

Science Fair TIP #2 Rubric Homework #1

Science Fair TIP #2 is here! This interdisciplinary project will count for 15% of the student's overall grade and will be scored by all curriculum area teachers.

Each student will be required to perform an experiment based on a scientific question or problem. An experiment uses the scientific method to conduct a series of trials in order to support or not support a hypothesis. Models and demonstrations are not experiments, and will not be accepted as science projects. Projects must have a measurable outcome. **The final product will consist of a display board, written report and logbook. The science teacher on each team MUST approve all experiments/topics.**

Teachers will 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 science teacher approved experiment, along with a display board, logbook and report cover. **The display boards may be purchased at any office supply store or for \$5.00 from a science teacher at Millennium 6-12 Collegiate Academy.**

Please review your student's selected topic and materials list on the back of this page. Please keep in mind that your student will be required to conduct a **minimum of ten trials**. If you approve of this topic and can provide the materials, sign your name where indicated. **The project cannot be changed once both the science teacher and parent have approved it.**

The attached rubric provides a breakdown of specific details. Note that on the back of the rubric is the layout for the display board, log book and research report. **Students in the 8th grade must submit their research paper into turnitin.com in addition to the hard copy being included in the folder.** 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 both signed pages (front and back of this sheet) back to their science teacher!!**

DUE DATE: Monday, DECEMBER 11, 2017

Project Topic _____ **SEE THE BACK OF THIS PAPER** _____

Student Name (Printed): _____

Student Signature: _____

Parent/Guardian Signature: _____

Topic Selection and Materials List

Student's Name: _____ Team/Group: _____

Teacher Approved Topic: _____

Bulleted list of specific materials needed for the experiment. (A sheet of paper may be attached if more space is needed.)

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Parent/Guardian Approval Signature: _____

Student Name: _____ Group: _____

TOPIC: _____

√ when done	TIP #2 is Due December 11, 2017		
	RESEARCH		
	○ Completed Research Organizer in Logbook p. 11,12,13 (Reading)		
	○ Bibliography Information 3 references- minimum in logbook. P.16 (Reading)		
	○ Real Life Application written in logbook p. 14,15 (Social Studies)		
	DISPLAY BOARD (see page 4 of rubric for layout)		
	○ Title		
	○ Problem Statement		
	○ Hypothesis		
	○ Materials		
	○ Procedure		
	○ Variables - Test, Outcome, Constants and Control (if you are doing a controlled experiment)		
	○ Results: Data Table		
	○ Results: Graph		
	○ Results: Data Analysis		
	○ Abstract		
	○ Conclusion		
	○ Real World Application		
	○ Recommendations		
	REPORT (place in a folder – see page 6 of rubric for format)		
	TYPED	WRITTEN	
	Page 1	1	Title Page
	Page 2	2	Abstract (3 paragraph summary - written last)
	Pages 3, 4	3,4,5,6	Research Paper
	Page 5	7	Problem Statement and Hypothesis
	Page 6	8	Variables, Constants and Control
	Page 7	9	Materials (Listed and Bulleted)
	Page 8	10	Procedure (Listed and Numbered)
	Page 9	11	Data Table
	Page 10	12	Graph
	Page 11	13	Data Analysis
	Page 12	14	Conclusion
	Page 13	15	Bibliography MLA Format (3 minimum needed)
	<ul style="list-style-type: none"> • Organization and Clarity • Submission to turnitin.com no later than 11:59 PM on Dec. 10th (8th grade only!) 		
	LOG BOOK (see page 5 of rubric for format)		
	○ Cover and Title Page		
	○ Date, Time and Place listed for each entry		
	○ Notes/Observations (Noted after every trial, problems that occurred, what happened.)		
	○ Data Collected and Data Analysis		
	○ Numbered Pages		
	○ Neatness		
	<i>Completed a Controlled Experiment (+10 pts)</i>		

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

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 graphed and graphs 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

- * Include an explanation of real life connections or applications for the project.

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 of your recommendations.

LOG BOOK

A log book is a **day-to-day** record of all activities you did on your research project. It is **PROOF** of what you did! You must bring your logbook to school every day until TIP #2 is completed.

LOG BOOK 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.

LOG BOOK should include:

- Cover: Your Name-Team-Group
- Page 1: Title Page, which includes:
 - Experiment Title (the same as used on the display board)
 - Student's Name.
 - Teacher's Name
 - Team/Group
- 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
Constants
- Page 5: Materials/Equipment List and a description of any equipment used.
- Page 6: Procedure
- Page 7: Risks & Safety
- Page 8: Data Table and Data Analysis
- Page 9,10: 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 11,12,13: All research in the research organizers format.
- Page 14,15: Real Life Application: Social Studies
- Page 16: Bibliography Information
- Page 17: List of any contacts you made with experts or help you received.
- Page 18: Rough draft of conclusion.

RESEARCH REPORT

Hard copies, of all parts listed below, must be turned in to your teacher and contained in a folder. **8th GRADE students Only: ***The research paper must be submitted to turnitin.com and a hard copy needs to be included in the folder.**

Pg 1 TITLE PAGE: Student Name, Title of the Project, Team, Group and Grade Level

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 display board abstract.)*

- **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 (typed) 3,4,5,6 (written) **RESEARCH PAPER: Information, about the scientific process or concept of your experiment, should be researched. You should look in encyclopedias, science books, science textbooks, magazines and the Internet. **This part should be 12 font and 2 typed double spaced pages.**

Pg 5 (7) PROBLEM STATEMENT and HYPOTHESIS: If _____, then_____ statement. **Do not use pronouns and must be written in third person.** *(Include a copy of the display board problem statement and hypothesis.)*

Pg 6 (8) VARIABLES: Test (independent) Variable, Outcome (dependent) Variable, Control (if any) and Constants *(Include a copy of the display board variables.)*

Pg 7 (9) MATERIALS: *Include a copy of the display board materials.*

Pg 8 (10) PROCEDURES: *Include a copy of display board procedure.*

Pg 9 (11) DATA TABLE: *Include a copy of the display board data table.*

Pg 10 (12) GRAPH: *Include a copy of the display board graph.*

Pg 11 (13) DATA ANALYSIS: *Include a copy of the display board data analysis.*

Pg 12 (14) CONCLUSION: *Include a copy of the display board conclusion.*

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 (15) BIBLIOGRAPHY: List the books, magazines, Internet sites that you used in your research. Must be in MLA format. Use citation information on the last page of the logbook.

Suggested TIP #2 Timeline

Dates	Completed	Items to be Working On
(Preliminary) <u>Week of October 16</u>		Get Science Fair Topic Approval by Science Teacher
		Turn In Spiral Notebook for Logbook to your Science Teacher
(Preliminary) <u>Week of October 23</u>		Get Science Fair Topic Approved by Science Teacher
		Set Up Logbook
		Homework #1 - Completed and Turned into Science Teacher
		Homework #2 - Completed and Turned into Science Teacher.
<u>Week of October 30</u>		Purchase Materials for TIP #2 Experiment
		Begin Research
		Start Research Graphic Organizer and Bibliography
<u>Week of November 6</u>		Begin Conducting Experiment & Record in Data Table
		Finish Research
		Finish Research Graphic Organizer and Bibliography
<u>Week of November 13</u>		Continue Conducting Experiment & Record in Data Table
		Start Writing Research Paper
		Finish Real Life Application
<u>Week of November 20</u>		Finish Conducting Experiment & Record in Data Table
		Finish Writing Research Paper
		Finish Data Analysis
<u>Week of November 27</u>		Finish Conclusion
		Finish Abstract
		Finish Recommendations
<u>Week of December 4</u>		Finish Display Board
		Finish Log Book
		Finish Research Report
		* 8 th Grade Only – Submit Research Paper to turnitin.com
<u>December 11</u>	TIP #2 Due	