S'More Stoichiometry

Definition

- **"Stoichio" means element and "metry" means the process of measuring.**
- **The mass and quantity relationships among reactants and products in a reaction are found using the process of Stoichiometry.**

Objectives

1. **Balance a given reaction.**
2. **Calculate molar mass**
3. **Develop mole ratios**
4. **Use Stoichiometry to convert from a Given quantity of one substance to a given quantity of another substance.**

Tips

Refer back to previous worksheets, materials and links to help you solve this problem.

Ingredients

- 2 Graham Crackers
- 3 Chocolate Pieces
- 4 Mini- Marshmallows

Directions

1. To establish your Given Data, you will use the first 3 letters of your first name and assign the correspond #'s, from the table below, for each letter.

   For example: C Y N would be assigned the numbers

   3 25 14

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

2. Place a decimal point after the second numeral. For example: 32.514----This is your GIVEN data, in grams, for the problem you will need to solve.
3. The problem you need to solve will be based on your last name....see the chart below.

First letter of Last Name	**Problem you must solve**
A thru C	Convert grams of Crackers (S_2) to grams of S'more (SMmOr).
D thru G	Convert grams of Marshmallow (Mm_4) to grams of S'more (SMmOr).
H thru L	Convert grams of Chocolate (Or_3) to grams of S'more (SMmOr).
M's	Convert grams of S'more (SMmOr) to grams of Crackers (S_2) .
N thru Q	Convert grams of S'more (SMmOr) to grams of Marshmallow (Mm_4) .
R thru Z	Convert grams of S'more (SMmOr) to grams of Chocolate (Or_2) .

This will ensure that each student has their own, unique problem to solve.

- **EXAMPLE**: My Given, based on my first name, is 32.514g and based on my last name, the substance I was given 32.514 g of S'more (SMmOr). Based on my last name I need to solve for grams of Cracker (S_2).
- When I set up my problem it will look like this:

32.514g SMmOr	X		X		X		-->	? g of S_2
								ANS ↑

Your Work

Fill in your work in the space provided after each question.

1. Type your first and last name, as legally listed in school (no nicknames), the space below.

2. Based on your first name, what is your GIVEN DATA (Be sure to Format correctly--AKA subscript-- and include units). Based on your last name what substance is your "GIVEN".

3. Based on your last name, what are you solving for? (What are you converting your "GIVEN" in #2 above to)? Be sure to have correct formatting, units with your answer.

4. Write the balanced equation given the following (Again, be sure your are formatting correctly):

$$S_2 + Mm_4 + Or_3 \rightarrow SMmOr$$

5. Given the following information:

Substance	**Symbol**	**Unit Mass**
Graham Cracker	S	7.00 g
Marshmallow	Mm	1.78 g
Chocolate Piece	Or	3.30 g

.....calculate the molar mass of each of the substances in the reaction (#2 above). Pay attention to your **significant figures**.

Substance	**Molar Mass (g/mol)**
Graham Cracker (S_2)	
Marshmallow (Mm_4)	
Chocolate (Or_3)	
S'more $(SMmOr)_)$	

6. Solve your problem as demonstrated in the **EXAMPLE** above. Type your work (math set up) in the spaces below. BE SURE you have the correct FORMATTING; the correct symbols and units for each substance and the correct Significant Figures for your final ANS.

	X		X		X		-->	
								Final ANS ↑