



## SCIENCE TAKE-HOME KITS FACILITATOR'S GUIDE

### BUBBLE FUN

- **Aim:** To create a bubble inside a bubble without popping it.
- **Materials required:**
  - ✓ Straw
  - ✓ \*Dish liquid soap
  - ✓ \*Sugar
  - ✓ \*Water
  - ✓ \*Bowl
  - ✓ \*Spoon (Measuring spoon will be more helpful)
  - ✓ \*Tray or plate (optional)

**Note:** Perform this experiment on washable flat surface or use a big smooth tray or plate.

\*These materials are not provided in the kit. Gather these materials from home.

- **Watch the experiment video on the website at [www.pta.org/stem/athome](http://www.pta.org/stem/athome)**
- **Questions to think before you start:**
  - ✓ What happens when you touch a bubble?
  - ✓ Can you create a bubble inside a bubble without popping it?

- **Instructions:**

Make sure to perform the experiment as a team (parent and student). Please read the instructions out loud.

**Step 1 - Parent:** Pour about 8oz of water into a bowl.

**Step 2 - Student:** Add 1 tablespoon of sugar into the bowl of water. Stir the solution, till the sugar dissolves completely.

**Step 3 - Parent:** Add 2 tablespoons of the dish soap into the bowl. Gently, stir the solution well. The bubble solution is ready.

**Step 4 - Parent:** Make sure the surface or tray/plate that you decide to work on is clean and smooth.

**Step 5 - Student:** Use your fingers and spread some of the bubble solution on the work surface. It should be around 8-10" in circle.

**Step 6 - Student:** Dip one end of the straw into the soap solution so that the straw is completely coated with solution. Blow a bubble onto the surface. Try and make a large bubble. Remove the straw carefully.

**Step 7 - Parent:** Dip the straw again into the soap solution and slowly push it inside the first bubble. Now without moving the straw, blow a second small bubble inside the first bubble.

**Step 8 - Student:** Repeat steps 6 and 7. Take time to blow the bubbles. With little practice you will be able to do it.

#### HELPFUL TIPS

Warm water will help to dissolve sugar quickly. Cool down the water before making the bubbles.

No granules of sugar should be present in the solution.

Be careful not to make a lot of foams in the bowl with stirring.

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- The science behind the fun:**

Molecules in the water stick together building a force called surface tension. When soap is added to the water the surface tension is reduced. Soap also makes bubbles more flexible. And when a straw coated with bubble solution is pushed into the big bubble, the wet surface of the straw becomes a part of the film (surface) of the bubble and hence does not break.
- Real world application:**

Bubbles can be used to learn a variety of concepts like flexibility, color formation, transparency and elastic properties. Soap bubbles can help to solve complex mathematical problems of space by determining the smallest surface area between points or edges.
- Expand your knowledge:**
  - ✓ Try making a third bubble inside the second bubble. Find out, how many bubbles can be made like this.
  - ✓ Try pushing the straw in the bubble without dipping it in the bubble solution.



#### Did you know?

- A water molecule is actually made of two hydrogen atoms and one oxygen atom. Chemical formula of water is H<sub>2</sub>O.
- When light shines on a soap bubble different colors can be seen in it.

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