the full meeting or just for a part of it, it is important that they begin to know what to expect at club meetings and how they can be involved. Talk about how they help make decisions about what to do in the club (business), learn new things (education), and make friends and have fun (recreation).

More to Explore

Just as children experimented with different bubble solutions, make your own bubble wands using craft wire, string, straws or plastic hoops. Ask children which materials, shapes and sizes make the best bubble blowers. Using one solution, test the wands and observe differences.

Sources: *Bubble Mania*, Deborah Curry and Jodi Mills, Ohio State Cloverbud Curriculum; explOratorium.edu.
Adapted by: JulieAnn Stawicki, 4-H Youth Development Specialist, UW-Extension

SHARE • CONNECT • GROW

Today we made our own bubble solution using different ingredients to find out which made bigger and stronger bubbles.

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Building Better Bubbles

We learned...We learned about the science of bubbles. Adding soap to water allows the surface of the water to stretch like a rubbery sheet. Adding glycerin or karo syrup prevents the bubbles from drying out too quickly and popping. We created our own experiment to test and observe the differences between the solutions.

Ask your child... What was the best size for a bubble? How long did your bubble last before it popped? What did the ingredients in the bubble mix feel like? Was there a difference between the solutions?

Explore more...You can make your own bubble solution at home. Adjust the amount of soap and glycerin and see what happens to the size and strength of the bubble.

Supplies:
1 cup water
1 tablespoon (Tbsp) dish soap
1 teaspoon (tsp) glycerin or karo syrup
Shallow pan or tray

Directions: Mix the water, soap and glycerin together. Bubble solution seems to improve with age - make it at least a day in advance.

Connect to 4-H...The 4-H club meeting is a time for members to interact as a group and learn with and from one another. Meetings can be very different from club to club, and often depends on the size and age of the members. However you can expect that every meeting there will be time for youth to make decisions (business), learn new things (education), and make friends and have fun (recreation).