Date Partner

**Title**

**Purpose or Problem:** This should be a clear, concise statement of the scientific purpose of the experiment, written **before** you start to collect data.

**Hypothesis:** Predict the relationship between the two variables that are being tested. This statement is only included if there is a purpose.

**Manipulated Variable(s):** Record that variable that is the “cause” of the experiment. It is also called the independent variable.

**Responding Variable(s):** Record that variable that is the “effect” that comes from changing the manipulated variable. It is also called the dependent variable.

**Controlled Variables:** Record at least two variables that must be kept constant in order for you to study how the “cause” changes the “effect.”

**Materials & Procedure: “**Refer to the textbook pages…” or other location of the lab.

**Data & Analysis:**

* This section extends over as many pages as are needed to present all of the information, the data, and the calculations, including error analysis and graphs.
* The goal you should aim for is to organize this section in a logical order, with sufficient detail so that it can be interpreted without the aid of your laboratory manual.
* Use **headings** to separate different sections of the experiment from each other.
* Where it is appropriate, organize the data and calculated results in a table.
* Label each measured quantity or drawing and include the units in that measurement.

e.g. mass of BB’s, m = 3.22 g

* Provide one sample for each calculation done. Include a **heading**, the **formula**, **substitutions** and **units**.

e.g. Calculation of the flow rate for glycerine

rate = volume/time

= 100 mL/6.52 s

= 15.3 mL/s

* Count the number of digits used in a calculation and use the same number in your answer. (e.g. three in above)
* Graphs or other material should be **permanently attached** to the page.
  + Graphs should have **titles** (e.g. Melting an Ice Cube: Temperature vs. Time),
  + their **axes** should be clearly labelled,
  + the graph **scales** should be easy to read, plotted points should be **circled** and **best-fit lines** should be drawn.
  + Do not connect-the-dots!
* Do not crowd your work. A report that is crammed onto one page, messy or so small that you need a microscope to read it may not receive that grade that it is worth.

**Questions:** The questions are placed at the end of Data & Analysis.

**Conclusion:** You willuse a five-step **RERUN** method to write your conclusion. The five components should be clear, brief statements that provide direct answers to the stated purpose. In most cases, each part of the RERUN will be only one sentence.

**Recall** – Condense your procedure into a one to three sentence description; (“In this experiment we…”)

**Explain** – Restate the purpose of the experiment. “We were trying to…”

**Results** – This statement is the answer to your purpose. If the experiment tests a cause-effect relationship, state the answer that is given by your results. “We found that as we increase…” Otherwise, summarize the main details of the observations that you made.

**Uncertainties** – At least one uncertainty must be stated. The options are listed in order of importance:

1. Identify conflicting or inaccurate results and
2. Describe possible sources of error.
3. Explain how you could adjust the experiment to test a different variable.

**New** – Identify and describe a real-world situation that involves this information. “We see this occurring in…”