

**Middle School TIP - Science Fair Project
Homework #3 – Quarter 2**

I hope your students are enjoying conducting their experiments. We will be wrapping up the Science Fair this quarter! All assignments related to the science fair project, as well as, the final project will count for 20% of the student’s overall grade in science for the second quarter.

The final product will consist of a display board, research report and logbook. Your science teacher MUST approve all experiments/topics.

Teachers may provide support for this project. However, the requirements need to be completed at home, unless your student’s teacher otherwise notifies you. Your responsibility, as a parent or guardian, is to provide the necessary materials for the approved experiment, display board, research report and logbook. Please keep in mind that your student will be required to conduct a **minimum of ten trials**.

The attached rubric provides a breakdown of specific details. Note that on the back of the rubric is the layout for the display board, logbook and research report. Also note that certain experiments/topics will require your student to complete additional forms before conducting his/her experiment. Please refer to the website below to determine if your experiment requires additional forms.

<https://apps2.societyforscience.org/wizard/index.asp>

Parent/guardian please sign below that you have received and read this letter. **Students will receive a homework grade just for bringing this signed page back to their science teacher!!**

FINAL PROJECT DUE DATE: <u>Monday, DECEMBER 2nd, 2019</u>
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Teacher Approved Topic:

Student Name (Printed): _____ **Period:** _____

Student Signature: _____

Parent/Guardian Signature: _____

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LOGBOOK

A logbook is a **day-to-day** record of all activities completed for your research project. It is **PROOF** of what you did!
You must bring your logbook to school every day until you turn in your final project.

LOGBOOK must:

- Be either a bound or spiral notebook.
- Be written with a **blue or black pen only**.
- Every page should be **numbered** and have a **DATE, PLACE** and **TIME**.
- Be a continuous documentation of the experiment.

LOGBOOK should include:

- Cover: Title of the Project, Student Name, Science Teacher's Name and Period
- Page 1: Title Page, which includes:
 - Experiment Title (the same as used on the display board)
 - Student's Name
 - Science Teacher's Name
 - Period
- Page 2: Your topic and how you decided on this particular topic
- Page 3: Problem Statement
Hypothesis
- Page 4: Test (independent) Variable
Outcome (dependent) Variable
Control (if any)
Constants
- Page 5: Materials/Equipment List and a description of any equipment used
- Page 6: Procedure
- Page 7: Risks & Safety
- Page 8: Data Table
- Page 9: Graph
- Page 10: Data Analysis
- Page 11,12,13: Notes/Observations from each trial should include the following:
 - What happened during the experiment/trials?
 - How did the data from each trial compare to previous trials?
 - Any problems that occurred.
 - Any adjustments you had to make to your experiment.
- Page 14: Rough Draft of Real-Life Application Description
- Page 15: Acknowledgement (List any contacts you made with experts or anyone who helped)
- Page 16: Rough Draft of Conclusion
- Page 17: Rough Draft of Abstract
- Page 18: Bibliography

SCIENCE FAIR PROJECT DISPLAY BOARD EXAMPLE

Materials

(List the materials used in the experiment)

Procedure

(Steps should be numbered)

- 1.
- 2.
- 3.

Abstract

(Should be 3 paragraphs and written in 3rd person past- tense)

1st paragraph: State the problem or question you are trying to solve in the experiment.

2nd paragraph: Summarize the procedure.

3rd Paragraph; Summarize your results shown in your data table and graphs and state your conclusion.

Title of the Project

(At least 72 font)

(The title must reflect what the experiment is related to.)

Pictures should be placed here that relate to the project. The picture may be from a book or from a website but **must be cited on the board.** Original drawings do not need a citation. **No 3-D Elements.**

Problem Statement

(This is the question that asks what you are trying to find out)

Hypothesis

(Format: If..., then... because...)

Variables

Test/Independent variable
Outcome/Dependent variable
Constants
Control (if applicable)

Data Table, Graph and Data Analysis

Data Table

Graphs

Data Table results should be put into a Graph and placed here. Test Variable plotted on the X-axis and Outcome Variable plotted on the Y-axis.

Data Analysis

- * Identify any patterns
- * Identify and explain any expected or unexpected results
- * Identify any data errors and possible causes.
- * Explain the meaning or implications of the data.

Conclusion

- * Re-state the hypothesis.
- * Indicate if the hypothesis was **or** was not supported.
- * Use data to support whether The hypothesis was or was not supported.
- * Compare test and control data.

Real World Application

- * Describe how this project applies to the real world and/or how this project benefits society.

Recommendations

- * Include any problems or variables that may have had an adverse effect on the experiment.
- * Should include any recommendations for modifications or improvements.
- * Justifications for all your recommendations.

RESEARCH REPORT

***** Hard copies, of all parts listed below, must be contained in a folder and submitted to your science teacher with your display board and logbook.**

Pg 1 TITLE PAGE: Student Name, Title of the Project, Science Teacher's Name and Period

Pg 2 ABSTRACT: A three-paragraph summary of the project written in third person. This portion will be completed last since it is a summary of your entire project. *(Include a copy of the abstract from the display board.)*

- **Paragraph One:** State the problem/purpose of the experiment and your hypothesis.
- **Paragraph Two:** Summarize the procedure.
- **Paragraph Three:** Summarize your results and state your conclusion.

Pg 3,4 RESEARCH PAPER: Information, about the scientific process or concept of your experiment, should be researched. ***** Your research paper should be 2 double spaced pages and typed using 12 font.**

Pg 5 PROBLEM STATEMENT and HYPOTHESIS: If _____, then _____ because statement. **Do not use pronouns and must be written in third person.** *(Include a copy of the problem statement and hypothesis from the display board.)*

Pg 6 VARIABLES: Test (independent) Variable, Outcome (dependent) Variable, Control (if any) and Constants *(Include a copy of the variables from the display board.)*

Pg 7 MATERIALS: *Include a copy of the materials from the display board.*

Pg 8 PROCEDURES: *Include a copy of the procedures from the display board.*

Pg 9 DATA TABLE: *Include a copy of the data table from the display board.*

Pg 10 GRAPH: *Include a copy of the graph from the display board.*

Pg 11 DATA ANALYSIS: *Include a copy of the data analysis from the display board.*

Pg 12 CONCLUSION: *Include a copy of the conclusion from the display board.*

A GREAT Conclusion should contain the following:

- *Re-state the hypothesis.
- *Indicate if the hypothesis was **or** was not supported.
- *Use data to support whether the hypothesis **was or was not supported.**
- *Compare test and control data.
- *Include any problems or variables that may have had an adverse effect on the experiment.
- ***Explain the scientific process that occurred.**
- *Use past tense.
- *Write without pronouns.

Pg 13 BIBLIOGRAPHY: List the books, magazines, Internet sites that you used in your research. Must be in APA format.

TIP - Science Fair Project Grading Rubric	Points Per Section
<u>Quarter 2 Requirements</u>	
○ Homework #3 (Quarter 2) – Signed, Completed, and Returned.	_____/100
Logbook	
○ Page 9 – Graph	_____/10
○ Page 10 – Data Analysis	_____/10
○ Page 11-13 – Notes and Observations	_____/20
○ Page 14 – Rough Draft of Real-Life Application Description	_____/10
○ Page 15 – Acknowledgement	_____/10
○ Page 16 – Rough Draft of Conclusion	_____/15
○ Page 17 – Rough Draft of Abstract	_____/15
○ Page 18 – Bibliography	_____/10
Research Report	
○ Page 1: Title Page	_____/5
○ Page 2: Abstract	_____/10
○ Page 3-4: Research Paper	_____/100
○ Page 5: Problem Statement and Hypothesis	_____/10
○ Page 6: Variables	_____/10

○ Page 7: Materials	_____/5
○ Page 8: Procedures	_____/10
○ Page 9: Data Table	_____/10
○ Page 10: Graph	_____/10
○ Page 11: Data Analysis	_____/10
○ Page 12: Conclusions	_____/10
○ Page 13: Bibliography	_____/10
Display Board	
○ Title	_____/5
○ Problem Statement	_____/5
○ Hypothesis	_____/10
○ Materials	_____/10
○ Procedure	_____/10
○ Variables (Test, Outcome and Constants)	_____/15
○ Conclusion	_____/25
○ Abstract	_____/25
○ Data Table	_____/25

○ Graph	_____/25
○ Data Analysis	_____/25
○ Real World Application	_____/10
○ Recommendations	_____/5
○ Organization and Neatness	_____/5
EXTRA CREDIT: Completed a Controlled Experiment	+10

Suggested TIP Timeline

Dates	Items to be Working On	Completed
<u>Week of October 21</u>	Homework #3 – Completed and turned in to Science Teacher Continue Conducting Experiment & Recording results in Data Table Finish Research and Bibliography	
<u>Week of October 28</u>	Finish Real Life Application Start Writing Research Paper	
<u>Week of November 4</u>	Finish Conducting Experiment & Record in Data Table Graph results in Logbook Finish Data Analysis Finish Writing Research Paper	
<u>Week of November 11</u>	Finish Conclusion Finish Recommendations	
<u>Week of November 18</u>	Finish Abstract Finish Research Report Start setting up the Display Board	
<u>Week of November 25</u>	Finish Logbook Finish Display Board	
<u>December 2</u>	TIP Due	