Report Guidelines

Investigation 30: How is heat of combustion measured indirectly?

General (points can be deducted if these items are not followed)

- One copy of the report per group (hard copy or e-copy sent by email). *Report due one week from the completion of the lab.*
- Title page: Investigation name, date, lab section, group members' names, TA's name.
- Label each of the sections listed below, bold or underlined.
- Written in *the third person, past tense, passive voice*; no use of first person, and no contractions or slang.
- Use superscripts and subscripts for chemical formulas and scientific notation.
- Remember to put a zero in front of the decimal point.

Introduction (2 pts)

- Brief description of the goal in this experiment
- Description of the following concepts and how they relate to this lab:
  - Hess's Law
  - Heat of reaction
  - Enthalpy
  - Standard enthalpy of formation
- Include both balanced reactions (Mg with HCl and MgO with HCl) with proper physical states (*s*, *l*, *g*, *aq*)

Experimental (2 pts)

- Provide a list of reagents made available in the lab that you used.
  - Include the molarity of HCl.
  - Proper subscripts and **physical states** are very important.
- Provide a clear description of the overall process for both weeks, including the design of the "calorimeter".

Results (3 pts)

- Show <u>one sample calculation</u> for each of the following:
  - The value of the theoretical ΔH_r for reaction (1) and (2) [1]
  - The experimental ΔH_{r1} (based on the data from Day 1) [2]
  - The average value of the experimental ΔH_{r1} and the standard deviation [3]
  - The experimental ΔH_{r2} (based on the data from Day 2) [2]
  - The average value of the experimental ΔH_{r2} and the standard deviation [3]
  - The experimental ΔH_r (*i.e.* the heat of combustion for Mg based on the manipulation of experimental data) and the standard deviation [3]
- Organize the original data from both weeks and the results in tables