

MY SCIENCE FAIR NOTEBOOK



phillipmartin.info

Name: _____

Partner: _____

Class: _____

Project Title: _____



SCORING RUBRIC

Name _____ Partner _____ Class _____

Full Inquiry Standards Rubric

Grades 5 & 6

0 = No 1 = Some Evidence 2 = Yes

INQUIRY STANDARD	SCORE
Is the Investigation guided by a question?	
Is there enough research present for the student to propose an acceptable hypothesis?	
Is a hypothesis proposed that gives a possible answer to the guiding question?	
Are the procedures described in sufficient detail to allow easy replication by another person?	
Is there evidence that a well-planned experiment was conducted? (Note: experiments have comparisons, such as how plants grow under different conditions)	
Was appropriate equipment used (e.g. rulers, scales, thermometers, stopwatches, or magnifiers) to help collect data?	
Did the student(s) measure and present quantitative data?	
Was experiment repeated? Were there 2 or more trials, to ensure accuracy of data?	
Are the data displayed in an easy-to-read graph and/or table?	
Are the data analyzed to seek an answer to the guiding question or to evaluate the hypothesis? (Note: It is okay for the students to say the results were inconclusive, or that they did not match their predicted outcome.)	
Is the project presented in a manner that makes the purpose, procedure, and results clear?	
Total Points: 0-10 Falls far below inquiry standard 11-19 Approached inquiry standard 20-23 Meets inquiry standards (honorable mention) 24 Exceeds inquiry standards (Award for exemplary inquiry)	

Feedback:



PROJECT PROPOSAL

Name: _____ Partner: _____ Class: _____

*Due: _____

Directions: Brainstorm five possible topics that you are interested in, and come up with two investigative questions per topic. Investigations questions should be in the following format: What is the effect of _____ on _____?

Example:

Topic: Skateboarding

Question 1: What is the effect of different brands of grip tape on a skateboard?

Question 2: What is the effect of additional wheels on a skateboard?

Topic 1: _____

Question 1: _____

Question 2: _____

Topic 2: _____

Question 1: _____

Question 2: _____

Topic 3: _____

Question 1: _____

Question 2: _____

Topic 4: _____

Question 1: _____

Question 2: _____

Topic 5: _____

Question 1: _____

Question 2: _____

*Circle the topic and question that you will investigate for your science fair project. You will submit this proposal to your science teacher, and you will also present this proposal to your classmates.

Teacher Approval

Parent Approval



RESEARCH

Name: _____ Partner: _____ Class: _____

*Due _____

You will need to find as much information as you can about your topic and your question.

Example

Topic: Skateboarding

Question: What is the effect of more wheels on a skateboard?

What to Research? Newton's laws of motion and the laws of friction.

Topic: _____

Question: _____

What to Research? _____

You will need to use the research organizer sheets to help organizer all pertinent information for your project.

Teacher Approval

Parent Approval



HYPOTHESIS & MATERIALS

Name: _____ Partner: _____ Class: _____

*Due _____

Creating a Hypothesis

Now that you have a science fair question and have done some research, it's time to create a hypothesis for your science fair project. Remember that a hypothesis is a possible answer to the question you're investigating.

Topic: _____

Question: _____

Hypothesis: _____

Materials

List all the materials that you will need in order to perform your science fair experiment. Remember that it is your responsibility to collect all of these items. Make sure you talk to you parents about the items and get their okay!

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Teacher Approval

Parent Approval



EXPERIMENTAL DESIGN

Name: _____ Partner: _____ Class: _____

*Due _____

You will need to create a procedure for your experiment. This procedure needs to be a detailed list of step-by-step instructions, so that someone else could repeat your experiment exactly the same as you. Before you begin, determine your variables.

INDEPENDENT VARIABLE (what you will be changing in the experiment. Note: there should only be one item listed here.)	DEPENDENT VARIABLE (What you will be measuring or observing.)	CONTROLLED VARIABLES (What you will be keeping the same during the experiment.)

Procedure: Add paper as needed.

Teacher Approval

Parent Approval



OBSERVATIONS & DATA COLLECTION

Name: _____ Partner: _____ Class: _____

***Due:** _____

Types of Data: data can take two different forms: data can be quantitative or qualitative. Some projects may combine both forms of data.

- **Quantitative Data:** Numbers or quantities that you can measure. Examples of quantitative data are the number of bird chirps that you hear on a cold day or the width of a layer of rock in a cliff wall.
- **Qualitative Data:** Descriptions of observations with adjectives instead of numbers. Examples of qualitative data are descriptions of the color and shape of the rock in each layer of a cliff wall. Drawings and photographs are also qualitative data.

Remember that you need to replicate your experiment at least 3 times. (Run a skateboard with extra wheels down the same hill 3 times and determine how long it takes, and then run a regular skateboard down the same hill 3 times and determine how long it takes. Calculate the averages.)

Example:

	CONTROL SKATEBOARD	TEST SKATEBOARD (MORE WHEELS)
Trial 1		
Trial 2		
Trial 3		
Average		

Create a data table for your project, and get started collecting data. Make sure you write clearly. If needed, take pictures as well.

Teacher Approval

Parent Approval



GRAPHING

Name: _____ Partner: _____ Class: _____

***Due:** _____

As you are collecting data, keep in mind that you will be required to display your results. You can make it easy for people to understand the relationships between your variables by displaying your data in a graph. Make sure your graph includes a title, and labels. Create a rough draft of your graph below. Once approved, transfer your graph onto graphing paper or create a graph on the computer.

Teacher Approval

Parent Approval



ANALYSIS & CONCLUSIONS

Name: _____ Partner: _____ Class: _____

*Due: _____

Think about it! After you have gathered all of your data, you'll need to analyze it. In the analysis, ask yourself, "What is the data telling me? What trends do I see in the graphs? What does this all mean?"

At this point you need to write a conclusion for your project. A good conclusion needs the following . . .

- Restate your hypothesis
- Tell whether your hypothesis is correct or incorrect
- Use your data to explain
- Tell what you learned from the experiment
- Explain what you would do differently next time

Write your conclusion below.

Teacher Approval

Parent Approval



DISPLAY BOARD TIPS

*Due: _____

Your display board is important. It's not nearly as important as your judging interviews and the content on the board, but it's important. First impressions matter, and the first impression judges get about your project is what they see on your display board, read in your abstract, and find in your lab notebook.

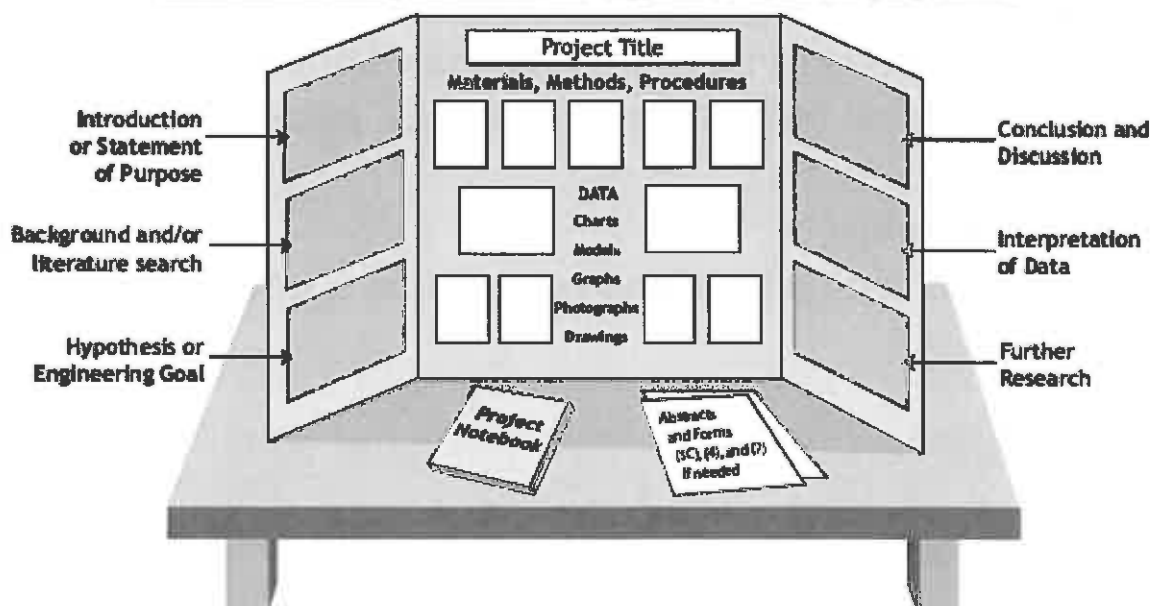
What should my display board say?

Your display board should do two things: First, it should tell a story about what you did, why you did it, how you did it, and why people should care. Second, your board should highlight the end result of your project: your conclusion and its importance, the useful tool you engineered, or the exciting proof that you solved.

How can I make my board look good?

1. Make your text readable. Font sizes larger than 100 for your title, 32-48 for headers, 16-18 for body text, and 12-14 for captions. Larger font sizes limit the amount of text on your board. Putting too much information on the display board is a common mistake.
2. Figures are great. Use graphs, flow charts, diagrams, and pictures whenever possible. Make sure they are large enough to be read from a distance, and be sure that your figures have captions.
3. Use a paper cutter for nice, straight edges.
4. Use matte photo for your photos, as it makes them easier to view.
5. Bacteria, plants, or anything else living or dead may not be displayed with your project. Please use photos if you'd like to include them somehow in your display.

Material Normally Included on a Typical Project Display Board





DISPLAY BOARD TIPS

Projects having displays that include any of the following items will be disqualified:

- ✓ Living organisms, including plants
- ✓ Soil, sand, rock, and or waste samples even if permanently encased in plastic
- ✓ Taxidermy specimens or parts
- ✓ Preserved vertebrate or invertebrate animals
- ✓ Human or animal food
- ✓ Human/animal part or body fluids (e.g. blood, urine, etc.)
- ✓ Plant materials (living, dead, or preserved).
- ✓ All chemicals including water
- ✓ All hazardous substances or devices (e.g. firearms, weapons, ammunitions, lasers, etc.)
- ✓ Dry ice or other sublimating solids
- ✓ Sharp items (e.g. syringes, needles, pipettes, knives)
- ✓ Flames or highly flammable materials
- ✓ Batteries with open-top cells
- ✓ Photographs or other visual presentations depicting vertebrate animals in surgical techniques, dissections, necropsies, or other lab procedures
- ✓ Glass or glass objects
- ✓ Any apparatus with unshielded belts, pulleys, chains, or moving parts