CHEMISTRY MiniLab: **% Sugar in Bubble Gum**

Name: _____ **Period:** _____

Hypothesis: _____

Experiment:

Materials:

- Chewing Gum
- paper cup
- Triple Beam Balance

Procedure:

1. Use a balance to determine the mass of a clean paper cup. Record the mass in your data table.
2. Unwrap 5 pieces of bubble gum containing sugar and place them in the cup.
3. Determine the mass of the cup and the gum. Record the mass in your data table.
4. Each person in the group should chew a piece of gum to remove the sugar.
5. After about 5 minutes, collect the chewed gum in the massed cup and wash your hands.
6. Determine the mass of the cup and gum. Record it in your data table.
7. Calculate the mass of sugar dissolved from the gum (original mass of gum – final mass of gum) Record the answer in your data table.
8. Calculate the percentage of sugar in the gum by dividing the mass of the dissolved sugar by the mass of the unchewed gum and multiply by 100. Record the answer in your data table.

Data:

Mass of Paper Cup (g)	Mass of Cup + Gum (g)	Mass of Unchewed Gum (g)	Mass of Cup + Chewed Gum (g)	Mass of Chewed Gum (g)	Mass of sugar (g)	Percent of Sugar (g)

While you chew:

What is "Bubble Gum Alley" ?

Conclusion:

1. What is the **percent of sugar**? (Show calculations below.) _____

2. What is the **molar mass of the sugar,** $C_{12}H_{22}O_{11}$? (Hint: grams/Mol) Show your work below – Setup!

3. Convert the **mass of dissolved sugar to moles.** (Hint: use your conversion factor from #2 to convert your mass of sugar to moles of sugar).
   Show your work below – Setup!

4. How many **molecules of sugar** are in the dissolved sugar? (Hint: Use Avogadro's Number!)
   Show you work below.

Conclusion: Write one paragraph (5-7 Sentences) summarizing what you did, relate this back to moles, and address at least two sources of error.

ame: _____ Period: _____

lole Lab

formation:

- A mole of any substance contains _____ particles.
- A mole of lead will (please circle): heavier or lighter than a mole of oxygen because _____
- The mass of a mole of substance can be found using the _____ of the substance.
- The units of a molar mass are: _____

linilab 1: Burning a Candle :

Mass before burning (g)	
Mass after (g)	
Change in mass (g)	

1. Find the "before burning" mass of a candle.
2. Light the candle and allow it to burn for 5 minutes. **Do not play with the wax!**
3. Without losing any of the wax, re-mass the candle.

ax is a mixture of different hydrocarbons. We will assume the chemical formula for wax is $C_{25}H_{52}$.

a. Find the **molar mass of wax**. (g/mol).

C 25 X 12 = 300
H 52 X 1 = 52

352 g/mol

b. How many **atoms of C** are in one molecule of wax?

25 X 12 = 300

c. How many **atoms of H** are in one molecule of wax?

52

d. What % of the molar mass is **Carbon?** (total mass of C/molar mass) X 100%

300/352 = 85%

e. How many **grams of Carbon** would have been in the candle before burning?

? before wax wax .85(wax)

f. How many moles of wax were used up during the burning?

g of wax

MiniLab 2: Molecules in your name

Substance	Mass (g) Before	Mass (g) After	Mass (g) Used
Crayon			
Chalk			

1. Find the mass of a crayon.
2. Write your full name on a piece of paper.
3. Find the mass of the crayon again.
4. Repeat steps 1-3 with chalk.

Crayon: Show work by showing set-up with units!

a. Find the **molar mass of the crayon** (made of wax $C_{25}H_{52}$)

b. How many **moles of wax** were in your name?

c. How many **molecules of wax** were in your name?

Chalk: Show work by showing set-up with units!

a. Find the **molar mass of chalk.** (Chalk is $CaSO_4$)

b. How many **moles of chalk** were in your name?

c. How many **molecules of chalk** were in your name?

'ou should have used approximately the same mass of the crayon and chalk when writing your name. Why were there **LESS** nolecules of chalk used than crayon?

ame: _____ Period: _____

lole Lab

formation:

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c. How many **atoms of H** are in one molecule of wax?

d. What % of the molar mass is **Carbon?** (total mass of C/molar mass) X 100%

e. How many **grams of Carbon** would have been in the candle before burning?

f. How many **moles of wax** were used up during the burning?

MiniLab 2: Molecules in your name

Substance	**Mass (g) Before**	**Mass (g) After**	**Mass (g) Used**
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Chalk			

1. Find the mass of a crayon.
2. Write your full name on a piece of paper.
3. Find the mass of the crayon again.
4. Repeat steps 1-3 with chalk.

Crayon: Show work by showing set-up with units!

a. Find the **molar mass of the crayon** (made of wax $C_{25}H_{52}$)

b. How many **moles of wax** were in your name?

c. How many **molecules of wax** were in your name?

Chalk: Show work by showing set-up with units!

a. Find the **molar mass of chalk.** (Chalk is $CaSO_4$)

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