**MYP Biology- Science Fair**

Our first unit has been about the Scientific Method and conducting experiments while using correct methods and procedures. Your large assessment for the end of this unit will be creating a science fair project. You may work individually or with one other Biology student in your class. You will have limited class time to work on this project. In order to be successful, you must meet all of the deadlines! Remember, this is for you to communicate your experiment to peers, make sure that this project is neat and organized!

****

Requirements for your project:

* Research Question
* Background Information
	+ At least 2 cited sources (APA format)
* Hypothesis
* Variables and Controls
* Materials
* Experimental Procedure
* Observations
	+ Quantitative Data
	+ Qualitative Data
* Conclusion

These requirements must be typed put on a poster or a tri-fold board.

**Deadlines (Must be typed in order to receive full credit):**

|  |  |  |
| --- | --- | --- |
|  | Due Date | Teacher Initials/Comments |
| Research Question & Background Information with sources |  |  |
| Hypothesis, Variables, Materials, & Experimental Procedure |  |  |
| Observations |  |  |
| Final Science Fair Project |  |  |

Parents,

We will be putting our knowledge about the scientific method to the test! We will be conducting a Science Fair research project in MYP Biology. Students will have some work time in class where they will have access to science materials and assistance. To keep you informed about this project, you will see the above due dates!

Parent Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_

Parent name (please print):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |
| --- |
| **Science Fair Rubric** |
| **CATEGORY** | **Requirements for full points** | **Requirements for half points** | **Zero points earned** | **Grade** |
| Research Question & Title | The question talks about the relationship between an independent variable (that the experimenter is manipulating) and a dependent variable (which is being observed/measured). | The question does not clearly discuss an independent and dependent variable and/or is not a testable question (in that an experiment cannot be performed to answer the question or the question has a yes or no answer) | There is no experiment question OR the question is meaningless and has neither independent nor dependent variable. | /15 |
| Background Research | Background research thoroughly covers all topics related to the question so that an outsider could read the background and understand every aspect of the experiment. 2 sources are cited | Background research is present, however it does not address all necessary concepts and definitions so as to make the experiment accessible to anyone. 1 source is cited. | Background research does not exist. 0 sources are cited. | /15 |
| Experimental Hypothesis | The hypothesis directly responds to the question and includes the expected relationship between the IV and DV. There is also an explanation for why the researcher agrees with the hypothesis based on research. | The hypothesis responds to the question but does not discuss the IV/DV relationship OR there is no explanation as to why the researcher chose this hypothesis. | The hypothesis does not exist or makes no sense/does not respond to the question. | /10 |
| Detailed list of Materials & Procedure Steps | All materials are included AND all procedures are clearly explained so that another researcher could perform the same experiment. | All materials AND procedures are present however procedures are incomplete and/or unclear so that it would be difficult to repeat the experiment. | Materials & procedures are missing OR do not relate to the experiment . | /10 |
| Observations (Results): Qualitative & Quantitative | Both quantitative (tables/graphs) and qualitative (paragraphs) data are present (if necessary) and are key to understanding the data. All observations are clearly organized and there are NO inferences made. | Necessary quantitative or qualitative data is missing OR the data is unorganized/does not make sense. | Observations are not present OR do not have any relation to the project. | /15 |
| Conclusion | Conclusion is clear and precise. It directly relates to the hypothesis by stating whether the data supported or disproved the hypothesis. It uses inferences based on data in order to draw conclusions. It discusses possible sources of error and future possible investigations. | Conclusion is unclear and information is not organized. Data is not used to support claims. Expected information is missing such as sources of error and future investigations. | Conclusion is not present OR does not discuss hypothesis. | /10 |
| Poster Boards | Information is well organized and board is visually appealing. All required information is included. There are pictures/drawings/graphs that support the presentation. All board and table material is pertinent to the project. | Information is not well organized OR information is not visually appealing OR graphics and materials are not supportive of the project or do not exist. | Board is not present OR does not relate to the project. | /10 |
| Deadlines | Met all deadlines. | Met 2-3 deadlines | Did not make any deadlines. | /15 |
|   |   |   | **Total Grade:** | **/100** |

**Science Fair Proposal**

* Research Question: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Background Information:

|  |  |
| --- | --- |
| **Name of article** |  |
| **APA citation** |  |
| **Helpful Background Information** |  |

|  |  |
| --- | --- |
| **Name of article** |  |
| **APA citation** |  |
| **Helpful Background Information** |  |

**Science Fair Planning**

* Hypothesis: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Variables and Controls
	+ Independent Variable (X-axis):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Dependent Variable (Y-axis):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Controls:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Materials:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Experimental Procedure (Numbered steps, remember command terms! Add more steps if necessary.):
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Observations:

|  |  |
| --- | --- |
| **Quantitative Data** | **Qualitative Data** |
|  |  |