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Calculating Molecular and Formula Masses using the Periodic Table

*We know that grams are actually a measure of the mass of matter and not the weight. Mass is the quantity of matter present; weight is a measure of the pull of gravity on matter and is measured in pounds or newtons.*

*We have learned that the smallest particle of an element is an atom and the periodic table tells us the atomic masses for each element. We have also learned that the smallest unit of a compound are either molecules (for covalent compounds) or a collection of positive and negative ions (for ionic compounds).*

Molecular mass is equal to the sum of the atomic masses of ALL the atoms in a molecule (for covalent bonds)

Formula mass is equal to the sum of the atomic masses of ALL the atoms in an ionic compound

**What does this mean? Check this out.**

EXAMPLE: What is the molecular mass of I2? (diatomic covalently bonded molecule). One I = 126.90g so….

 2 I = 2 X (126.90g) = **253.80 g I2**

EXAMPLE: Calculate the formula mass of aluminum sulfate, Al2(SO4)3. (ionic bond)

 2 Al = 2 X (26.98) = 53. 96

 3 S = 3 X (32.07) = 64.14

 + 12 O = 12 X (16.00) = 192.00

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 Al2(SO4)3  = **310.10 g Al2(SO4)3**

\*NOTICE EACH MASS IS ROUNDED TO TWO DECIMAL PLACES!

**Try some on your own using the atomic masses from your Periodic Table. SHOW YOUR WORK!**

 Calculate the molecular mass of:

1. CH3OH
2. C2H6
3. H2O
4. CO2

Calculate the Formula Mass of:

1. AlN
2. NaCl
3. Ca3(PO4)2
4. P4S3