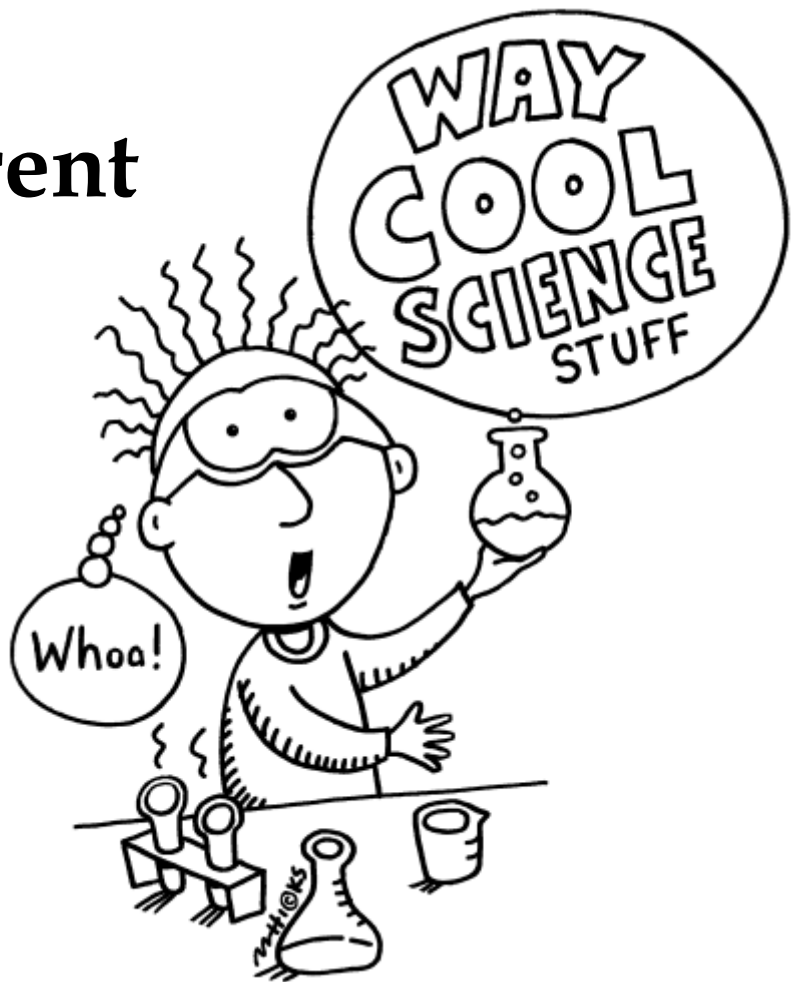


SCIENCE FAIR PROJECT 2017 - 2018

Student/Parent
Handbook



CONTENTS



	Page
Letter to Parents	3
10 Things Parents Can Do to Help	4
Helpful Science Fair Websites	5
Science Fair Deadlines	6
Science Fair Project Requirements	7-8
Guidelines for Science Fair Displays	9-10
Logbook Check Rubric	11
Science Fair Paper Rubric	12
Science Fair Project Rubric	13
Science Fair Student Checklist	14
Science Fair Step by Step	15-18
Science Fair Topic Selection Form	19
Parent Acknowledgement Form	20

August 30, 2017

Dear Parents,

In the next few weeks, your son or daughter will begin a science project in our class. The science project's objective is to give every child hands-on experience using the scientific method. In addition, each student will have the opportunity to independently research a topic of his or her interest. You can help motivate your son or daughter by taking an interest in the project. The emphasis of the project is not on winning, but on having positive learning experiences and having fun.

The research paper, display and log book for the project are due on **November 28, 2017**. Students will present their projects in their classrooms the week of **November 28 - December 1, 2017**. The project will then be evaluated by the science teacher and the top projects from each science class will enter the Fulton Science Academy Science Fair held on **December 6, 2017**.

Attached is a Science Fair Packet (subject to change) including rubrics, checklists, expectations, and deadlines to assist with project completion. The first step in the process, which many find difficult, is choosing a topic. Please help your child with this first requirement by directing them to think about what interests them. Students must turn in their topic/problem selection by **September 15, 2017**. Please do not purchase experiment supplies or allow your child to begin the project at home until their project selection has been approved by their science teacher. Feel free to contact me via email with any questions or concerns at **telitok@fultonscienceacademy.org**. Thank you in advance for your support. I look forward to working with your child, and anticipate seeing outstanding projects!

Sincerely,
Tugba Elitok

10 THINGS PARENTS CAN DO TO SUPPORT THEIR CHILD'S SCIENCE FAIR PROJECT



- 1) Put the deadline dates onto the family calendar.
- 2) Help your child break up the project into manageable small deadlines.
- 3) Go shopping with your child for the materials needed for the project.
- 4) Set aside time in the student's schedule to do the experimentation.
- 5) Ask questions throughout the process.
- 6) Ask to see required items two days before they are due.

- 7) Offer to proofread all items before they are submitted to the teacher.
- 8) Ask more questions about their progress.
- 9) Be around when the student is doing the experiment in case something goes wrong and they need help.
- 10) As frustrating as it may be, remember that it is their project.



HELPFUL SCIENCE FAIR WEBSITES

www.sciencebuddies.org

Science Fair Center at Discovery School.com
<http://school.discovery.com/sciencefaircentral/>

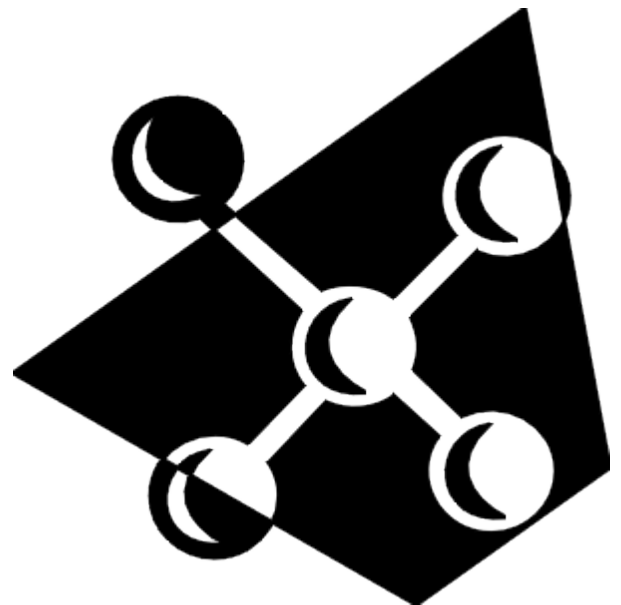
All Science Fair Projects by Science Hound
www.all-science-fair-projects.com/

Middle School Science Projects by Online Learning Haven
www.learninghaven.com/articles/middle-school-science-fair-projects.html

Science Fair at Homeworkspot.com

www.homeworkspot.com/middle/science/sciencefair.htm

Science Fair Project Guide at the Internet Public Library
www.ipl.org/div/kidspace/projectguide/



SCIENCE FAIR DEADLINES



- September 15 (Friday): **Topic Selected**

- October 11 (Wednesday) **Log Book Check**

- November 28 (Tuesday) **Paper, Display and Log Book Due**

- Nov 28 – Dec 1 (Tue-Fri): **Presentation in class**

- December 6 (Wednesday): **School Science Fair**

SCIENCE FAIR PROJECT REQUIREMENTS



Topic Worksheet (20 pts. Responsible for own Learning)

Log Book Checkpoint (50 pts Science Process Skills)
see requirements on the next page

Research Paper (100 pts Application of Knowledge)

use background information and experimental data to write a paper - should include the following:

- 1) title page (5%): topic, student name
- 2) formatting (5%): 12 pt Times New Roman Font and double-spaced
- 3) introduction (10%): your research question and your hypothesis
- 4) background information (15%): written in your own words from books, encyclopedias, journals, internet, experts, etc.
- 5) experiment (15%): includes a description of your procedure written like a recipe in paragraph form - includes materials, quantities, and the precise steps - someone should be able to duplicate your experiment exactly by following your procedure
- 6) results (20%): includes data gathered from the experiment and a summary of how the experiment turned out - should include qualitative and quantitative observations as well as computer-based graphs, tables, and/or charts - data should not be interpreted here
- 7) conclusion (15%): background information should be used to interpret your results and explain why your results happened as they did - include final remarks concerning this experiment such as "Was the hypothesis correct?"; "Does this experiment lead to another experiment?"; "What are the possible errors in this experiment?" - provide recommendations/suggestions for others who may want to experiment with your topic
- 8) bibliography (15%): list books and references, used in your report, in standard bibliography format - see www.mla.org for assistance

Completed Log Book (100 pts Application of Knowledge)

each step in the scientific method should be represented here - should be written in ink and must show original work - draw a line through mistakes and continue - do not erase nor remove pages - each entry should be dated on the day the work is done and each page numbered - must include at least 4 pictures of your project

Display Board (100 pts Science Process Skills)

should be 914mm high and 1,219 mm wide (36" H x 48" W) - should have title, student name, purpose, hypothesis, materials, pictures, procedure, data (table/graphs), results, and conclusion - will be used for presentation

Presentation (100 pts Application of Knowledge)

the following topics should be considered...

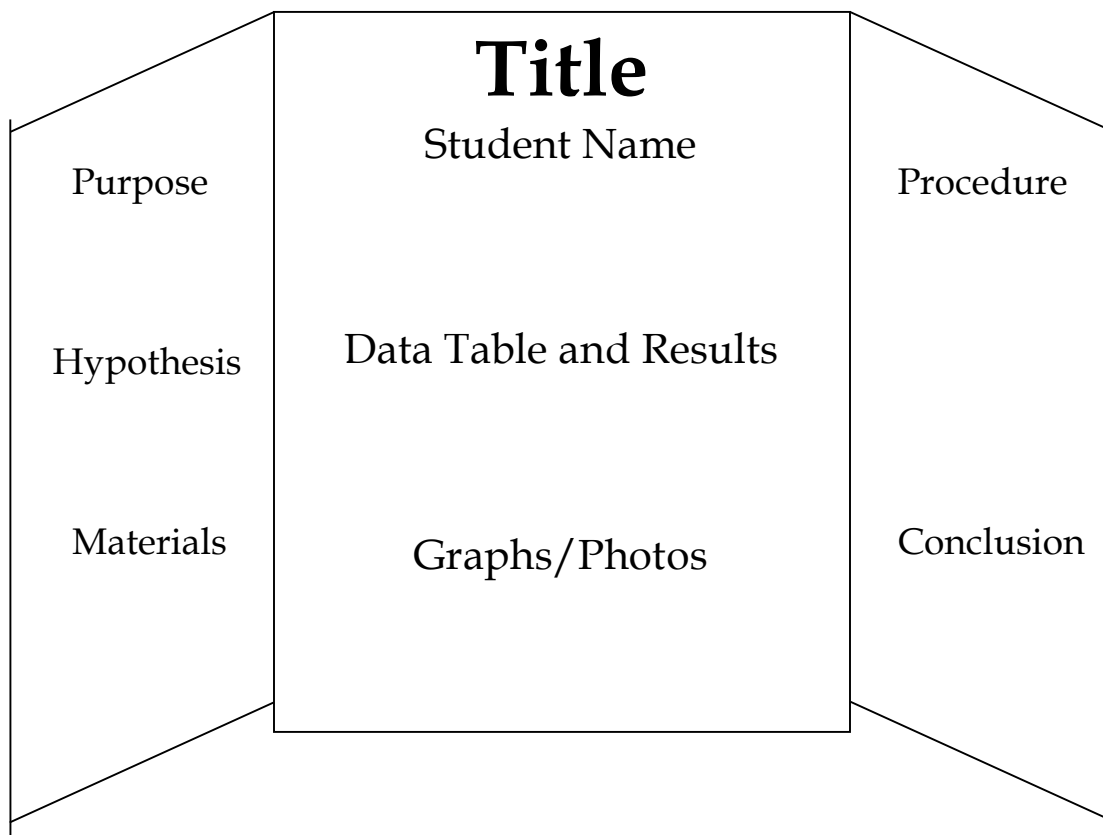
time - should be between 5-10 minutes

clarity of information - all important facts should be presented in a logical order - questions should be answered correctly

public speaking skills - make eye contact with audience, do not read off display, maintain good posture and do not fidget

GUIDELINES FOR SCIENCE FAIR DISPLAYS

This part of the project will be displayed as a part of a school-wide science fair. It should be designed as shown below with the information flowing from the upper left to the lower right.



Students must type their information before putting it on their display. We encourage the use of large stencils or adhesive letters, but lettering can be done with construction/poster paper.

The information on your board is similar if not identical to what is in your research paper. However, font size must be enlarged for viewing ease. You do not have to show all of your data, but you do have to show at least the averages for your experiment.

DISPLAY HINTS

Neatness

Neatness is important in the presentation. Having straight edges, items lined up, and no visible adhesives will improve your grade and your chances of winning the competition.

Color

Color can make a display easy to read. You can use black type with different background colors, or you can use different colors of type (printing). Be careful that you do not play with colors so much that you cannot read the text (like having yellow on an orange background). Putting colored paper as a frame around a print-out also improves the overall appearance of your display. Try to be consistent in the size of your frame; do not surround one paper with only ½ inch of color while another is surrounded by two inches of color. Remember that too many colors can make the exhibit busy and overwhelming.

Type

Do not make the judges squint! Be sure the type is big enough to read from at least three feet away. Use plain fonts not fancy fonts that are difficult to read.

Logbook Checkpoint (10/15/17)

Name: _____ **Period** _____

Logbook Checkpoint 50 Points

Student Name, Page #s, Table of Contents, Written in Blk/Blu Pen	5 pts		
Question and Hypothesis	5 pts		
Background Research	20 pts		
Independent and dependent variables	5 pts		
Materials and methods	15 pts		
			GRADE:

SCIENCE FAIR PAPER RUBRIC (11/28/2017)

Name: _____

Period: _____

RESEARCH PAPER

100 Points

Title Page (Student Name)	5 pts		
Formatting (Font and Spacing)	5 pts		
Introduction	10 pts		
Background Information	15 pts		
Experiment	15 pts		
Results	20 pts		
Conclusion	15 pts		
Bibliography	15 pts		GRADE:

SCIENCE FAIR PROJECT RUBRIC (11/28/2017)

Name: _____ Period: _____ :

LOG BOOK 100 Points

Student Name & Page #s	5 pts		
Written in Blk/Blu Pen	5 pts		
Question & Hypothesis	10 pts		
Materials & Methods (Sketches)	20 pts		
Data Tables	20 pts		
Graphs	10 pts		
Photos	10 pts		
Conclusions	20 pts		

DISPLAY BOARD 100 Points

Title/Student Name	5 pts		
Purpose	10 pts		
Hypothesis	10 pts		
Materials	5 pts		
Data Table & Results	20 pts		
Graphs & Photos	10 pts		
Procedure	15 pts		
Conclusion	15 pts		
Overall appearance/Size	10 pts		GRADE:

PRESENTATION 100 Points

Time (5-10 min.); Public Speaking (eye contact, posture, etc.); Clarity of Information (all important facts in logical order)	
	GRADE

SCIENCE FAIR STUDENT SUGGESTED CHECKLIST



<u>TASK</u>	<u>DUE DATE</u>
<input type="checkbox"/> REVIEW PACKET WITH PARENTS	LATE AUGUST
<input type="checkbox"/> GET LOG BOOK (USE THROUGHOUT PROJECT)	SEPTEMBER
<input type="checkbox"/> SELECT TOPIC/STATE PROBLEM (GET APPROVAL)	AUG - SEPT 15
<input type="checkbox"/> DO BACKGROUND RESEARCH	SEPTEMBER
<input type="checkbox"/> DEVELOP HYPOTHESIS	SEPTEMBER
<input type="checkbox"/> WRITE YOUR PROCEDURE & MATERIALS	SEPTEMBER
<input type="checkbox"/> DEFINE THE VARIABLES	SEPTEMBER
<input type="checkbox"/> COLLECT MATERIALS	EARLY OCT
<input type="checkbox"/> PREPARE FOR LOGBOOK CHECK	SEPT- OCT
<input type="checkbox"/> CONDUCT EXPERIMENT & RECORD DATA	OCT-NOV
<input type="checkbox"/> ANALYZE DATA	NOVEMBER
<input type="checkbox"/> DRAW CONCLUSIONS	NOVEMBER
<input type="checkbox"/> FINISH PAPER	NOVEMBER
<input type="checkbox"/> FINISH DISPLAY AND LOG BOOK	NOVEMBER
<input type="checkbox"/> PREPARE FOR PRESENTATION	NOVEMBER

SCIENCE FAIR STEP BY STEP



SELECT TOPIC

The topic is a one-sentence statement that states in what field your project will be. A good topic has a problem that can be answered only by experimenting. If a topic is too broad or general, too many factors (variables) will exist that cannot be controlled. You will find it difficult to produce good results.

Poor Topic: Soap Powder (does not say enough)

Better Topic: Cleaning Power of Soap Powder

DEVELOP PROBLEM STATEMENT

The problem statement is always written in the form of a question. It should state very clearly what your experiment is about. This will be your project title.

Poor Problem Statement: How Does Soap Work? (too general, non-testable)

Better Problem Statement: Which Soap Powder Works Best in Removing Ketchup Stains?

DO BACKGROUND RESEARCH

Books, encyclopedias, the internet, magazines, or experts in a field can give you background information to help you understand your topic. This information should not answer your question, but it will give you knowledge about your topic. For example, you might read about soap and what it is made of. This research should help you develop an appropriate hypothesis. This will be part of your final paper.

DEVELOP HYPOTHESIS

After gathering information about your topic, you should make an educated guess about what you think the answer to your question might be. Be sure to tell why you make the hypothesis. For example, you may say that you think that Soap X will work best in removing ketchup stains because it is a liquid soap. This will be part of your final paper.

DEFINE THE VARIABLES

You should have some constants, an independent or manipulated variable (the variable that you change), and a dependent or responding variable (the variable on which you collect data). In our soap experiment, the constants would be what type of t-shirt, the amount of ketchup, the amount of soap, etc. The independent or manipulated variable would be what type of soap is used. The dependent or responding variable would be how long it took for the cloth to be cleaned. This will be part of your final paper.

WRITE YOUR PROCEDURE/LIST MATERIALS

Now you are ready to design your experiment. Write down step by step directions on how you are testing your hypothesis. Here is a partial example:

1. Cut out five pieces of cotton from a clean t-shirt. Each piece should be a square inch.
2. Spread the pieces on the table.
3. Place three drops of ketchup on each piece of cotton, spreading out the drops.
4. Leave overnight.
5. Etc.

Make sure that you build repetition into your experiment. You should have at least three trials. You may be able to do all three at the same time. A paragraph presentation of these steps will be part of your final paper.

COLLECT MATERIALS

Parent can/should help students gather all the materials that they need. (Michaels/Hobby Lobby and Home Depot are great stores for supplies.)

FINISH EXPERIMENT / RECORD DATA

You should record all data during experimentation. It should be neat and in the form of a table or chart. You should show all trials and then show the average results. For example, in our soap experiment, let say we have used two soaps - Tide and Gain. We would have eight pieces of data: three for Tide, three for Gain, one average for Tide, and one average for Gain. This will be part of your final paper.

ANALYZE DATA

Turn your data into an appropriate graph. A circle graph is good for showing percentages. A line graph is good for showing changes over time. A bar graph is good for comparisons. You should also make a statement summing up your findings. For example: Tide worked in 20 minutes while Gain worked in an average of 34 minutes. The graph will be part of your final paper.

DRAW CONCLUSION

Your conclusion should begin with a statement on whether or not the results supported your hypothesis. You should include a description of any problems that might have affected the results and how you tried to fix the problems if necessary. Also the conclusion includes any unexpected discoveries you may have made in addition to the results of the experiment. You should propose other questions that relate to your project. For example, after the soap project, you could ask does the material of the fabric affect how well it can be cleaned. This will be part of your final paper.

FINAL PAPER

Pull all of what you have done so far together. You should have your problem statement, research, hypothesis, variables, procedure and materials, data, and conclusion. Within your results section should be your data table and graph(s). Lastly, you should have a bibliography page in which you list all resources (MLA format).

Make sure to use the following guidelines:

- Have a title page that includes project name and your name.
- Body text should be double-spaced, 12 pt Times New Roman, 1 inch margins.

FINISH DISPLAY

The display should be a visual reproduction of your final report. This should follow the given guidelines.

SCIENCE FAIR TOPIC SELECTION FORM



Due September 15, 2017

Name(s) _____

The topic of your Science Fair Project should fit into one of the following categories: behavioral & social sciences; biochemistry; botany; chemistry; Earth, space & environmental sciences; engineering, computers & math; medicine & health; microbiology; physics; or zoology.

Choose three potential science fair topics and state each in the form of a question.

1. _____

2. _____

3. _____

Parent Acknowledgement Form



Due September 15, 2017

My student will be working (individually/as part of a team) on the science fair project. I have reviewed the science fair packet and my child's potential topic. If my child is working as part of a two-person team, I am comfortable with any issues regarding transportation and collaboration with the other team member.

Parent signature _____

Name of Student A _____

Parent signature _____

Name of Student B _____