Bubble Exploration

K-2

**Why**  
To be a chemist and explore bubbles.

**What You Need**

 Liquid dish soap

 Water

 Dishpan or pail

**What to Do**  
Slowly mix the ingredients together. Make bubble wands of various shapes and sizes using pipe cleaners, berry baskets, cans (both ends removed), flyswatters, etc. � and make bubbles!

**Vocabulary**  
**Bubble:** A thin spherical film of liquid which encapsulates a volume of gas or air.  
**Volume:** A measurement of the amount of space occupied by the air inside a bubble. Big bubbles have greater volume than smaller ones.

***Try This*** *Find other household items that can be used for bubble blowing. Are the bubbles always the same shape? Try adding corn syrup. What happens? Use varying recipes for bubbles, including commercially prepared solutions. Which do your children prefer?*

Red Flags  
Soapy water on the floor is very slippery.

Questions to Ask  
What do you think is inside a bubble? Why does it float through the air? What colors are the bubbles? What shapes are the bubbles that are touching each other? Where have you seen bubbles before?

Tips for Less Mess  
Cover work surface with an absorbent material such as old towels. Keep paper towels and a garbage bag handy. The entire activity may be done outdoors.

Science Connection  
What is a bubble? Bubbles are encapsulated gases, such as air. Some materials that could surround a volume of gas might be a soap film, latex like an inflated balloon, or soda pop. In these explorations, a soap film surrounds a volume of air. Have you wondered why soap or detergent helps get the dishes clean? A soap molecule has one end that is attracted to water and one end that is attracted to grease. When you wash a greasy plate with soapy water, the soap molecules attach to the grease with their water-repelling ends, leaving their water-attracting ends in the water. When you rub the plate with a sponge, the water pulls on the water-attracting ends of the soap molecules, which pull on the grease. When the grease is pulled free of the plate, the soap molecules surround it, and can be washed away with water

National Standards

Head Start Child Development and Early Learning Framework

**1.2 ( Prekindergarten ):** Observes and discusses common properties, differences, and comparisons among objects.

**2.2 ( Prekindergarten ):** Observes, describes, and discusses properties of materials and transformation of substances.

Benchmarks for Science Literacy

**4D/E4 ( Grades: 3-5 ):** When a new material is made by combining two or more materials, it has properties that are different from the original materials.

**4D/E5 ( Grades: 3-5 ):** A lot of different materials can be made from a small number of basic kinds of materials.

**4D/P1 ( Grades: K-2 ):** Objects can be described in terms of their properties. Some properties, such as hardness and flexibility, depend upon what material the object is made of, and some properties, such as size and shape, do not.

**4D/P2 ( Grades: K-2 ):** Things can be done to materials to change some of their properties, but not all materials respond the same way to what is done to them.

**4F/P2 ( Grades: K-2 ):** The way to change how something is moving is to give it a push or a pull.

**8B/E2 ( Grades: 3-5 ):** Humans have produced a wide variety of materials, such as steel, plastic, and nylon, that do not appear in nature.

NSTA National Science Education Standards

**B.1.1 ( Grades: 5-8 ):** A substance has characteristic properties, such as density, a boiling point, and solubility, all of which are independent of the amount of the sample. A mixture of substances often can be separated into the original substances using one or more of the characteristic properties.

**B.1.2 ( Grades: K-4 ):** Objects are made of one or more materials, such as paper, wood, and metal. Objects can be described by the properties of the materials from which they are made, and those properties can be used to separate or sort a group of objects or materials.

**B.1.3 ( Grades: K-4 ):** Materials can exist in different states--solid, liquid, and gas. Some common materials, such as water, can be changed from one state to another by heating or cooling.

**B.1.3 ( Grades: 5-8 ):** Chemical elements do not break down during normal laboratory reactions involving such treatments as heating, exposure to electric current, or reaction with acids. There are more than 100 known elements that combine in a multitude of ways to produce compounds, which account for the living and nonliving substances that we encounter.

**B.2.3 ( Grades: K-4 ):** The position and motion of objects can be changed by pushing or pulling. The size of the change is related to the strength of the push or pull.

**E.3.2 ( Grades: K-4 ):** Objects can be categorized into two groups, natural and designed.