



# Science Fair Information

Dear Parents/Guardians,

All Richmond County fourth and fifth graders are required to submit a Science Fair Project. The Science Fair will be held on December 8, 2023. Projects will not be accepted for judging after Dec. 6.

Your child will need a composition journal to be used as a log book, a 3-prong folder or clear folder for the typed formal report, and finally a backboard for display of their project. The following packet of information attached to this letter is provided to assist you in helping your child with their Science Fair project. Inside you will find information on selecting a topic, research questions, how to do research, forming hypotheses, and directions on testing those hypotheses. You will see information on how to collect data and the proper way to set up a display board. I have also included a page with websites of science project ideas that I hope is helpful in getting you started. Please be sure that your project is an experiment and not a model (no volcanoes, etc) and there should be no photos showing any body part including hands on your display board. Take pictures of the actual experiment only. Per Richmond County, please do not do any experiments on vertebrate animals or humans (this includes taste tests) or anything having to do with growing mold.

All information gathered should be written in their composition journal (log book). That is where I will look for all assignments from the



# Science Fair Due Date Checklist



Scientist's Name \_\_\_\_\_ Class \_\_\_\_\_ Proj. # \_\_\_\_\_

Title of Project \_\_\_\_\_

Total Score (average of all due dates): \_\_\_\_\_

Due Date	Assignment	Correct	Needs Improvement	Areas in need of improvement
October 11, 2023: All Science Fair packets sent home with 4 <sup>th</sup> /5 <sup>th</sup> graders for parents to review with their students.				
October 19, 2023	Title and Purpose			
October 26, 2023	Research and Bibliography			
November 2, 2023	Hypothesis, Variables, Materials, ProcedurW*nBT			

100 - Turned in on time

80 - Not turned in by due date, but is in composition journal for the next due date

75 - Turned in, but is very late

0 - Never Completed



# Schedule of Assignments



Wed., Oct. 11	Science Fair packets sent home	
Thurs., Oct. 19	Assignment #1 is due:	Title and Purpose (Testable Question)
Thurs., Oct. 26	Assignment #2 is due:	Research and Bibliography
Thurs., Nov. 2	Assignment #3 is due:	Hypothesis, Variables, Materials, and Procedure
Thurs., Nov. 16 -	Assignment #4 is due:	Data, Analysis, Conclusion, and Extension Statement
Thurs., Nov. 30	Assignment #5 is due:	Abstract and Formal Report
Wed., Dec. 6	Assignment #6 is due:	Backboard
Thurs., Dec. 7	Projects will be set up for the Fair	
Fri., Dec. 8	Science Fair Judging Day!	
Tues., Dec. 12	Projects will be on display during CURRICULUM NIGHT	
Wed., Dec. 13	Students will take projects home	

# Science Project Ideas

The following websites are extremely helpful in finding Science Fair project ideas.

<http://scienceprojects.com>

<http://rosearts.org/naples/ideas.htm>

<http://tetrimore.com>

<http://www.all-science-fair-projects.com>

<http://www.factmonster.com>

This is the best site to use:

<http://www.sc>



## Teacher Checklist for Science Fair Entry



Teachers,

Please use this checklist for each project you plan to enter in the school Science Fair. This will save us a ton of time when we are setting up the projects. Please turn these sheets in to me when you bring the projects that morning. This way I will not have to chase down student names, etc. Projects that do not have all the necessary parts by December 6, 2023 will not be accepted. You should only enter the best of the best. Please make parents aware of this, and let them know that you will display the projects that do not make it into the Fair in the hall outside your room. Parents will be allowed to view those also on Curriculum Night.

Student Name \_\_\_\_\_ Class \_\_\_\_\_ Proj. # \_\_\_\_\_

Title of Project \_\_\_\_\_

Please make sure project has the following:

No name on any part of project \_\_\_\_\_

Project number (example: McNeil1) written on left flap of board \_\_\_\_\_

Complete Log Book \_\_\_\_\_

Complete Formal Report \_\_\_\_\_

Abstract (Keep separate from Formal Report) \_\_\_\_\_

Display Board (regular size tri-fold board only) \_\_\_\_\_

Pictures on display board DO NOT show any body parts including hands \_\_\_\_\_

Display Board does not contain staples or tape \_\_\_\_\_

Display Board is neat, pleasing to the eye, and well put together \_\_\_\_\_

Project is an experiment and NOT a model (example: volcano, solar system) \_\_\_\_\_

\*The only four things that will be brought to the Fair are the Log Book, Formal Report, Abstract, and Display Board. Nothing else may be displayed.

## 1. Purpose - Ask a Testable Question

A Testable Question has 2 Part:

Part 1: The part that is being tested. It is called the independent variable. This is the manipulated variable or the one that changes.

Part 2: The part that is being observed or measured. It is the dependent variable, or the responding (measured) variable.

The question describes the relationship between the two parts:

*How does the (indep*~~pendent~~ *variable*

## 2. Conduct Your Research and Create a Bibliography

\*This information DOES NOT go on your display board.

Once you have chosen your topic, it is important to research the written materials on your subject. By finding out as much information about the subject, you will gain a better understanding of your problem. \*Follow these guidelines for conducting your research.

1. Read books and articles on your subject. Make sure this information is up to date (not older than 5 – 10 years).

2. You must use at least 3 resources. Cite your work above your notes.

3. In your log book, you yku s up(o)-clud9(ur)( i)12(s ))Ty8(r)-2(re)3(s3(t7.))TJ f2(cl( i)1m3(ur)-3( )13(e)5(o)-3



### 3. Construct a Hypothesis

A Hypothesis includes a prediction about you believe, based on your research, will happen when your investigation is completed.

Follow these steps to complete a hypothesis:

List observations or gained research knowledge you have about the variables.  
Write an *if.... then* statement describing what the effect of changing one variable on another variable. (This is a cause/effect relationship).

Example:

If (what will be changed with the independent variable), then (what will happen because of the change – dependent variable) because (use your observations or gained research knowledge to explain your belief).

*If seeds are exposed to freezing temperatures for a short period of time, then the germination rate will increase because research indicates that certain seeds will germinate more quickly if they are put in a freezer before planting.*

### Identify the Variables

Create a list of each type of variable. Remember, the independent variable is the one that changes. The dependent variable is the response you are looking to get. The control variable is the one that remains the same.

Example:

Control Variable: number of beans per bag, time stored, amount of water and sun  
Independent Variable: amount of water  
Dependent Variable: germination rate



## Materials

Make a list of all materials that you use.

Example:

16.7cm x 15.1cm Zip-Loc bags  
60 uncooked butterbeans  
(3) 27.9cm x 26.4cm paper towels  
Permanent Marker  
De-chlorinated tap water  
Approximately 70 degrees Fahrenheit room  
Approximately 38 degrees Fahrenheit refrigerator  
Approximately 0 degrees Fahrenheit



## Procedure

Write a set of directions for completing your experiment. Remember to write complete sentences and use punctuation.

Example:

1. Label the plastic bags as follows: Room temperature (control) bean, 50 degree F. (refrigerator) bean, 30 degree F. (freezer) bean.
2. Fold paper towels to fit in bags. Place in bags.
3. Place 20 beans in each bag.
4. Put each bag in proper place as said on bag label.
5. Leave undisturbed for 5 days.
6. After the 5 days remove the bags. Wet the paper towel with 15mL of dechlorinated tap water but leave the towel and seeds in bag. Towel should be moist but not soaking.
7. Place bags in warm, sunny spot.
8. Check every day for 10 days for germination. Keep towels moist.
9. Record your findings. Repeat as necessary.



#### 4. Collect Data

You will need to construct a table to collect your data. A table contains rows and columns.

Give your data table a title. The title should contain your independent variable (the one that changes) and the dependent variable (the responding) and be at the top of your table. For example: *Germination Rate of Butterbean Seeds vs. Temperature*

Make a row for each independent variable you are testing.

Make a column for each dependent variable you are measuring.

Include unit names for each measurement.

5XX Ub í5j YfU[ YÍ W`i a b`cf`U`Í HchU`Í W`i a b if applicable.

Example:

#### *Germination Rate of Butterbean Seeds vs. Temperature*

Days	Control - Room Temperature	Freezer	Refrigerator
1	0	0	0
2	2	0	1
3	6	2	4
4			
5			
6			
7			
8			
9			
10			

\*Keep recording daily for ten days.



Create a graph of your recorded information. You may use a bar graph or a line graph. If you are showing information that happens over a period of time, a line graph is preferred.

Example:

You would need to conduct at least three trials. If after the three trials, you have the same results, then you can draw a conclusion.



A Scientific Conclusion has these parts in order:

State the prediction.

Include evidence from your data collection. Do not include all your data. Include a high and low, if possible – include averages, or appropriate central measures.

Include a statement that analyzes the data.

Include a statement that tells if the prediction was correct or incorrect. Use the sentence starter: Therefore my prediction was....(correct or incorrect).

Example:

The results of my experiment show that my hypothesis was incorrect. The seeds in the freezer germinated the fewest, while the ones at room temperature germinated the largest amount of seeds.



In this section, you will tell what you would do differently next time to see if you get the same results.

Example:

I believe that further testing needs to be done to see which temperature induces the highest germination rate. If I was to perform this experiment again, I would use a different type of bean to see if my results would be the same.



The Abstract is a summary of the entire project. It should be typed in three paragraphs using the same font and type size as your Formal Report. Do not punch holes in the Abstract. It is sheet that you will turn in separately from the Formal Report. You do not have to write the Abstract in your notebook. It should be no more than 250 words. Please make sure to do a word count to make sure that you do not go over this number.

Paragraph #1: Purpose of the experiment and the Hypothesis

Paragraph #2: Procedure written in paragraph form

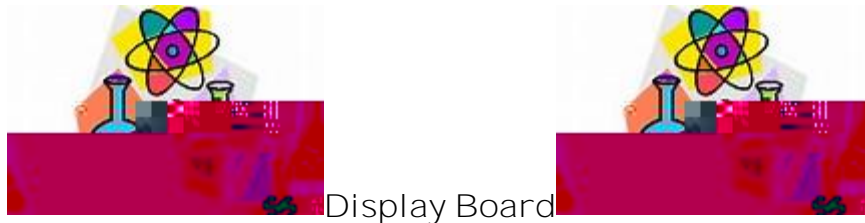
Paragraph #3: Results and Conclusion

Example:

The purpose of this project is to determine if temperature will affect the germination rate of butterbean seeds. It is hypothesized that freezing the seeds for a period of time will cause them to produce more seeds at a quicker rate.

A set number of butterbean seeds were placed in plastic bags and left undisturbed for five days. They were all then moistened and placed in a warm, sunny area where they were observed for ten days.

The results showed that the coldest temperature actually harmed the germination rate of the seeds; therefore, my hypothesis was incorrect. To improve this study, I would try different types of seeds to see if my results could be confirmed.



Display Board

### Do and Don'ts:

Do use computer generated graphs and charts.

Do make display colorful, but limit the number of colors you use.

Type information for the board.

Do use headers in the correct order.

Do use rubber cement to make sure that everything is securely attached to the board.

Do space out everything evenly.

Do use photographs of the procedure, but make sure that no body parts including hands are shown.

Do use a catchy title. It should NOT be the question that is your purpose statement.

Do use a title that is not a question.

Do use a hypothesis that is testable.

Do use a list of materials that includes everything you need for the experiment.

Do use a procedure that is numbered and easy to follow.

Do use a conclusion that answers the question in your title. Colored type makes the information very difficult to read.



You should have the following on your board only: Title, Purpose (this is your question), Hypothesis, Materials, Procedure, Results, Conclusion, and any photographs, charts, and graphs.