

Chewing Gum Lab



Purpose: To determine which brand of chewing gum contains the most sugar.

Background:

A “mole” is a counting unit that is used in Chemistry. 1 mole = 6.02×10^{23} molecules. By using Dimensional Analysis we can convert from grams → moles → molecules. In this lab you will weigh gum before chewing and after chewing to figure out how much sugar dissolved in your mouth.

Materials:

Various types of gum such as Double Bubble Gum, Gum Balls, Juicy Fruit Gum, Trident Gum, paper cups, balance.

Procedure: Do the procedure for one of the types of gum on your station. Then repeat for the second type of gum on your station. You will need to collect the data from other groups since you will not be testing every type of gum yourself.

1. Use the balance to record the mass of the EMPTY CUP.
2. Add the **unchewed** pieces of gum. Record the mass of the CUP+UNCHEWED GUM
3. Chew up the gum for at least 5 minutes.
4. Spit the gum into the paper cup. Minimize the amount of saliva that goes in the cup!
5. Weigh and record the mass of the CUP+CHEWED GUM
6. **THROW THE CUP+CHEWED GUM IN THE TRASH CAN!!!!**
7. Repeat with the next type of gum.

Name:	
Period:	Seat #:

*Once your paper is graded,
you may glue it into your notebook*

HYPOTHESIS: Which gum do you think has the most sugar? The least amount of sugar?

Most:	Least:
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YOUR DATA --- Type of Gum #1:

Mass of EMPTY CUP	Mass of CUP+ UNCHEWED GUM	Mass of UNCHEWED GUM	Mass of CUP+CHEWED GUM	Mass of CHEWED GUM	Mass of SUGAR in the gum	Mass of SUGAR per piece of gum

YOUR DATA --- Type of Gum #2:

Mass of EMPTY CUP	Mass of CUP+ UNCHEWED GUM	Mass of UNCHEWED GUM	Mass of CUP+CHEWED GUM	Mass of CHEWED GUM	Mass of SUGAR in the gum	Mass of SUGAR per piece of gum

DATA FROM ANOTHER GROUP --- Type of Gum #3:						
Mass of EMPTY CUP	Mass of CUP+ UNCHEWED GUM	Mass of UNCHEWED GUM	Mass of CUP+CHEWED GUM	Mass of CHEWED GUM	Mass of SUGAR in the gum	Mass of SUGAR per piece of gum
DATA FROM ANOTHER GROUP --- Type of Gum #4:						
Mass of EMPTY CUP	Mass of CUP+ UNCHEWED GUM	Mass of UNCHEWED GUM	Mass of CUP+CHEWED GUM	Mass of CHEWED GUM	Mass of SUGAR in the gum	Mass of SUGAR per piece of gum
WRITE A CLAIM: <i>Hints: Address the purpose of the lab! Which type of gum had the most sugar per piece? The least? That is what your claim should relate to. Do you notice anything different or unusual? Any types of gum drastically different from the others?</i>						
WRITE THE EVIDENCE: <i>Hints: You must specifically site your data! There should be real numbers (don't forget units!). Make sure to briefly explain how you got your data too.</i>						
WRITE THE REASONING: <i>Hints: Using the nutrition labels for the different types of gum, try to explain the results you discussed in the box above.</i>						

Converting from Grams to Molecules of Sugar		
What is the molar mass of the sugar, C₁₂H₂₂O₁₁? (Show your work)		
Now show how to convert from MASS to MOLECULES in ONE DIMENSIONAL ANALYSIS SET UP for each type of gum!		
Type of Gum #1		
Type of Gum #2		
Type of Gum #3		
Type of Gum #4		
List two sources of error for the lab and explain if they would make your amount of sugar look too high or too low and why		
Source of Error	Makes sugar amount look too high or too low?	Why?