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REDG 600

**Bubble-ology**

Grades K-2

**State Standard(s):**

* **K.1.1.1 / 1.1.1.1 / 2.1.1.1** Students will be able to ask questions about aspects of the phenomena they observe, the conclusions they draw from their models or scientific investigations, each other’s ideas, and the information they read.

**Essential Question:** How are bubbles formed?

**Accommodations:**

* Students who have a motor disability can have a teacher assist them in writing/drawing when filling out bubble journals.
* Students who are sensitive to textures will be able to use gloves to gloves their hands.

**Day One: Body Bubbles**

**Content Objective(s):**

* Students will be able to hypothesize what might happen when we blow bubbles using different hand shapes.
* Students will be able to demonstrate the same hand formations that I show to blow bubbles.

**Language Objective(s):**

* Students will be able to listen to and follow directions regarding dismissal, touching materials, and bubble blowing.
* Students will be able to answer questions about bubbles.
* Students will be able to write (or draw a picture of) a short summary of what we did in bubble-ology.

**Academic Language:**

* Bubbles
* Bubble wand

**Materials:**

* Plastic containers/tubs – one per every two students
* Paper cups and plastic straws – one per student
* Water
* Dish soap
* Glycerin
* Bubble journals and pencils – one per student
* Bath towels

**Bubble Solution Recipe:**

* ½ cup dish soap
* 25-30 drops of glycerin
* ½ gallon of water

**Set up:**

* Two tables covered in bath towels
* Two bubble buckets per table
* One paper cup and plastic straw per child set out

**Ice Breaker**

Have everyone sit in a circle on the floor.

Introduce teachers and module

Go around the circle and have student say their names and their favorite thing to do.

Let’s play “Duck, Duck, Gray Duck”! – play until everyone has had a turn to be “it”.

**Safety Rules**

1. If/When we are outside, you are with the group. If you need to go to the bathroom, ask a teacher and we will bring you. Always make sure that you can see a teacher. We are wearing yellow shirts!
2. Do not eat the bubbles.
3. Bubbles will hurt your eyes. Have you ever gotten soap in your eyes? It’s not fun. Let’s be careful of where we are blowing bubbles!
4. Have fun! ☺

**Guided Instruction (We Do It):** Activate Prior Knowledge – Group Discussion & KWL

* Have you ever blown a bubble?
* What do they look like?
* Are they fragile? Can you hold them? Can you poke them? What happens when you poke them?
* What do they smell like?
* Can they be different shapes? Square, triangle, stars, etc.
* What do you want to learn about bubbles?

Today we are going to be exploring bubbles! Let’s review our safety rules.

Do we eat bubbles? Do we blow them in our friend eyes? No!

**Let’s Practice!**

Paper cups with water and straws will have been previously set up. Dismiss students to find a cup by characteristic (age, hair, eyes, glasses, shoes, etc.).

**Guided Instruction (We do it):** We’re going to practice blowing with water before we use actual bubbles. Place your straw in your plastic cup and practice blowing bubbles! Did anyone suck in and get water in their mouths? When we use real bubbles, we want to be sure that we are being super careful to **blow**, not **suck**. You are all rock star bubble blowers!

*(\*collect cups and straws\*)*

**Focused Instruction** **(I do it):** Now, we’re going to start experimenting with real bubbles! What do we use to blow bubbles? Have you ever used your hands? We’re going to use our hands to blow bubbles today!

*(\*distribute one tub of bubble mixture for every two students\*)*

I’m going to show you how to do it, so watch me first! Everyone, hold up one hand for me. Now touch your thumb and your first finger together, so that they make a little circle. Perfect! Now, place your hand in the soap so that your hand is completely covered. Take your hand out, bring it to your mouth, and gently blow! Look, I blew a bubble with my hands! Now it’s your turn.

Go ahead!

**Collaborative Learning (You do it together):** Allow students to experiment for ~15 minutes.

**Focused Instruction (I do it):** Nice work everyone! Let’s learn a new way! Make a triangle using 2 hands. Put your thumbs together, and your pointer fingers together too. Put your hands in the soap, bring them out, and blow! Go ahead!

**Collaborative Learning (You do it together):** Allow students to experiment for ~15 minutes. Encourage experimentation with other shapes and hand positions.

**Focused Instruction (I do it):** Alright everyone, blow one last bubble! We’ll blow more bubbles tomorrow. Now, we’re going to fill out our bubble journals. Every day after we’re done with our activity, we’re going to write or draw a picture of what we did.

**Independent Learning (You do it alone):** Students fill out bubble journals – write a few sentences about – or draw a picture of – what we did today

Collect journals/pencils and keep for tomorrow. Clean up.

**Day Two: Bubble Makers**

**Content Objective(s):**

* Students will be able to identify which objects can produce bubbles and which will not.
* Students will be able to design a functioning bubble maker/wand using the materials provided.

**Language Objective(s):**

* Students will be able to listen to and follow directions regarding dismissal, touching materials, and bubble blowing.
* Students will be able to answer questions about bubbles.
* Students will be able to write (or draw a picture of) a short summary of what we did in bubble-ology.
* Students will be able to explain the essential characteristic of a bubble maker/wand.

**Academic Language:**

* Bubbles
* Bubble wand
* Closed shape

**Materials:**

* Plastic containers/tubs – one per every two students
* Water
* Dish soap
* Glycerin
* Pipe cleaners
* Craft sticks
* Pencils
* Bubble wands/sticks
* Bubble journals and pencils – one per student
* Bath towels

**Bubble Solution Recipe:**

* ½ cup dish soap
* 25-30 drops of glycerin
* ½ gallon of water

**Set Up:**

* Two tables covered in bath towels
* Two bubble buckets per table

**Collaborative Learning (You do it together):** Bubble review and warm up!

Review day one – who can tell me what we did yesterday? What did we make bubbles with? What shapes did we make? That was so fun! Today we’re going to experiment with bubbles even more! Before we get into anything new, we’re going to make some more body bubbles, just for the first 10-15 minutes.

**Focused Instruction (I do it):** Explain “Bubble maker? Yes or No” activity.

Distribute a variety of materials to each table (craft sticks, pipe cleaners, bubble wands, pencils, etc.). I’ve passed out different materials on both of your tables. Your job for the next few minutes is to test out each item an decide if they are effective bubble makers or not. Separate them into two different piles – a “YES” pile and a “NO” pile. Pay attention to what objects make effective bubble makers and which ones don’t!

**Collaborative Learning (You do it together):** Have students complete “Bubble Maker? Yes or No!” activity in two groups. Come back together as a while class afterwards.

**Guided Instruction (We do it):** Whole group discussion about which tools worked and which ones didn’t. What did all the “yes” tools have in common? They all had holes; they were all closed shapes! Bubble makers/wands only work when there is a closed shape. If there’s not, the soap escapes and we can’t blow bubbles.

**Focused Instruction (I do it):** Build your own bubble wand!

Now that we know what makes an effective bubble maker, we are going to build our own! You can use any of the tools at your tables (craft sticks, pipe cleaners, pencils, etc.). Here is what I made:

*(\*show pipe cleaner bubble wand in the shape of a triangle*\*)

I know that to make a great bubble wand, I need to have a closed shape. Is this a closed shape? Yes, it is! This wand is in the shape of a triangle. Do you think my bubble will be a triangle, too? Let’s find out!

*(\*blow bubble with wand\*)*

What shape was is it? A circle! A triangle wand makes a circle bubble. Interesting! When you make your own bubble wands, try to build different shapes, and see what shapes your bubbles are!

**Collaborative Learning (You do it together):** Build your own bubble wand! Hover between groups, give reminders about open vs. closed shapes, help when needed, ask questions (“Is that a closed or open shape?”, “What shape do you think the bubble will be?”, etc.)

**Guided Instruction (We do it):** Discussion about bubble wands. What kinds of shapes did you choose for your bubble wands? What shapes were your bubbles? No matter the shape of the bubble wand, the bubble will always be a circle!

**Independent Learning (You do it alone):** Students fill out bubble journals – write a few sentences about – or draw a picture of – what we did today.

Collect journals/ pencils and keep for tomorrow. Clean up.

**Day Three: Bubble Measurement**

**Content Objective(s):**

* Students will be able to measure the diameter of a bubble using unifix cubes.
* Students will be able to define the word “diameter”.

**Language Objective(s):**

* Students will be able to listen to and follow directions regarding dismissal, touching materials, and bubble blowing.
* Students will be able to answer questions about bubbles.
* Students will be able to write (or draw a picture of) a short summary of what we did in bubble-ology.

**Academic Language:**

* Bubbles
* Diameter
* Measure

**Materials:**

* Giant bubble wands and solution
* Printer paper
* Bubble journals and pencils – one per student
* Two plastic tubs
* Unifix cubes
* Water
* Dish soap
* Glycerin

**Bubble Solution Recipe:**

* ½ cup dish soap
* 25-30 drops of glycerin
* ½ gallon of water

**Set Up:**

* One bubble bucket per table
* One piece of paper at every chair

**Guided Instruction (We do it):** Bubble wand warm up!

Take the students outside and play with giant bubble wands for the first 10-15 minutes. Prompt student thinking about bubbles – How do bubbles float? Do they float forever?

**Focused Instruction (I do it):** Bring the class back inside and havestudents sit at the tables with the paper and bubble buckets. Review previous two days: “What did we do one day one? We made bubbles with … what did we use again? Our hands! What did we do yesterday? We made bubble makers! What do we know about bubble makers now? Should they be open shapes or closed shapes? Closed! What shapes are the bubbles, no matter what the bubble maker looks like? Circles! We’ve been doing a lot of experimenting and playing with bubbles. Today, we’re going to become bubble investigators and measure the different sizes of bubbles!

**Guided Instruction (We do it):** Group discussion about measuring bubbles. How can we measure bubbles? Any ideas? What would happen if I out a ruler up to a bubble to measure it? It would pop! So how can we measure bubbles without popping them first? We’re going to pop them first. Crazy, I know!

**Focused Instruction (I do it):** Explain and model measuring activity.

Today we are going to be using these

*(\*hold up unifix cubes\*)*.

Can anyone tell me what they are? They’re called unifix cubes. What are they used for? Measuring! You each have a piece of paper in front of you. You are going to use your hands to blow a bubble, just like one day one, and blow a bubble onto your piece of paper. When it pops, it is going to leave a ring/circle where the bubble was. Your job is to take the unifix cubes and measure across the middle of the bubble – this is called the **diameter**. Say diameter with me. The diameter is the length from one side of a circle to the other side, right down the middle. We are going to be measuring the diameter of our bubbles with the unifix cubes! There is a catch to this – we’re going to make this a competition. Let’s see who can make the biggest bubble today!

*(\*model how to blow bubble on paper, show students bubble circle/ring, draw a line showing the diameter on the paper, measure diameter with the unifix cubes\*)*

**Collaborative Learning (You do it together):** Bubble Measuring activity.

Disperse unifix cubes between tables. Hover between tables and help when needed. If a student is having a hard time blowing bubbles onto the paper, the teacher can blow the bubble and the student can measure it!

**Guided Instruction (We do it):** Review discussion. What did we do today? We measured bubbles with the unifix cubes. We measured the diameter of the bubbles. Can someone remind me what diameter means? The diameter is the length from one side of a circle to the other side, right down the middle. Nice work today!

**Independent Learning (You do it alone):** Students fill out bubble journals – write a few sentences about – or draw a picture of – what we did today.

Collect journals/pencils and keep for tomorrow. Clean up.

**Day Four: Pool Bubbles**

**Content Objective(s):**

* Students will be able to list what they’ve learned about bubbles during STEM camp.

**Language Objective(s):**

* Students will be able to listen to and follow directions regarding dismissal, touching materials, and bubble blowing.
* Students will be able to answer questions about bubbles.
* Students will be able to write (or draw a picture of) a short summary of their favorite activity from bubble-ology.

**Academic Language:**

* Bubbles
* Bubble wand

**Materials:**

* Kiddie pool
* Hula hoop
* Goggles
* Stepping stool
* Bath towels
* Water
* Dish soap
* Glycerin
* Bubble journals and pencils – one per student

**Bubble Solution Recipe:**

* ½ cup dish soap
* 25-30 drops of glycerin
* ½ gallon of water

Fill buckets with solution and pour into pool until full.

**Set Up:**

* Outside
* Kiddie pool with bubble solution, stepping stool on submerged bath towel
* Bath towels placed around pool

**Guided Instruction (We do it):** Group discussion. Review days one, two, and three.

What did we do this week? Can bubbles be different shapes? What can we use to blow bubbles? Who remembers what the word “diameter” means? What was your favorite thing we did this week?

**Focused Instruction (I do it):** Introduce pool bubbles and discuss rules/safety.

“Today we’re going to be doing something fun that has to do with making a REALLY BIG bubble! Can you guess what we’re doing? We’re finally going to do what you have been asking about all week! I am going to put YOU inside a bubble! Are you excited?! I know I am!

Before we do that, though, we need to talk about safety. It is super important that we follow all the rules and that we’re really safe. Bubbles can be very slippery, so we need to be careful. I don’t want anyone to slip and fall. When you get in the pool, have your goggles already on. Step in really slowly so that you don’t slip. When you are getting out, hold onto a teacher’s hand and step slowly onto the towels so that we can get all the soap and water off of your shoes. Let’s have fun today!

**Guided Instruction (We do it):** It’s pool bubble time!

* Shake/Work hula hoop in pool with bubble solution prior to activity to make suds
* Student (**wearing goggles**) steps into pool on stool
* Two teachers on either side of the hoop
* Teachers pinch top of hula hoop with fingertips so as not to pop the bubble
* Teachers count down “3, 2, 1!” and quickly lift hula hoop over child simultaneously
* Student steps out of pool on towel

Get through each child once before give second turns.

**Collaborative Learning (You do it together):**

While the students wait for their turn in the pool, they will be blowing bubbles outside with giant bubble wands.

**Independent Learning (You do it alone):** Students fill out bubble journals – write a few sentences about – or draw a picture of – your favorite thing we did this week!

**Focused Instruction (I do it):** Final closing

We learned so many things about bubbles this week! Let’s review some of what we learned.

* Bubbles are always circular, no matter the shape of the bubble wand/maker
* To blow a bubble, your bubble wand/maker needs to be a closed shape
* Diameter: The length from one side of a circle to the other side, right down the middle

I had so much fun with all of you this week! I hope you all did too. Thanks for being bubble explorers with me! Have a great rest of your summer!

Collect journals and pencils. Clean up.

**Formative Assessment:** Daily bubble journals

Write a few sentences about – or draw a picture of – what we did today.

**Summative Assessment:** Exit ticket - How are bubbles formed?

Students can write or draw their answers.

\*\*Bubble Journal documents attached below\*\*



