Name(s)_____

How is the Surface Tension of Water Affected by Soap?

Introduction: Surface tension refers to water's ability to "stick to itself". Surface tension can be measured and observed by dropping water (drop by drop) onto a penny.

1. **Initial Observation**: Observe surface tension by seeing how many drops of water can fit on a penny. ____

Experimental Question: How does soap affect the water's surface tension?

Develop a hypothesis that answers the experimental question. Write this statement below.

2. **Test your hypothesis** by comparing the number of drops of tap water that can fit on a penny to the number of drops of soapy water that can fit on a penny. Because water drops may vary depending on how well you drop the water, it is best to run many trials and take an average. Record your data in the table below.

	Trial 1	Trial 2	Trial 3	Trial 4	Average
Tap Water					
Soapy Water					

3. **Communication** is an important part of science. Compare your data with 4 other groups

	Group 1	Group 2	Group 3	Group 4	Average
Tap Water					
Soapy Water					

Are there any groups that had significantly larger numbers than what you were able to get? Propose an explanation for why one group may have been able to get more drops on their penny than you.

4. **Analyze the data and draw conclusions.**

a) Identify the independent (manipulated) variable and the dependent (responding) variable in your experiment.

b) Write a sentence that explains how soap affects the surface tension of water based on the results of your experiment.

5. **Questioning:** Now that you have an idea about how soap affects surface tension. What other questions can you develop (and even test) about surface tension. Write at least two follow-up questions that could be tested using the penny technique.