The Bubble Trampoline

Simple STEM Activities You Can Do at Home

Purpose:	The purpose of this activity is to construct a bubble trampoline that will bounce up and down without popping.
Standard:	**SKP1. Obtain, evaluate, and communicate information to describe objects in terms of the materials they are made of and their physical attributes.** b. Use senses and science tools to classify common objects, such as buttons or swatches of cloth, according to their physical attributes. **S2P1. Obtain, evaluate, and communicate information about the properties of matter and changes that occur in objects.** a. Ask questions to describe and classify different objects according to their physical properties. **S8P1. Obtain, evaluate, and communicate information about the structure and properties of matter.** a. Develop and use a model to compare and contrast pure substances (elements and compounds) and mixtures.
Materials:	Straw, string, ruler, scissors, bubble solution, container.
Procedures:	1. Using two half straws and about 20 inches of string, **plan** and **design** a simple trampoline base that you think can hold a layer of bubble film. 2. Once the trampoline is constructed, soak it in bubble solution, carefully raise it out of the solution and see if you can a bubble film to form across it. 3. T**est** out your bubble tramp and see if you can get it to move up and down without popping. Keep practicing and you'll get better at it. 4. **Try** adding a small bubble and see if you can get it to bounce off the tramp.
Science Behind It:	Bubbles are an interesting **mixture** of **materials**. They are usually made out of a blend of soap, water, and air. The soap and water form the outside surface of the bubble and the air is trapped on the inside. Bubbles are very delicate and they don't last very long before they pop. They pop as soon as most of the water in the bubble **evaporates**. Poof! You can make bubbles with lots of things like straws, strings, cups, and paper towel tubes. You just need something to hold the bubble film while you blow some air into it. Bubbles tend to be round, or spherical, in shape because this shape helps them to be more stable. Spherical shapes use a minimal amount of **surface area** to enclose the volume of air that is trapped inside. Surface area is the amount of space that an object occupies on the outside. The less surface area on the outside of an object, the more strong and stable it tends to be. If you want to make bubbles that are stronger and last longer, you can add some other materials to the mixture. Glycerin is a gooey **liquid** that keeps the water from evaporating as quickly and this helps to make the bubbles more durable.
Questions to Ask:	1. Explain why your oboe was able to vibrate and produce sound. 2. What happened to the pitch or your oboe as you made it longer?