**Project Title:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_

Project by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_

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| --- | --- | --- | --- | --- | --- | --- |
| **Marks** | **4** | **3** | **2** | **1** | ***0*** | **score** |
| **PART 1** | **FRAMING THE PROBLEM [12 marks]** | | | | |  |
| Research Question | * States problem as a question * Is measurable and testable |  | * States a problem that is vague but measurable and testable | * States a problem that is vague and is not measurable, or is difficult to test | *No research question* | /4 |
| Background Research | * Research is thorough and relevant to the investigation * Ideas are clearly explained |  | * Research has some relevance to the investigation * Some ideas are explained. | * Minimal research * Info gathered was not explained, or is not relevant to the investigation | *No evidence of research* | /4 |
| Works Consulted | * Sources of info properly credited * Proper format. * Many references from at least 3 types of sources | * Some sources of info incorrectly cited or absent * Some formatting errors * Fewer than three types of sources included | * Citing of sources is poorly done. * Not properly formatted. * Few references are cited | * Very few references are cited (1 or 2) | *None given* | /4 |
| **PART 2** | **EXPERIMENTAL DESIGN [24 marks]** | | | | |  |
| Hypothesis and/or Prediction | * Hypothesis is clear, testable, and clearly addresses the problem stated. * It shows a direct relationship to the background research. | * Hypothesis is clear, testable, addresses the problem stated. * It shows some connection to the background research. | * Hypothesis is not clear, testable, or does not address the problem stated. * It shows limited connection to the background research. | * Hypothesis is not clear, not testable and does not connect with the stated problem. * It shows no connection to the preliminary research. | *None given* | /4 |
| Variables and Controls (X2) | * Independent and dependent variable are both clearly and correctly identified. * Controlled variables are listed. * Appropriate sample size and/or number of trials. |  | * Either Independent or dependent variables are either not clearly or correctly identified. * Controlled variables may not be listed. * Sample size and/or number of trials are not appropriate. | * Neither independent nor dependent variables are clearly or correctly identified. * Controlled variables may not be listed. * Sample size and/or number of trials are not appropriate. | *No independent or dependent variable listed. No controls listed.* | \_\_\_\_\_ X 2 =  /8 |
| Materials | * All materials listed clearly * Exact quantities listed | * All materials listed * Some quantities listed | * Most materials listed * Quantities of materials is unclear | * Many materials needed are not included in the list and quantities are not given | *No materials listed* | /4 |
| Procedure (X2) | * Experiment is a well-constructed test of the hypothesis. * Procedures are outlined in a step-by-step method that could be followed by anyone without additional explanations. * The experiment is replicated. | * The procedure is appropriate. * Most steps are well explained and but there may be 1 or 2 gaps that require explanation. | * Mostly complete procedure with little attention to the details of the experiment. * Steps are not well explained. | * The procedure is unclear and missing important steps. | *No procedure listed* | \_\_\_\_\_X 2 =  /8 |
| **PART 3** | **RESULTS AND ANALYSIS [12 marks]** | | | | |  |
| Results (X2) | * Summarizes data in a way that clearly describes what was discovered using graphs or charts. * Charts are accurate, easily understood and complete (titles, labels, data key, variables, correct units, etc.) * Discusses relationships between the variables and thoroughly analyzes trends/patterns. Makes well-reasoned predictions about what might happen if part of the experiment were changed to better test the hypothesis or answer a further question. | * Graphic(s) chosen to display data. * Graphic(s) accurate, but some components (titles, labels, data key, variables, correct units, etc.) are missing. | * Graphic(s) chosen inappropriate for the type of data presented. * Graphic(s) not easily understood. * Most or all of the components (titles, labels, data key, variables, correct units) are missing. | * Does not summarize data clearly. * The relationship between the variables is unclear or not discussed. * Makes no predictions about what might happen if part of the experiment were changed to better test the hypothesis or answer a further question. | *None given* | \_\_\_\_\_X 2 =  /8 |
| Conclusion | * Conclusion is related to both the research question and the hypothesis. * Shows what has been learned and indicated predictions and/or further questions | * Conclusion is related to the research question. * Provides a good summary of the findings and relates back to the hypothesis | * Conclusion is related to the research question. * Provides a summary of the findings, but does not tie back to the hypothesis | * Conclusion is not related to the research question. * Contains no reference to the hypothesis. | *None given* | /4 |
| **PART 4** | **PRESENTATION [8 marks]** | | | | |  |
| Visual Display | * Display is outstanding, extremely informative, and attractive. * Sections are all displayed in an organized manner which helps the audience understand the entire experiment within an minute or two of explanation | * Display is attractive and all parts seem to fit together without being crowded. * All sections are displayed in an organized manner | * Display is organized and relatively easy to understand. * May be missing some sections | * Display is messy and disorganized. * Lacking in content, missing sections * Many grammatical errors | *No display* | /4 |
| Oral Presentation | * Experiment explained clearly. * Showed knowledge and interest above and beyond average * If working in partner, both students participate equally and can both answer questions | * Experiment well explained. * Both students participate equally and both can answer questions adequately. | * Explained experiment. * Explanation fits the purpose. * One partner speaks more than the other. * One partner answers more of the questions | * Partially explained the experiment. * Explanation doesn’t fit the purpose. * One partner dominates the presentation and answers most or all of the questions. | *Presentation confusing. Little effort on the part of the student* | /4 |
|  |  |  |  |  | ***TOTAL* /56** | |

Student Judge: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Comments: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_