**Factors that affect the Rate of Reaction between an Acid and a Metal**

**Purpose:**

* to determine how the nature of a reactant affects the rate of a reaction
* to determine how the concentration of a reactant affects the rate of a reaction

Ms. Purcell or Mme. Veilleux will explain to you the set up according to the following diagram:

 

**Trial 1 First Column Lab Partners**

* piece of magnesium metal and approx. 10 mL of 3 mol/L HCl(aq)

**Trial 2 Second Column Lab Partners**

* piece of magnesium metal and approx. 10 mL of 6 mol/L HCl(aq)

**Trial 3 Third Column Lab Partners**

* piece of magnesium metal and approx. 10 mL of 6 mol/L CH3COOH(aq)

**Observations:**

* in your log books create 3 data tables
* first column of each table is time
* second column of each table is volume of hydrogen gas
* you will collect only one set of data
* you will obtain the other 2 sets of data from your "row mates"

**BCE:**

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2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Analyses of Data:**

1) Computer generate **ONE** graph using the 3 sets of data. Use a **legend.**

2) Determine the **average rate** of formation of hydrogen gas over time for each set of data.

 **Trial 1** **Average Rate for 3 M HCl:**

 **Trial 2** **Average Rate for 6 M HCl:**

 **Trial 3** **Average Rate for 6 M CH3COOH:**

How does the type of acid affect the rate of reaction and why using collision theory?

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How does the concentration of acid affect the rate of reaction and why using collision theory?

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What were the 2 independent variables?

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What was the dependent variable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

List everything that was held constant (use bullets).