

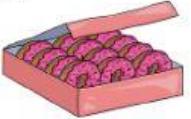
CLASS ACTIVITY 5  
The mole concept introduction  
Chemistry 10<sup>th</sup>

Name: \_\_\_\_\_ Date : \_\_\_\_\_ 10: \_\_\_\_\_

**INSTRUCTIONS:**

- ✓ Observe the information in the chart carefully
- ✓ Solve the exercises in part 1 before proceeding to part 2

**PART 1**

Eggs 	Cookies 	Donuts 	Roses 
<b>1 dozen</b> 12 eggs	<b>1 dozen</b> 12 cookies	<b>1 dozen</b> 12 donuts	<b>1 dozen</b> 12 roses
<b>Mass of the dozen or mass of one dozen ( g / dozen)</b>			
20g / dozen	15g / dozen	25g / dozen	10g / dozen

Based on the above information answer the following questions.

Write your answer on the line and show any math operation, wherever you are asked to do so.

Question		Answer
1.1	<b>How many eggs</b> are there in 3 dozen eggs?	
<b>Procedure:</b>		
1.2	<b>How many roses</b> are there in 3 dozen roses?	
1.3	<b>How many donuts</b> are there in 2 dozen donuts?	
1.4	What is <b>the mass (grams)</b> of 3 dozen eggs?	
<b>Procedure:</b>		
1.5	What is <b>the mass (grams)</b> of 3 dozen roses?	
1.6	<b>How many cookies</b> are there in 52.5g of cookies?	
<b>Procedure:</b>		

**1.7 Your explanation**

Why do 3 dozen eggs have a different mass than 3 dozen roses if both have the same number of units?

Explain your answer clearly (3 lines min – 70 words min)

## PART 2

The **MOLE** is the unit used in chemistry to deal with **large amounts of very tiny particles** such as atoms, molecules and ions.

In the same way a dozen contains 12 units of something, 1 mole of anything contains  $6.022 \times 10^{23}$  particles.

Calcium Ca	Water H <sub>2</sub> O	Carbon Monoxide CO	Copper Cu
1 mole	1 mole	1 mole	1 mole
$6.022 \times 10^{23}$ atoms	$6.022 \times 10^{23}$ molecules	$6.022 \times 10^{23}$ molecules	$6.022 \times 10^{23}$ atoms
<b>Mass of a mole of substance, Molar mass or mass of 1 mole (g/mol)</b>			
40g / mol	18g / mol	28 g / mol	63.5g / mol

Based on the above information answer the following questions.

Write your answer on the line and show any math operation, wherever you are asked to do so.

Question		Answer
1.1	How many atoms of Calcium Ca are there in 3 moles?	
	Procedure:	
1.2	How many atoms of Copper Cu are there in 3 moles?	
1.3	What is the mass (grams) of 3 moles of Calcium Ca?	
	Procedure:	
1.4	What is the mass (grams) of 3 moles of Copper Cu?	

### 1.5 Your explanation

Why do 3 moles of Calcium have a different mass than 3 moles of Copper Cu if both have the same number of atoms?

Explain your answer clearly (3 lines min – 70 words min)

Question		Answer
1.6	How many water molecules are there in 81g of water H <sub>2</sub> O?	
	Procedure:	
1.7	What is the mass (grams) of $2.40 \times 10^{24}$ molecules of Carbon Monoxide CO?	
	Procedure:	