

Module #1 Ask
Lesson #6

Background Information: The next five lessons in this module focuses on honing children’s observation skills by participating in learning activities with bubbles. A bubble is a thin film of soapy water. Most of the bubbles you see are filled with air, but you can make a bubble using other gases, such as carbon dioxide. The film making the bubble has three layers. A thin layer of water is sandwiched between two layers of soap molecules. Each soap molecule is oriented so that its polar (hydrophilic) head faces the water, while its hydrophobic hydrocarbon tail extends away from the water layer. No matter what shape a bubble has initially, it will try to become a sphere. The sphere is the shape that minimizes the surface area of the bubble, which makes it the shape that requires the least energy to achieve.

Grade Level: Elementary	Focus: Using all of the senses particularly sight and touch.	Supplies & Materials <ul style="list-style-type: none"> • Butcher paper • Chart paper • Markers • ½ Composition Book or paper folder • Straws • Dawn Detergent • Karo syrup or glycerin • Bucket 	Preparation <ul style="list-style-type: none"> • Review entire lesson plan • Prepare the bubble solution and divide into the number of containers for one per group. Be careful to stir the bubble solution gently. Also, remember to give the bubble solution sparingly—enough to complete the activity, but not so much they make a watery, soapy mess. • Consider covering the table tops with plastic or paper
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Objective: Children apply the skills of observation utilizing the five senses to learn about bubbles.

Introduction:
Prior Knowledge: Ask children the following questions.

1. What are the 5 senses we’ve learned about with which we learn about and observe the world? (Explain that for the next 5 lessons they will have the opportunity to use the 5 senses to observe bubbles.)
2. What is a bubble?
3. When have you blown bubbles in the past?
4. What is a sphere?
5. Is a bubble a circle or a sphere? (sphere)
6. What are bubbles made from? (soap film)

Explain the concept of soap film. (see the Vocabulary information)

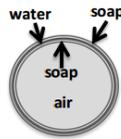
There are two facts about bubbles. Do you know what they are? (Bubbles will always try to form a sphere because this shape requires the least energy) (Consider how cookies become round even if they begin as squares) Bubbles pop on dry surfaces. (Consider how a bubble will rest on water but not on the carpet)

After they “guess” what the facts are based on the observations of bubbles they have already made, share the facts and ask youth, “Why do you think these would be facts about bubbles?”

Build Vocabulary Knowledge: Words to describe bubbles

Sphere: a round 3D shape that looks like a ball

Soap film: film made from layers of soap, water, soap, which in this case surrounds air, making a bubble



Bubble: a thin sphere of soap film enclosing air or another gas

Write each of the vocabulary words on chart paper or the white board. When you are asking questions in prior knowledge you will have the opportunity to introduce these words. When youth say, “The bubble is a circle.” respond by saying something like this: “You’re right, when a bubble pops it will leave a circle because circles are flat, since a bubble is round like a ball before it pops, what do we call it?”

During the lesson stop and take advantage of the teaching moments to review the vocabulary words.

Have children record the three words in his/her Vocabulary Notebook. Along with the words child may draw a picture or explain in his or her own words. For younger children, create the Vocabulary Notebook together.

Lesson: During this part children will engage in hands-on, minds-on, collaborative work to promote critical thinking.

Making Body Bubbles—What Shape Are Body Bubbles?

Youth will be making bubbles with their fingers, hands, and arms too, as long as those body parts are wet with bubble solution. Encourage youth to stick with their hands and forearms.

What you will need:

- Bubble solution in small containers (see Bubble Recipe at end of this lesson plan)
- Straw for each youth
- Paper Towels

Note: If you can do this outdoors in a space where there are tables, you might want to consider that—it will be easier to clean up.

What you will do:

1. Have youth wash hands before beginning this activity.
2. Divide youth into teams of 4
3. Give each team a small container of bubble solution and a straw for each member
4. Ask youth to form a circle using the finger and thumb
5. Ask youth to dip this shape into a bubble solution and try to gently blow a bubble
6. Youth may need to try several times before being successful
7. Once youth have been able to blow a bubble this way ask youth to cup both hands together and dip them in the bubble solution
8. Ask them to make different shapes using both hands—triangle, square, etc. What shape did the bubble take?
9. Explain to youth they can explore different ways to make bubbles—if they want they can use a straw to blow the bubbles—encourage them to try blowing bubbles in the palm of their hands, on the backs of their hands, on their forearms.
10. Encourage youth to partner with other students to make larger body bubbles.
11. Ask youth to try blowing the bubble on the table, in the air, with a straw, one hand, both hands.
12. Ask youth to determine how many people can blow into the same bubble?
13. Ask youth to determine if they can make a line of bubbles on their own arm?
14. Once youth have experimented with blowing different kinds of bubbles, have them clean up and sit in a circle or at desks/tables.
15. Ask youth the following questions:
 - a. What did you observe when you blew bubbles making a circle with your thumb and finger?
 - b. What shape were the bubbles you made?

- c. Which of your senses were you using to observe? How do you know?
 - d. What worked when you were doing this? What didn't?
 - e. What did you observe when you blew bubbles using both hands?
 - f. Which of your senses were you using to observe? How do you know?
 - g. What worked when you were doing this? What didn't?
 - h. What did you observe when you blew bubbles with a straw?
 - i. Did the shape of the bubbles change?
 - j. How was that the same or different than blowing bubbles just using your hands or fingers?
 - k. Which of your senses were you using to observe?
 - l. What was working when you did this? What wasn't?
16. In your opinion, what causes the bubbles to pop?

Closing: During this part of the lesson you will reconnect with the objective.

Review: Recap what we did today. **Ask** the questions:

1. What did we do today?
2. What new words did we discuss today? (record the responses)
3. What did you learn about observing when you were working with bubbles? (sight and touch are strongest—however, bubbles do make a sound, and if you accidentally got too close, bubbles taste soapy.)

Reflect: Think about what was learned. **Ask:**

1. What was something you learned today about observing bubbles? (record the responses in bullet points)

Debrief: Consider how what you learned today can be used tomorrow in school and in your life. **Ask:**

1. How might you use what you learned today tomorrow in school? (record the answers)
2. How might you use what you learned today at home? (record the answers)

Write: Working as partners, ask youth to write the directions for blowing the perfect body bubble. With the 1st and 2nd graders write the directions together.

Bubble Recipe

1 gallon water

1 c. Dawn Dishwashing Liquid

2 tablespoons Karo Corn Syrup or glycerin (you can purchase glycerin at Wal Mart)

Directions:

- Mix in the bucket stirring gently to avoid creating foam.
- The solution will keep for several weeks and seems to improve with age, so don't worry if you have some left over
- Distribute to youth in the small food storage containers after sealing with the lid