**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Partner \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Lab: Simulated Gas Laws and Water Displacement**

**I.) Procedure:**

1.) Place 7 mL of concentrated HCl(aq) into

a eudiometer, and topped it off by **slowly** pouring water

into the slender vessel.

1. Take a pre-cut piece of Mg and tie a string around it and feed the

string through the hole of a stopper. Folded the metal

into a loose ball and pushed it into the water at the

open end of the eudiometer with the string hanging out of the tube.

3.) Inverted the eudiometer and contents into a

600-mL beaker or can that is half-full

of water. The dense HCl(aq) flows to meet

the Mg metal and a chemical reaction occurs.

Supply a **Balanced MOLECULAR** Reaction that occurs:

\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_ ----------> \_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_

Supply a Balanced **NET IONIC EQUATION** that occurs.

\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_ ----------> \_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_

4.) Lastly you made certain that the pressure of the hydrogen gas collected by **WATER DISPLACEMENT METHODS**, was the same as was the air in the room, and completed the following table:

**II.) Data:**

a.) Temp of the gas collected: \_\_\_\_\_\_\_\_oC

b.) Air, (barometric), pressure: \_\_\_\_\_\_\_\_ mm Hg

1. Water level difference between \_\_\_\_\_\_\_\_\_mm(H2O)\_\_\_\_\_\_\_\_\_mmHg

Water in tube and water in beaker

d) Which water level is higher? in Beaker or in Tube \_\_\_\_\_\_\_\_\_\_\_

e.) Pressure of gas collected: (H2 + water vapor) \_\_\_\_\_\_\_\_ mm Hg

f.) Vapor pressure of water at temp from “a”, \_\_\_\_\_\_\_\_\_ mm Hg

(see the chart on one of many walls)

g.) Pressure of the hydrogen gas alone: \_\_\_\_\_\_\_\_\_ mm Hg

h.) Volume of gas collected, to 0.1, (mL): \_\_\_\_\_\_\_\_\_ mL

**III.) Calculations:**

1. Pressure of DRY H2 gas

Work:

b.) Convert to moles of H2

Work:

c.) Number of grams of H2(g) collected, (g): \_\_\_\_\_\_\_\_\_\_

Work:

d.) Number of moles of Mg metal started with, (mol): \_\_\_\_\_\_\_\_\_\_

Work:

f.) Number of grams of magnesium metal started with; \_\_\_\_\_\_\_\_\_\_g

Work:

**Question:**

In a lab similar to that just completed, 28.6 mL of wet hydrogen gas was collected by **water displacement methods**. The total pressure of the wet gas collected was 787.6 mm, and its temperature was 20oC.

The reaction: (remember to balance charges)

\_\_Al(s) + \_\_ H+(aq) ---------> \_\_Al+3 + \_\_H2(g)

a.) What number of moles of dry hydrogen gas was collected? (First eliminate the water vapor)

b.) With what number of grams of aluminum metal did you begin