**Chemistry Summative Activity: Unit 3 Molecular Interactions**

**Lab: Titration**

**Purpose:**–To prepare acid/base solutions and calculate their Molarity by titration.

**Safety**: 1 Wear safety goggles and aprons at all times.

2 Handle acids with care-

do not smell, wash with soap and water. Notify teacher of spills

3 NaOH is highly caustic in its solid form. Follow acid usage procedures

4 Add acid to water, not water to acid

**Prelab- Making Solutions**

1. Describe how would you prepare 100.00mL of a 0.10M HCl solution from a 2.5 M HCl

stock solution.(show calculation and then explain in 1 sentence what you would add to a 100 ml volumetric flask)

1. Calculate the concentration (M) of the 100.00 ml NaOH solution that you made based on the mass of NaOH you measured (between 0.3 and 0.5 g. )

Mass of NaOH used \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the pH of your NaOH solution?
2. What is the pH of the HCl solution?
3. What is an indicator?
4. Write the neutralization reaction for lab:

**Data:**

Concentration of known Acid: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Trial 1** | **Trial 2** | **Trial 3** |
| **mL of base used** |  |  |  |
| **Initial volume acid** |  |  |  |
| **Final volume acid** |  |  |  |
| **Volume of acid used** |  |  |  |

**Calculations :**

1. Calculate the average **volume** of your base solution for the three trials.
2. Calculate the molarity of your **base**  .
3. Determine the percent error for the making of your base.

**Error Analysis:**

1. After performing the titration experiment and comparing your experimental results with your initial concentration, write a paragraph or two detailing at least two specific and experimental sources of error which will directly affect the numerical result of your experiment. Identify both the source of the error and the quantitative impact it has on the results.