

Bubble Gum Lab - Percent Composition by Mass of Sugar in Bubble Gum name: _____

Introduction: Read this whole lab BEFORE you commence with your experiments. Failure to do so will result in wasting of time and of improper educational practice, likely leading to your total and complete academic destruction, which would be a real shame.

BACKGROUND: Packaged foods, such as bubble gum, are required by law to list all ingredients but not the exact amounts of them. The ingredients are listed in order of largest amount to smallest. (The first ingredient makes up the biggest part of the food.) The actual amounts of each ingredient are protected as business secrets. In this lab experiment you will determine the ACTUAL mass of sugar in your gum, and the PERCENT COMPOSITION BY MASS of sugar in your gum.

SAFETY: no goggles required, do not put gum in mouth if it gets unclean.

Procedure:

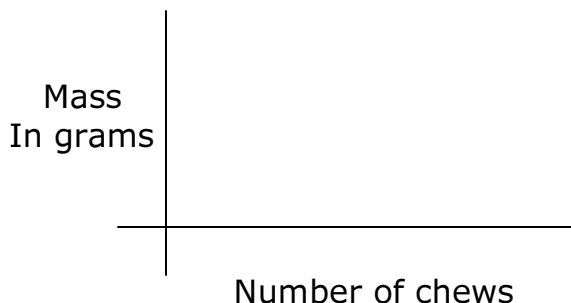
1. Get one piece of gum from your teacher
2. mass the gum inside the wrapper (in grams only)
3. mass just the wrapper (hold gum safely in hand)
4. chew gum 25 times, mass the chewed gum
(put it in the wrapper, do not put gum onto scale)
5. mass gum again and again after every 25 more chews. Keep chewing until the mass stops changing or 625 chews, whichever comes first.
6. you may keep the gum, or dispose of it PROPERLY

Data Analysis:

You will need to draw a graph plotting mass as a function of number of chews as shown below. Do not connect the dots—rather, draw a smooth curved line that will best approximate your data points, which will show THE TREND OF THE DATA (not the tiny errors in measuring. This graph must have an excellent title, labels with units, and be neat. Make a full page sized graph.

Finally, do the eight problems that follow on the back of this lab handout.

Paper is cheap, knowledge is valuable.



These eight problems are included into the middle section of your lab.

1. Determine the mass of sugar in your gum. (1)
2. Determine the percent by mass of sugar in your gum. (3)
3. How many chews did it take for all the sugar to be removed from the gum and how can you be pretty sure that this is true? (1)
4. What is the percent composition by mass for all elements in CALCIUM HYDROXIDE? (1)
5. The formula for 1-HEPTENE is C_7H_{14} .
What is the percent composition by mass composition of each element in this? (1)
6. What is the % composition by mass of phosphorous in ammonium phosphate? (1)
7. What is the empirical formulas for octane (C_8H_{18}), glucose ($C_6H_{12}O_6$), and hexane (C_6H_{14}),? (1)
8. If your gum is actually 71.4% sugar, what is your percent error?(1)

Page Number	What is included	Total Points
1	Cover page - descriptive title for lab report, describe in a paragraph what this experiment is about, and what you did. <u>Do NOT conclude here.</u>	title = 1 intro = 1
2	Graph: on graph paper, include title, units, labels, and the data table in an appropriate place. Title must be descriptive of what the graph shows.	graph = 5 data table = 3
as many as needed	8 Questions from above show your work!	mass of sugar = 1 % comp = 3 six problems = 6
Last	Conclusion - every lab report should have these 4 parts: What did you measure, what did you calculate, what is your % error, and what can you conclude or decide from this lab work? Any other fun stuff can be included as well. You must include numbers! Details! Facts!	5
THIS LAB IS DUE ON THIS DATE: _____		25 maximum