**PENNY LAB**

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. The number of water drops that can fit on a penny will surprise you.

1. Make a guess about how many drops you think will fit on a penny. \_\_\_\_\_\_\_\_\_
2. Sometimes a steady hand can make more drops fit on the penny. A bump of the table can reduce the drops. You should do a few tests to get an average to see how many drops fit on a penny.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test 1 | Test 2 | Test 3 | Test 4 | Test 5 | Average |
|  |  |  |  |  |  |

**Question: How does soap affect the water’s surface tension?**

1. Develop a hypothesis.

Soap will (increase /decrease) the surface tension of the water.

1. Make a prediction. Choose the one below that matches your hypothesis.
2. Soap will increase the surface tension, therefore I will be able to place more drops on the penny.
3. Soap will decrease the surface tension; therefore, I will be able to place fewer drops on the penny.
4. Test your hypothesis by comparing the number of drops of tap water 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 you data in the table below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Test 1 | Test 2 | Test 3 | Test 4 | Test 5 | Average |
| Soapy water |  |  |  |  |  |  |

1. Draw Conclusions: Was your hypothesis correct? \_\_\_\_\_\_\_\_\_\_\_

Complete this statement now that you know the facts.

Soapy water will (increase/decrease) the surface tension of water. You should be able to place (more/fewer) drops of soapy water than you can tap water.

1. Communication: An important part of science is comparing your results to others. Compare your results to your classmates. Did they get the same results?
2. Though it might not be obvious, in this experiment you did have a control group. Which set of trials represented your control group?
3. Applying what you know.

What if the experimental question was: “How does sugar affect the surface tension of water?”

1. How would you answer the question?
2. Collect data (make a table).
3. Conclusion (answer the experimental question).