

# Science Fair Guide

## Table of Contents

<u>What</u>	<u>Page Number</u>
Judging/Grading	p2
Topic of Interest/Testable Questions	p3-5
Experiment/Research Plan/Data and Observations	p6-10
Display Board or Power Point	p11

If you get stuck or need some help you can email Ms. Baldwin at [baldwia4@gcsnc.com](mailto:baldwia4@gcsnc.com).



**\*\*\*\*\*This project needs to be approved by Ms. Baldwin. Please email her the testable question with a few sentences about what you are doing. Be sure to include the child's name and teacher's name in the email. If a project is not preapproved, it will NOT be judged but will still be graded. \*\*\*\*\***

### **Judging/Grading**

Experiment/Research Plan \_\_\_/16

Display Board or Power Point \_/17

1. On Time
2. Title
3. Purpose
4. Hypothesis
5. Materials
6. Procedures
7. Data
  - a. Graph
  - b. Title for graph
  - c. X axis labeled
  - d. Y axis labeled
8. Photos without faces
9. Variables
10. Results
11. Conclusion
12. Analysis
13. Bibliography
14. Name and homeroom teacher's name on the last page or back of the board.

Judges also look for:

- \*Creative Title
- \*Neat
- \*Correct spelling and grammar
- \*Creative project or a project that helps solve a real world problem
- \*Student can explain their project

# Getting Started

## Where do I start?

A great place to start is to think about things that interest you.

For example: You may like football, soccer, dancing, animals, chemistry, cooking, Beyblades and Legos.

### 1. Make a list of things that are interesting to you.

---

---

---

---

---

---

---

---

## I have made a list, now what?

Look at that list and cross out anything that is not allowed.

You are not allowed to do projects on:

- Microorganisms: Bacteria, Fungi, Mold, Viruses, Parasites
- Hazardous materials

**\*FYI: If you decide to do an experiment that includes vertebrates, it must be approved by a veterinarian before being considered by General Greene's Review Board.**

### 2. Narrow the list down to 2 items.

---

---

### How do I narrow down my topics?

Come up with a list of things you want to know about those topics or things you would like to test. Example:

Cooking	Soccer	Legos
How do you make soft, chewy cookies? What ingredients mix together to create the largest bubbles or gas reaction?	How can I get better at kicking the ball in the goal? How can my clothes affect me as a player?	What kind of Lego bridge will hold the most weight? Do different types of Legos sink or float?

### 3. Write down what you know about each topic. Make a list of things you want to know or things you would like to test.

Topic: \_\_\_\_\_

What I want to know or test out.

---

---

Topic: \_\_\_\_\_

What I want to know or test out.

---

---

#### Now what?

Write down the idea you chose.

4. **The idea I chose is:** \_\_\_\_\_

---

---

Next turn it into a testable question.

**TIPS:** 1. Questions should be open ended not yes/no responses.

- a. Bad example: Do dogs like treats?
- b. Good example: Which brand of bone does my dog prefer the most?

2. The student should not already know the answer to their testable questions.

- a. Bad example: Do plants need water to live?
- b. Good example: How do different liquids impact a plants growth rate?

3. The question should not be something that can only be researched.

- a. Bad example: How far away is the sun from earth?
- b. Good example: How does the placement of the sun in the sky impact the shadow cast on the blacktop?

4. Testable questions often start with:

- a. How ...
- b. Which...
- c. What makes...

**5. My testable question is:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**\*\*\*\*\*This project needs to be approved by Ms. Baldwin. Please email her the testable question with a few sentences about what you are doing. Be sure to include the child's name and teacher's name in the email. If a project is not preapproved, it will NOT be judged but will still be graded. \*\*\*\*\***

# Experiment/Research Plan

1. Topic \_\_\_\_\_

2. Research/Prior Knowledge: Things I already know about this topic.

---

---

---

---

---

---

3. Problem/Purpose to Investigate: I want to know: \_\_\_\_\_

---

---

4. Rationale: This project is important to science because: \_\_\_\_\_

---

---

---

5. Hypothesis: I think \_\_\_\_\_

because \_\_\_\_\_

6. Materials: (Be specific!)

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

7. Procedures: (This needs to be what you are going to do step by step. I should be able to follow these directions and come up with the same results.)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_

8. Variables: This is what I plan on changing in the test. (I will need to run each test at least 3 times.) \_\_\_\_\_

9. Risk & Safety (Identify any potential safety issues.): \_\_\_\_\_  
\_\_\_\_\_

# Data and Observations

10.

Independent Variables	Trial 1 Results	Trial 2 Results	Trial 3 Results
Control or Variable 1:			
Variable 2:			
Variable 3:			

11. Observation notes from Variable 1's tests: \_\_\_\_\_

---

---

---

12. Observation notes from Variable 2's tests: \_\_\_\_\_

---

---

---

13. Observation notes from Variable 3's tests: \_\_\_\_\_

---

---

---

14. Results: Based on my data, I noticed that \_\_\_\_\_

---

---

---



15. Conclusion: My hypothesis (was/was not) correct because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

16. Analysis: If I were to do this project again, I would \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

17. Bibliography: I got help from these people \_\_\_\_\_  
My research came from \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Vocabulary to Know

### Independent Variable

An independent variable is a variable that you can control. One way to explain it to a child is that it is the variable that the child can change during the experiment. For example, in an experiment on the effect of light on plant growth, the child can control how much light a plant receives. He can put one plant near a window and another plant in a dark closet.

### Dependent Variable

A dependent variable is the variable that you observe and measure. The child can measure how much the plant in the closet grows relative to how much the plant near the window grows.

### Graphing

The independent variable should be on the x-axis on a bar graph and the dependent variable should be on the y-axis on a bar graph. ALL the parts of the graph should be labeled! The graph should either be a bar graph, line plot or pie chart.

18. Please put your data in the graph.

Title: \_\_\_\_\_

	V 1 T 1	V 1 T 2	V 1 T 3	V 1 T 1	V 2 T 2	V 2 T 3	V 3 T 1	V 3 T 2	V 3 T 3

\*The X Axis has your variable with each test.

V=Variable

T=Test

\*The Y Axis should have numbers. You should be graphing your measurements.

**Each project requires a display board *or* Power Point to show the scientific process. Your board or Power Point should be interesting, attractive, and neatly done.**

## **Display Board Expectations**

- 1. Your name should NOT be visible on the board. It should be on the back of the board.**
- 2. Photos cannot contain faces.**
- 3. Make your board neat and clear.**
- 4. Each step should have a heading.**
- 5. Boards with colorful backing do better than boards without.**
- 6. Handwritten boards are acceptable. If they turn out to be a winner, we will make improvements before the district competition.**
- 7. The board needs to be freestanding. A 3-sided board works best.**

(We have a limited supply if you need help purchasing a board.)

## **Power Point Expectations**

- 1. The first page of the Power Point should have your title and a picture of your experiment.**
- 2. Each part of the project should be on a different slide.**
- 3. The last page should have your name and your homeroom teacher's name.**