

# CURIOSITY AT HOME

## BUBBLE BLAST



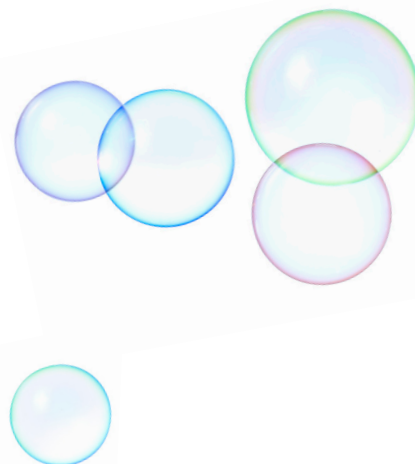
If you blow air through a straw into a cup of water, what do you get?

**Bubbles!** But do they last?

Chemical engineers use their understanding of chemical properties to design and improve products. Can you use the chemical properties of household products to make a better bubble?

### MATERIALS

- 1 cup measuring cup
- 1 tbsp. measuring spoon
- water
- liquid dishwashing soap
- light corn syrup
- 1 stopwatch
- 3 plastic cups
- glycerin (available at most drugstores, or substitute a different slippery substance like hand soap, coconut oil or vegetable oil)
- 3 pipe cleaners
- tape and marker for labeling
- science notebook
- pencil, or something to write with



### PROCEDURE

- Label each cup with 'soap only', 'glycerin' or 'corn syrup.'
- Add 1 cup water and 2 tbsp. dishwashing soap to each cup and mix with a spoon.
- Stir 2 tbsp. corn syrup into the cup labeled 'corn syrup.'
- Stir 2 tbsp. glycerin into the cup labeled 'glycerin.'
- You now have 3 bubble-blowing solutions.
- Twist each pipe cleaner into a bubble wand with a handle and an open circle at the top.

#### Let's Blow Bubbles.

- Go outside and practice blowing bubbles and catching them on your wand.
- When you are ready, catch at least 3 bubbles of each solution and time how long it takes them to pop.
- Which solution makes the longest lasting bubble?
- Record your observations in your science notebook.

### EXPLORE MORE

- Cover the bubble solutions and let them sit overnight. Blow bubbles with each solution the next day. Do the bubbles pop any faster or slower than before?
- Make bubble wands of different shapes and sizes.
- Make three-dimensional bubble wands using straws and/or pipe cleaners.

### WHAT'S HAPPENING?

A molecule is a group of atoms bonded together. A water molecule has 2 hydrogen atoms and 1 oxygen atom, which we write as H<sub>2</sub>O. Water molecules have surface tension, which means they stick together. Adding dishwashing soap reduces the surface tension, allowing bubbles to form. The molecules in corn syrup or glycerin bond with water, slowing down its evaporation and allowing bubbles to last longer before they burst.



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### 3–5 GRADE EXPLORATION

Explore the following questions and write down your observations on this sheet or in a science notebook.

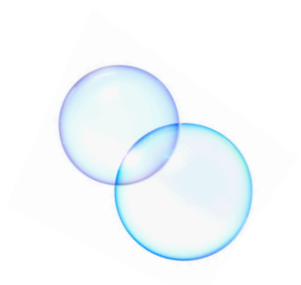
- What happens when you blow slowly to make your bubble?
- What happens when you blow quickly to make your bubble?
- Can you make bubbles that are the same size from different size bubble wands?
- Using a circular bubble wand, what shape are the bubbles?
- What shape are the bubbles you make with wands formed into other shapes such as a square?

Bubbles form when a gas is trapped inside a liquid or a solid. Think about where else you have seen bubbles. Can you find any around the place you live? *(There are some hints at the bottom of this page)*

**Bubbles found trapped in solids:**



**Bubbles found trapped in liquids:**



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