Strange Soap **Primary Audience:**

Description: Participants will observe the amazing properties of liquids.

Keywords:

Concepts:
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Materials:
- Per Participant:
  - Cup
  - Bubble Solution (Liquid Dish Soap and Water)
  - Container for Bubble Solution
  - Paper Towels

Instructions:
Carefully cut the bottom out of the cup.

Place or make the soap solution in the container.

Coat the inside of the cup by rolling the cup in the soap solution.

Dip one end of the cup into the soap solution to create a soap film over the end.

Observe the soap film. What happens?

When the soap film pops, dip the opposite end into the soap solution. What happens?

Possible Interactive Questions:
- What differences do you notice, when you compare the two instances?
- Were there differences when using the opposite end of the cup? Why?

What's Going On?

Soap films in this experiment seek the smallest surface area possible. This is why bubbles and floating liquids on the space shuttle are in the shape of a sphere or ball. In the cup, the soap film moves from the large end to the small end because the small end has less surface area.

Further Exploration:

1. What happens if a film is formed on both ends of the cup? Measure the surface area of each end of the cup. What is the ratio? Is this a standard ratio for other sizes and types of disposable cups? Use the cup to blow large bubbles then compare the surface area of spheres.

Relevant Ohio Science Content Standards:

- Physical Sciences 3-5 B: Identify and describe the physical properties of matter in its various states.
    - 4.4: Explain that matter has different states (e.g. solid, liquid, gas) and that each state has distinct physical properties.
- Physical Sciences 9-10 B: Explains how atoms react with each other to form substances and how molecules react with each other or other atoms to form even different substances.
    - 9.6: Explain that the electric forces between the nucleus and the electrons hold an atom together. Relate that on a larger scale, electric forces hold solid and liquid material together (e.g. salt crystals and water).