South Pasadena • Chemistry

Name_____
Period __ Date __/__/__ "MM & %Comp"

Unit 2 • Molecules, Moles, & Molar Masses

M O L E C U L A R M A S S & % C O M P O S I T I O N

I. Four terms are a little confusing: Atoms, Molecules, Elements, and Compounds.

	Atoms	**Molecules**
Elements		
Compounds		

II. Atomic Masses

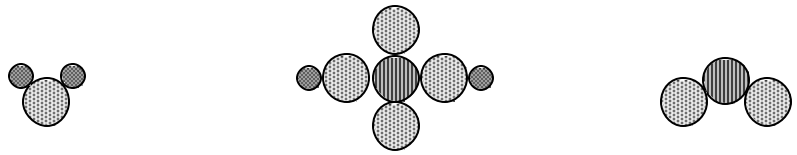
Copy the masses of the following common elements. Use at least two decimal places.

H	**C**	**S**	**O**	**Ca**	**N**	**Na**	**Cl**
amu	amu	amu	amu	amu	amu	amu	amu

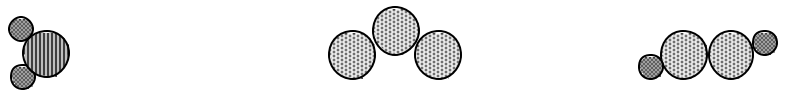
III. Molecules and Molecular Masses

Write the formulas of the following molecules:

Key: **H** **S** **O**



Formula:			
Mass:			



Formula:			
Mass:			

IV. Molecular Masses

Calculate the molecular mass (in amu's) for these molecules: (Use atomic masses to at least two decimal places)

$NaNO_3$	**Cl_2**	**$Ca(OH)_2$**	**$HC_2H_3O_2$**
amu	amu	amu	amu

CO_2	**N_2O**	**NaOCl**	**$Ca(NO_3)_2$**
amu	amu	amu	amu

CH_3OH	**H_2SO_4**	**$CaSO_4$**	**$CaCl_2$**
amu	amu	amu	amu

V. Fraction and Percent Composition

It is useful to determine how much of a compound's mass is made up of each element. Water, H_2O, for example has a mass of 18.02 amu. The H's mass is 2(1.0079) = 2.02 amu. The O's mass is 16.00 amu.

We can set up **fractions** for each element: $H = \frac{2.02}{18.02} = .112 = 11.2\%$. $O = \frac{16.00}{18.02} = .888 = 88.8\%$.

This **fraction composition** can be used to calculate the **percent composition**. The fraction composition is a good **in-between step**. Determine the fraction and percent composition of each element below:

1. H_2SO_4	H = ——— =	S = ——— =	O = ——— =
2. $Ca(OH)_2$	Ca = ——— =	O = ——— =	H = ——— =
3. $HC_2H_3O_2$	H = ——— =	C = ——— =	O = ——— =
4. CO_2	C = ——— =	O = ——— =	
5. N_2O	N = ——— =	O = ——— =	
6. NaOCl	Na = ——— =	O = ——— =	Cl = ——— =
7. $Ca(NO_3)_2$	Ca = ——— =	N = ——— =	O = ——— =
8. CH_3OH	C = ——— =	O = ——— =	H = ——— =
9. $CaSO_4$	Ca = ——— =	S = ——— =	O = ——— =
10. $CaCl_2$	Ca = ——— =	Cl = ——— =	