Name*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: 2

**Blowing Bubbles Experimental Design**

**1) Observation:** Human lungs have a higher capacity for air while standing.

**2) Question:** Will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ increase the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of bubbles?

**3) Hypothesis:** Standing up \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ increase the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of bubbles.

**4) Experiment:** For 3 trials, each group member will take a turn blowing a bubble standing up and sitting down. Your group member will measure the length of your bubble using string and a ruler. The lengths of *your* bubbles will be recorded in the data table below and the average length of your bubbles will be calculated using the formulas below the data table.

**5) Results**:

Data Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Trial #** | **1.** | **2.** | **3.** | **Total Length (cm.)**  | **Average (cm.)** |
| Standing Up Bubble Length (cm.) |  |  |  |  |  |
| Sitting Down Bubble Length (cm.) |  |  |  |  |  |

**A.** Average **Standing Up** Bubble Length: (Use the formula below)

Standing Up Bubble Length 1 + Length 2 + Length 3

 3

**B.** Average **Sitting Down** Bubble Length: (Use the formula below)

Sitting Down Bubble Length 1 + Length 2 + Length 3

 3

**6) Conclusion:** The results \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the hypothesis because the average standing up bubble length was \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than the average sitting down bubble length.

*Bonus Questions:*

1*.* Do you think the flavor of gum used affected the results? Why or why not?

2. Why might someone else who performs the same experiment as you produce different results?

**Gum Chewing May Improve Concentration**

Teachers might want to think twice about posting no gum-chewing signs in the classroom. It turns out that the sticky substance might help students concentrate. Researchers had two groups of 20 people each listen to a 30-minute recording that included a sequence of numbers. After listening, the participants were asked to remember the sequence. But only one group chewed gum—and they had higher accuracy rates and faster reaction times than the non-gum chewers. Those chewing gum also maintained focus longer during the exercise. The study is in the *British Journal of Psychology*—and contradicts a 2012 study that found gum chewing decreased short-term memory performance. The researchers say that gum increases the flow of oxygen to regions of the brain responsible for attention. More oxygen can keep people alert and improve their reflexes. Research also shows that you won’t get the same effect by just pretending to chew gum. So the next time your mind is wandering in class, maybe try some gum. If it doesn’t help you concentrate you’ll at least be asked to leave.

1. Why should teachers think twice about posting no gum-chewing signs?
2. Which group is the experimental group?
3. Which group is the control group?
4. What is the independent variable (what was given to the experimental group)?
5. What are the dependent variables (what was measured)?
6. What are the results of this experiment?
7. Did the results of this study agree or disagree with the 2012 study that found gum chewing decreased short-term memory?
8. According to researchers, how does chewing gum affect the brain?