

Student Experiment Genre Guide

Senior Sciences

Section	Relationship to criteria at a 5/6 LOA	What to include	Word Length (guide only)
RESEARCH AND PLANNING	<ol style="list-style-type: none"> 1. Informed application of understanding to modify experimental methodologies to produce <ol style="list-style-type: none"> a. Considered rationale b. Justified modifications to the methodology 2. Effective and efficient investigation of phenomena demonstrated by <ol style="list-style-type: none"> a. a specific and relevant research question b. a methodology that enables the collection of sufficient, relevant data c. considered management of risks and ethical or environmental issues. 	<p>RESEARCH AND PLANNING (main heading)</p> <p><i>Rationale (sub heading)</i> A considered rationale must include</p> <ul style="list-style-type: none"> <input type="checkbox"/> Relevant background information (sources cited) required to position the audience to understand the experiment (theory) necessary to make meaning clear. <input type="checkbox"/> A secondary source of data (from reliable sources) <input type="checkbox"/> Discuss original experiment findings <p><i>Research question (sub heading)</i> Must be</p> <ul style="list-style-type: none"> <input type="checkbox"/> Specific including only one dependent variable and able to be answered in the scope of your experiment <input type="checkbox"/> Relevant to the original experiment and the rationale presented <p><i>Original experiment (sub heading)</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Brief overview of method and findings in paragraph form <input type="checkbox"/> Original method will be included in the body of the report or as an appendix. <p><i>Modifications to the methodology (sub heading)</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify the type of modification - refinement/extension/redirection. <input type="checkbox"/> Justify the modification with reference to research and the outcome of the original method <input type="checkbox"/> Make clear how changes improved collection of relevant and sufficient data <p><i>Safety and ethical considerations (sub heading)</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> A paragraph or table of the identified risks and how they were managed. <input type="checkbox"/> Risk assess must be attached as an Appendix 	500 words

<p>PROCESSED DATA</p>	<p>1. Appropriate application of algorithms, visual and graphical representations of data demonstrated by correct and relevant processing of data</p>	<p>PROCESSED DATA (main heading)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Data tables/graphs representing the data in a manner that assist in answering the Research Question. Table and graphs must be clearly titled and numbered e.g. Table 1 Temperature vs Time (smaller font). <input type="checkbox"/> Sample calculations embedded in data tables or as a separate table <ul style="list-style-type: none"> a. Calculations used to process the data. (e.g. averages, theoretical and experimental yield) b. Calculations used to determine the validity of the data (e.g. percentage error, standard deviation, percentage uncertainty) 	<p>300 words: tables of data and graphs do not contribute to word count</p>
<p>ANALYSIS OF EVIDENCE</p>	<p>2. Systematic and effective analysis of experimental evidence demonstrated by</p> <ul style="list-style-type: none"> a. thorough identification of relevant trends, patterns or relationships b. thorough and appropriate identification of the uncertainty and limitations of evidence <p>3. Effective and efficient investigation of phenomena demonstrated by</p> <ul style="list-style-type: none"> a. collection of sufficient and relevant raw data. 	<p>ANALYSIS AND INTERPRETATION (main heading)</p> <p>Refer to processed data and calculations to discuss the trends and relationships observed. Remember to be systematic and concise and to draw data points to support your analysis. May need to discuss trend lines or R² to support your analysis</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify trends and patterns relevant to the Research Question posed. <input type="checkbox"/> Identify the limitations of the data collected and presented referring to the calculations made in Processed Data. <input type="checkbox"/> Acknowledge the sufficiency of the raw data collected. 	<p>400 words</p>
<p>INTERPRETATION AND EVALUATION</p>	<p>1. Insightful interpretation of experimental evidence demonstrated by justified conclusion/s linked to the research question</p> <p>2. Critical evaluation of experimental processes about molecular interactions and reactions demonstrated by</p> <ul style="list-style-type: none"> a. justified discussion of the reliability and validity of the experimental process b. suggested improvements and extensions to the experiment that are logically derived from the analysis of evidence. 	<p>EVALUATION (main heading)</p> <p>Evaluate the experimental process by</p> <ul style="list-style-type: none"> <input type="checkbox"/> Discussing potential sources of error in the experimental method. <input type="checkbox"/> Referring to calculations that confirm the sufficiency and validity of data collected (Processed Data) <p>Suggest improvements.</p> <ul style="list-style-type: none"> <input type="checkbox"/> That address the sources of error identified. <p>Draw conclusions and justify your conclusion</p> <ul style="list-style-type: none"> <input type="checkbox"/> Based on the evidence presented. <input type="checkbox"/> Compared to the secondary data source from your Rationale. <p>Suggest extensions</p> <ul style="list-style-type: none"> <input type="checkbox"/> Based on the outcome of this experiment and that will assist you to draw a more certain conclusion <p>Clearly state the outcome of your experiment in relation to your research question</p>	<p>300 words</p>

COMMUNICATION	<p>Effective communication of understandings and experimental findings, arguments and conclusions demonstrated by</p> <ol style="list-style-type: none"> a. fluent and concise use of scientific language and representations b. appropriate use of genre conventions c. acknowledgment of sources of information through appropriate use of referencing conventions. 	<p>Assessed in all sections of the report.</p> <p>Make sure you</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use correct genre conventions: Headings and content consistent with this genre guide <input type="checkbox"/> Select data representations that allow conclusions related to the research questions <input type="checkbox"/> Make fluent and concise use of scientific language and representations: <ul style="list-style-type: none"> - Proof reading to eliminate spelling and grammatical errors. - Labelling diagrams and tables appropriately <input type="checkbox"/> Acknowledge sources: both in text and in a reference list. 	<p>This does not contribute to word count</p>
REFERENCE LIST	<p>Using the Harvard Model</p>	<p>REFERENCE LIST (main heading)</p> <p>Sources must be:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Valid <input type="checkbox"/> Referenced – this refers to all text, diagrams and figures <input type="checkbox"/> Cited in text and well as in the Reference List (Do not populate a long list of sources that clearly have not been used) 	<p>This does not contribute to word count</p>