THINGS YOU NEED TO BE ABLE TO DO FROM 1st SEMESTER IN ORDER TO DO STOICHIOMETRY

* **Know charges on ions from periodic table**
  + Based on the pattern of columns
    - 1A = +1
    - 2A = +2
    - 3A = +3
    - 4A = +/- 4
    - 5A = -3
    - 6A = -2
    - 7A = -1
    - 8A = no charge
* **Know polyatomic ions and their charges**
  + The list is in your notebook! Memorize them!
* **Write formulas for ionic and covalent compounds**
  + Ionic – cation and anion (usually metal and nonmetal) - cross over
  + Covalent – usually two nonmetals - use prefixes
* **Identify the type of reaction when given the reactants**
  + Synthesis – combining things into fewer products than reactants
  + Decomposition – breaking things into more products than reactants
  + Combustion – hydrocarbon and water always makes carbon dioxide and water
  + Single Replacement – element and an ionic compound make a new element and a new compound
  + Double Replacement – two ionic compounds make two new ionic compounds
* **Predict the products based on the patterns of the type of reaction**
  + Remember to cross over when making new ionic formulas – do not “steal subscripts!”
    - Take one of each ion with their charges, and cross over to find subscripts
  + Your formulas should always be neutral
* **Balance a reaction**
  + Law of Conservation of Matter
    - We cannot create or destroy matter!
* **Identify your “known – A” and your “unknown – B”**
* **Write out a pathway**
  + Mole highway has all the pathways!
  + Remember – you won’t have access to your mole highway!
* **Identify which conversion factor to use for each step of the pathway**
  + Mole highway has all the conversion factors!
  + Remember – you won’t have access to your mole highway!
  + Avogadro’s number never changes!
  + Molar mass number is based off the formula
  + Mole ratio is from the coefficients in the balanced equation
  + The number of atoms in a molecule is based on the formula of the molecule
* **Calculate molar masses** 
  + Using the formula of the compound and the periodic table
* **Find mole ratio** 
  + Based on coefficients from the balanced equation
    - Always ends up “moles B over moles A” so that your units cancel out correctly
* **Set up dimensional analysis to do the steps your pathway laid out**
* **Cancel your units to check your work**
  + Remember “one unit on the top cancels with one unit on the bottom”
* **Use your calculator to get a numerical answer**
  + Don’t forget to use parenthesis to keep the denominator numbers on the denominator!
* **Put units AND formula on your final answer** 
  + A unit isn’t specific enough, you need to tell people which molecule it is too!