Bubbles – Giant Ones!

Bubble making is fascinating and a great way to have fun outside in the Summer.

Materials:

- Measuring cups & spoons
- Dawn dishwashing liquid
- Water
- Glycerine (available at drug stores)
- Wire coat hanger
- Yarn
- Shallow tub or serving tray (about 45-50 cm in diameter)
- 4L ice cream pail

Procedure: (Remember to have your parent's permission and have them watch and help you.)

- Mix up a bubble solution of 170 ml Dawn™ dishwashing liquid, 15 ml glycerine and water in the ice cream pail.
- More durable bubbles can form if you let this solution age for at least a day, preferably a week.
- Bend the coat hanger into a flat circular hoop with the hook serving as a handle.
- Wrap the yarn tightly around the wire hoop, the yarn will absorb the bubble solution and make it easier to use.
- Fill the shallow tray with bubble solution and submerge the hoop in the solution.
- Then tilt the hoop until it is almost vertical and lift it from the tray. A bubble film should extend across the hoop.
- Swing the hoop through the air to make a giant bubble. When you have a big bubble, twist the hoop to seal it off.
- What shapes do the bubbles take once they are free of the hoop?
- Look for patterns and colors in the bubbles.

What's Happening:

The attraction of water molecules for each other is known as *surface tension*. Normally, surface tension makes it impossible to stretch the water out to make a thin film. Soap reduces the surface tension and allows a film to form.

Because of surface tension, a soap film always pulls in as tightly as it can. It makes the smallest possible surface area for the volume it contains. If the bubble is floating in the air, it will form a sphere. (Wind or vibration may distort the sphere.)

The patterns of different colors in a soap bubble are caused by *interference*. Light waves reflected from the inner and outer surfaces of the soap film interfere with each other and the colour of the light. For example, if the soap film is thick enough to cause waves of red light to interfere destructively with each other, the red light is eliminated, leaving only blue and green.

Extension:

You can make other devices to create large bubbles. One of the easiest is a length of fuzzy yarn threaded through two drinking straws, with the yarn ends tied to make a loop any size you want.

This activity is based on our Bubbles kit. The source for this lab is http://www.exploratorium.edu/snacks/bubble_tray/index.html. Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering as a classroom guest speaker or offer your business as a field trip location.

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