Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_Score:\_\_\_\_\_\_\_\_/50\_\_\_\_

**SC.912.N.1.1** Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and Earth/space science, and do the following: 1.pose questions about the natural world; 2.conduct systematic observations; 3.examine books and other sources of information to see what is already known; 4.review what is known in light of empirical evidence; 5.plan investigations, 6.use tools to gather, analyze, and interpret data.

**Don’t Blow It - Scientific Method Lab**

**Scientific Method:** observe and ask questions, form a hypothesis, controlled experiment, analyze data, form a conclusion rejecting or supporting hypothesis

**Materials:** 2 small pieces of wax paper, 1 meter long piece of string, 1 ruler, 2 different pieces of bubble gum labeled A and B

**PART ONE**

**Observations:**  Gum A Gum B

1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Question:** Which piece of bubble gum blows the biggest bubble?

**Hypothesis:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Experimental Procedure:**

1. The person with brand A will chew their piece of gum for **3 minutes.** **Do not begin chewing Brand B** until all the tests on brand A are completed.

 2. Blow a bubble.

3. Using a string, your partner will measure the diameter (distance across) the bubble. Put the string on the meter stick to measure the distance in centimeters (cm).

4. Record the measurement in a data table. Repeat the process for trials 2 and 3.

5. Find the average bubble size for brand A (add all the distances up and divide by 3) and put in the data chart.

6. Repeat steps 1-5 with brand B gum. **The SAME person who blew the bubbles for Brand A will also blow the bubbles for Brand B.**

**Data:** Design a data collection table to fit the data you will be investigating:

Independent Variable:

Dependent Variable:

Control:

Constants:

**Conclusion:** Forming a theory

 What brand of gum is the best at blowing bubbles and why? Support your answer with observations and your data.

# **PART 2**

Combine with another group to complete this part of the lab.

**Problem:** How does gum “strechability” or elasticity relate to bubble size?

**Hypothesis:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Experimental Procedure:**

 1. The person with brand A will roll their gum into a ball.

2. Hold the gum (brand A) by using the piece of wax paper. Another person in the group would hold the same piece of gum with another piece of wax paper. Hold the gum near your chest, begin to walk slowly backwards.

3. The third person in the group should hold the meter stick and measure the distance in centimeters the gum stretched before breaking.

 4. Record the measurement in the data chart. ONLY DO ONE TRIAL

 5. Repeat #1-4 for brand B gum.

**Data Table:** Create a data table to fit the data you will be gathering

Independent Variable:

Dependent Variable:

Control:

Constants:

**Conclusion:**

 COMPARE DATA FROM BOTH GROUPS IN PART 1 AND PART 2

How does gum stretchability relate to bubble size?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

With your lab partner, list 5 variables that may affect the outcome of this experiment.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain how the data you collected can be described as both qualitative and quantitative

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Were SI units used in this lab? Explain. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

List any questions you still have about the scientific method.

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