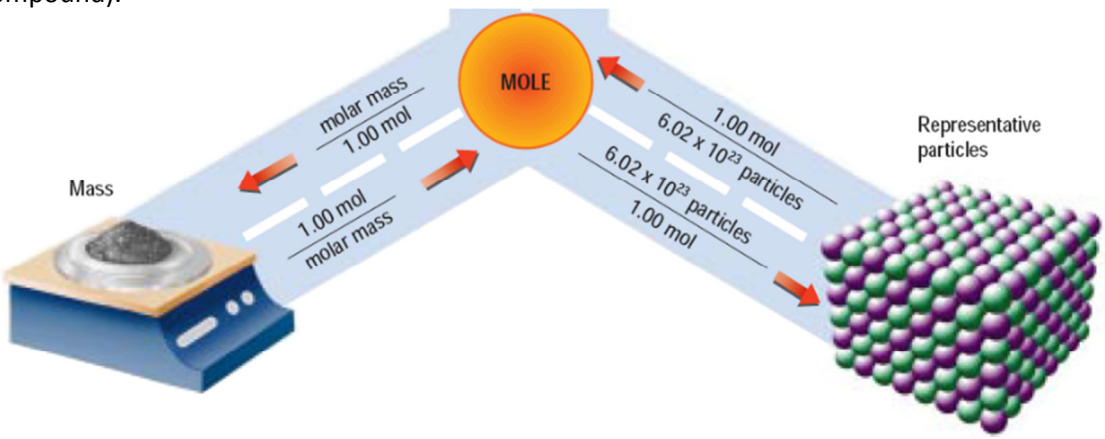
Mole Conversions with Compounds Name_____

We previously studied mole conversions using individual atoms. The mole concept also applies to formulas. One mole of any compound is equal to 6.022 x 10^{23} particles (*formula units* for ionic compounds, or *molecules* for covalent compounds.) You can also find the mass of a mole of a compound by calculating the gram formula mass (AKA molar mass of the compound).



Show all work on separate paper: *(Hint: The gram formula masses of these compounds are on your "counting atoms & Gram Formula Mass" assignment.)*

1. Find the number of moles in each of the following masses. *Answer to the correct amount of sig figs.*
   a. 64.1 g of Fe_2O_3
   b. 78.1 g of $CaCl_2$
   c. 546 g of K_2SO_3
   d. 35.2 g of H_2O_2
2. Find the mass of each of the following compounds given the quantity in moles:
   a. 1.22 mol potassium permanganate ($KMnO_4$)
   b. 2.44 mol Potassium nitrate (KNO_3)
   c. 14.5 mol aluminum sulfate ($Al_2(SO_4)_3$)
   d. 9.37 x 10^{-2} mol copper(II) nitrate ($Cu(NO_3)_2$)
3. Find the number of moles:
   a. 3.01 x 10^{23} ammonium bromide particles (NH_4Br)
   b. 8.08 x 10^{22} molecules of C_2H_6
   c. 7.41 x 10^{23} sodium chloride (NaCl) formula units.
   d. 200.0 g sodium chloride (NaCl)
4. Find the number of particles, molecules, or formula units:
   a. 1.004 mol sodium acetate ($NaC_2H_3O_2$)
   b. 2.5 mol potassium sulfite (K_2SO_3)
   c. 94.0 g NaCl formula units
   d. 69.45 g H_3PO_4