

GAS STOICHIOMETRY

FEBRURARY 14, 2012

TODAY'S OBJECTIVE

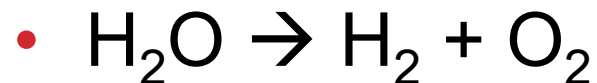
SWBAT: Solve stoichiometry problems that involve gases.

GAS STOICHIOMETRY

- *** At STP, 1 mole of ANY gas has a volume of 22.4 L. ***
 - 1 mole gas = 22.4L
- What does STP mean?
 - Standard Temperature and Pressure.

EXAMPLE 1

- Calculate the volume of Oxygen gas at STP produced by the reaction of 69.0 g of water.



EXAMPLE #2

- **What volume of Hydrogen is necessary to react with 5 L of Nitrogen to produce Ammonia, at STP?**
 - $\text{H}_2 + \text{N}_2 \rightarrow \text{NH}_3$

EXAMPLE #3

- What volume of NH_3 at STP is produced if 25.0 g of N_2 is reacted with 25.0 g of H_2 ?



EXAMPLE #4

- How many liters of Oxygen gas will be released on the decomposition of 2.65 g of Mercury (II) Oxide?
 - $\text{HgO} \rightarrow \text{Hg} + \text{O}_2$

EXAMPLE #5

- **What mass of Zinc is needed to produce 5.34 liters of Hydrogen gas, at STP? Calculate the percentage yield if you collect 13.4 g Zn.**
 - $\text{Zn} + \text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$

HOMEWORK