SCH 4UI Outline for Lab Reports

General guidelines:

- Each student must hand in their own, *hand-written* lab report. Marks will be deducted for copying.
- Each student must record their own observations as the lab is performed; do NOT copy them later.
- Write the lab report as a disinterested spectator. Do not use personal pronouns (I, we, us, our).
- Follow the format below, in the order given:

Title:

- The title of the lab should **accurately** describe the experiment being performed.
- Centre the title at the top of the first page of the lab report.
- In the interest of saving paper, please do NOT include a title page.

Purpose:

• In full sentence form, state the reason for doing the lab.

Method:

- If the lab handout includes a detailed method, write "Refer to Lab Handout" in the Method section.
- If the method is not provided, first write down the materials: a detailed list of all equipment and chemicals used for the lab, including the size of beakers etc. Then write the method: a set of detailed step-by-step instructions that another person could follow to perform the experiment.

Observations - Quantitative:

- Numerical data must be presented in an appropriate and organized format and include ALL UNITS !!!
- If data tables are used, they must be drawn neatly with a ruler and have a complete title.
- DO NOT include calculations, interpretations or conclusions in this section.

Observations - Qualitative:

- Before the experiment, describe the physical properties of the reactants (colour, state, clarity etc.).
- During the experiment, describe all signs of chemical change, including colour change, gas production, formation of a precipitate and energy changes.
- Describe the rate and/or extent of the reaction as slow, moderate, rapid, slight, significant etc.
- After the reaction, describe the physical properties of the products.
- Do not include interpretations or conclusions in this section. For example a gas can be described as a clear, colourless and odourless gas which causes a glowing splint to re-light. However, this gas can not be identified as oxygen in the observation section its identity is a conclusion.

Calculations:

- If calculations are performed, each calculation must include the mathematical equation, substitution step, and the final answer, rounded to the correct number of significant digits.
- Units must be included at all steps.
- If multi-step calculations are performed, intermediate values should have at least one more significant digit than will be reported in the final answer. Round only the final answer to the correct number of sig digs.

Questions:

- Answer all questions that accompany the experiment in **full sentence form**.
- Do not use personal pronouns EVER!!! (I, we, us, our)
- Each student must answer the questions individually. Marks will be deducted for copying.

Conclusions:

• This is a **brief summary** of the results of the experiment relating back to the purpose of the experiment.

Experimental Error:

- This section explains why the experimental results may be inaccurate or unreliable due to the limitations of equipment or experimental design. All equipment has built-in (inherent) error depending on its quality.
- Errors are unavoidable. They are NOT mistakes or due to sloppy scientific technique.
- In general, discuss at least three sources of *unavoidable* error in the experiment.