Bubble Gum Lab

name:

Percent Composition by Mass of Sugar in Bubble Gum

Read this whole lab BEFORE you commence with your experiment.

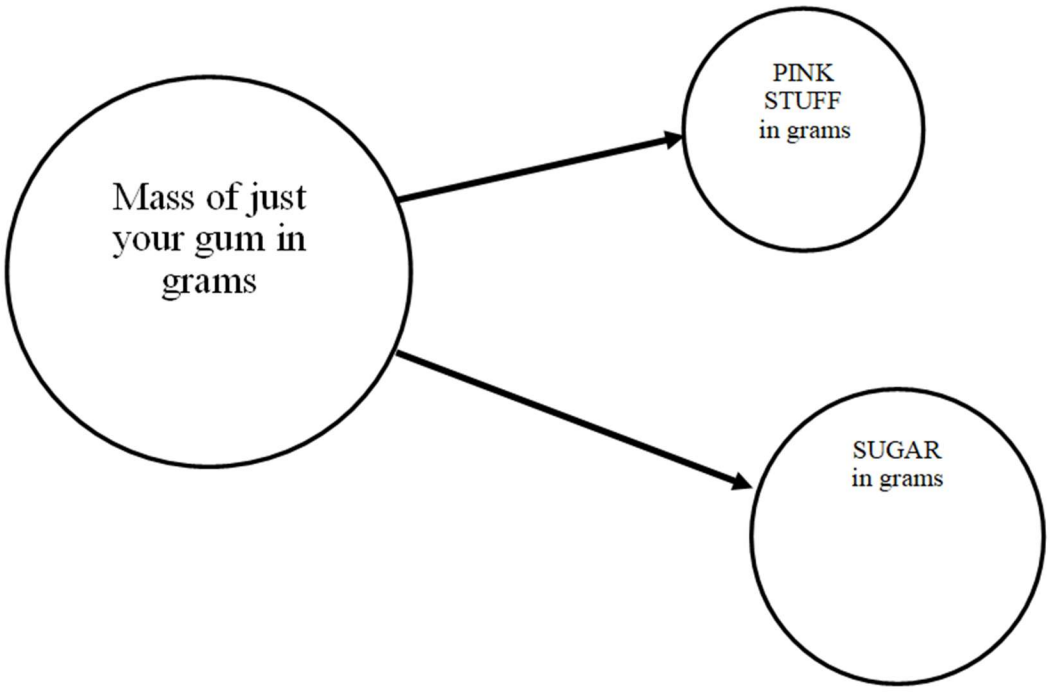
BACKGROUND: Packaged foods, such as bubble gum, are required by law to list all ingredients but not the exact amounts of each. The first ingredient makes up the largest part of the food, but the actual amounts of each ingredient are protected as business secrets.

In this lab experiment you will determine the ACTUAL mass of sugar in your bubble gum, and then 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 Dubble Bubble Bubble Gum.
2. Mass the gum inside the wrapper (in grams only)
3. Mass just the wrapper (hold gum safely in hand)
4. Use the data table showing number of chews and mass of gum (next page)
5. Chew gum 25 times, mass the chewed gum
   (ZERO out the wrapper each time, then put the gum on the wrapper, do not put gum onto scale)
6. Mass gum again and again and again after every 25 chews. Keep chewing until the mass stops changing - or 600 chews, which ever comes first.
7. Fill in the chart below with the masses of the gum, the left over "pink stuff", and then the sugar mass.
8. You may keep the gum, or dispose of it PROPERLY



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Number of Chews	Mass in grams
0	grams
25	grams
50	grams
75	grams
100	grams
125	grams
150	grams
175	grams
200	grams
225	grams
250	grams
275	grams
300	grams
325	grams
350	grams
375	grams
400	grams
425	grams
450	grams
475	grams
500	grams
525	grams
550	grams
575	grams
600	grams

measures	grams
gum in wrapper	
Mass of just the wrapper	
Subtract to get mass of just gum	

Graphing and Data Analysis

1. You will need to draw a graph plotting mass in grams as a function of the number of chews.

2. Do not connect the dots—instead, draw a smooth curved line that best approximates your data points, which shows THE TREND of the data, not the tiny errors in measuring.

3. This full-sized graph must have an excellent title, axis labels with units, and be neat. Make no breaks.

4. Graph starts at 0,0 NO BREAKS ARE ALLOWED ON THE GRAPH

The Lab problems—Do on white paper. Formulas count, so do SF and units!

1. Calculate the % Composition by mass of sugar in the gum (show formula + math) (2)

2. Calculate the % Composition by mass of pink stuff in the gum (show formula + math) (2)

3. This gum is 71.5% sugar. Calculate your percent error? (write the formula) (2)

4. 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? (2)

5. What is the percent composition by mass of calcium in the compound calcium hydroxide? (2)

6. What is the percent composition by mass composition of carbon in the compound C_7H_{14}? (2)

7. What is the % composition by mass of phosphorous in ammonium phosphate? (2)

8. Write empirical formulas for these compounds: C_8H_{14} $C_6H_{12}O_6$ C_3H_8 C_3H_6 (4)

Page	What is included	Points
1	Cover page - descriptive title for lab report, describe in a sentence what this experiment is about, and what you did. Do NOT conclude here.	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.	2
many as you need	Lab Problems (above)	18
Last	Conclusion - Clearly explain the following, using your data. What important measurements did you make? What did you calculate? What is your percent error? The mass of the gum stabilized, why wouldn't the gum mass keep decreasing with more chewing? Is bubble gum healthy for you?	4
THIS LAB IS DUE ON: _____		25