



Learning, Leading, Living

Really BIG Bubbles

Mission Mandate/Project**Connection:**

Science and Technology/Water

Topic:

Bubble making

Life Skills:

Learning to Learn

Audience:

4-H youth, all ages

Length:

20 minutes

Materials Needed:

- Clear plastic cups
- Tweezers
- Paper clip
- Two drinking straws
- About four feet of cotton string.
- Jelly roll pan or shallow baking pan
- One gallon clean bucket
- Ultra Dawn (not green) or Ivory Clear dish detergent
- Water
- Glycerin (available at pharmacies)

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BACKGROUND

Have you ever gotten a container of bubble solution and a little plastic wand and made bubbles? Bubbles are fun to make, but what is a bubble anyway? A bubble is very thin sphere of water filled with air. Water alone doesn't make a very good bubble solution. Adding soap to the water reduces the surface tension of water allowing it to "stretch" very thin. Soap and glycerin also help keep the water from rapidly evaporating, which will cause the bubble to pop. Water molecules are attracted to each other, and the attraction is so strong it gives water a property called "surface tension". The surface tension is what enables us to swim and float on water.

**Demonstration #1**

To demonstrate the surface tension of water, take a clear plastic cup and fill it with water. Ask the 4-H'ers if they think you can float a paper clip on the water. Now take a paper clip and holding it with a tweezers, gently lay it on the surface of the water. It will float. Now ask them what will happen if you put one drop of soap into the water. Add a drop of soap to the water and observe what happens. The paper clip sinks. Soap reduced the surface tension of the water.

Surface tension is also what holds a bubble together. With only water in a bubble solution, the surface tension is so strong that the bubbles that can be made are very small and break easily. By adding some dish soap, the small water bubbles can become really big bubbles!

Demonstration #2

Take a clear plastic cup and fill it with water. Now take one of the straws and blow bubbles in the water. Observe what happens. Do bubbles form? What happens to the bubbles? Now, add a couple of drops of dish soap to the water. Observe what happens. Do bubbles form? What happens to the bubbles?

WHAT TO DO:

One day prior to your meeting, make the following really big bubble solution (aged solution works better):

12 cups water
1 cup of dish soap
3-4 tablespoons glycerin

Add ingredients in order and stir gently. You don't want bubbles on the surface. If there are, skim them off. Cover the bucket with a lid or plastic wrap.

To create a bubble loop, give each 4-H'er two straws and one four foot piece of cotton string. Have them thread the string through the two straws and tie a knot in the end. The two straws and string should form a square/rectangle with the two straws on opposite sides. Make sure the knot is moved to the inside of one of the straws.

Gently pour the solution into the jelly roll pan. Have the 4-H'ers dip their bubble loop into the solution and lift it up. By gently pulling the bubble loop toward them, they will create a really big bubble! It takes practice!

ENCOURAGING YOUTH LEADERSHIP: Have youth leaders conduct the two demonstrations in the introduction. Have youth leaders make a bubble loop in advance and demonstrate how to make really big bubbles.

TALK IT OVER:

Reflect:

- What was the largest bubble that you were able to make? (estimate size)
- What are factors that influence the size of your bubble? Why are some bubbles bigger than others?
- How long did your bubbles last?
- Was the size of the bubble related to how long it lasted?

Apply:

- If you were going to build the world's largest bubble blower, what things would you want to consider?

ENHANCE OR SIMPLIFY

- Encourage youth to make bubble loops/wands out of different materials (i.e. wire coat hangers)
- Visit www.klutz.com to purchase the book "*How to Make Monstrous, Huge, Unbelievably Big Bubbles*" and/or to purchase the Bubble Thing.
- Explore why bubbles float.



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