Stoichiometry Word Problems Name: _____

You have been given 6 stoichiometry word problems. You will work through all 6 of the problems using your notes, worksheets, videos online, and any other resource you may have. As you are completing these problems, please relate to these questions for **each problem**:

- ✓ Did I read the entire problem? Did I understand it? If not, read it again. Try reading it out loud.
- ✓ Was the balanced chemical reaction given to you or do you need to figure it out?
- ✓ What is the problem looking for?
- ✓ What did the problem give you?
- ✓ Remember, the balanced equation is the PERFECT (theoretical) world. The value given in the word problem & the value you are figuring out are the REAL (actual, experimental) world.
- ✓ STP = standard temperature and pressure (aka everything is normal) - DON'T LET THIS SCARE YOU!
- ✓ Do you need to convert?
  grams → moles
  moles → molecules
  liters → moles
  grams → liters
  Find the best way for ***you* to convert. If you have to convert grams to moles and then moles to liters it's okay. DO IT!

This is due Thursday, April 2, 2015!

1. What volume of oxygen gas is produced at STP if 100g of potassium chlorate decompose according to the following equation:

$$2KClO_3\ (s) \rightarrow 2KCl\ (s) + 3O_2\ (g)$$

2. What mass in grams of hydrogen gas is produced if 20.0 mol of Zn are added to excess hydrochloric acid according to the equation:

$$Zn\ (s) + 2HCl\ (aq) \rightarrow ZnCl_2\ (aq) + H_2\ (g)$$

3. Consider the following reaction: $2H_2S\ (g) + 3O_2\ (g) \rightarrow 2SO_2\ (g) + 2H_2O\ (g)$

   If oxygen gas was the excess reagent, 8.3 mole of dihydrogen sulfide were consumed, and 137.1g of water were collected after the reaction has gone to completion, what is the percent yield?

4. How many molecules of hydrogen gas are produced if 20.0g of sodium metal react with excess water according to the chemical equation:

$$2Na\ (s) + 2H_2O\ (l) \rightarrow 2NaOH\ (aq) + H_2\ (g)$$

5. What mass of PCl_3 forms in the reaction of 75.0g P_4 with 275g Cl_2?

$$P_4 + 6Cl_2 \rightarrow 4PCl_3$$

6. In the decomposition of hydrogen peroxide, the percentage yield of oxygen is 93%. What is the actual yield in grams of oxygen if you start with 100g of H_2O_2?

$$2H_2O_2\ (l) \rightarrow 2H_2O\ (l) + O_2\ (g)$$