- Calculate the theoretical amounts of reactants ($m_{Mg}$, $m_{Na2CO3}$, $m_{CaCO3}$, $V_{HCl}$) according to the provided or measured parameters (see below) and using the ideal gas law:
  $\Delta P_{H2/CO2}$ = 0.5 atm (pressure should not exceed this value)
  $T$ = _____ °C = _____ K

- Engineer a way to deposit the solid in to the flask where the acid is without losing gas pressure.

**After completing the theoretical calculations, ask your TA to sign your proposal and approve the amount of chemicals that will be used experimentally.**

2. Perform the reaction of **Mg(s)** with **HCl** and determine from the measured pressure how much $H_2$ gas was produced experimentally.
   - Inspect glassware for cracks before start.
   - Assemble equipments. (Hold stopper and flask tightly to avoid gas leakage.)
   - Refer to Appendix E of the lab manual for information about collecting pressure data.
   - **Should finish 3 trials for this reaction**: reaction for $H_2$
   - **Do not allow any liquids to enter the opening of the pressure sensor.**
   - Determine the experimental gas pressure of $H_2$ produce from the reaction of **Mg(s)** with **HCl**.

- Calculate the theoretical yield of gas, percent yield, and percent error for each trial.

3. After the experiment:
   - Solutions should go into the liquid waste bottle.
   - Turn in the copies of notes.

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**WEEK 2**

1. In your notebook, create a table similar to the one created week 1.

2. Re-measure the volume of your reaction flask and tubing.
   - Re-calculate the total volume: $V_{total} = V_{flask} + V_{tubing}$
     $V_{flask}$ = volume of the reaction flask (Erlenmeyer flask)
     $V_{tubing}$ = volume of the tubing

   *Note that $V_{total}$ used in the calculations in the lab report should subtract the volume of the reactants (mainly HCl solution).*

   - Record the room temperature: $T$ = _____ °C = _____ K
   - Refer to your calculations from last week and write on your notebook the amounts of chemicals you will be using for the reaction between $Na_2CO_3$ with HCl and $CaCO_3$ with HCl.