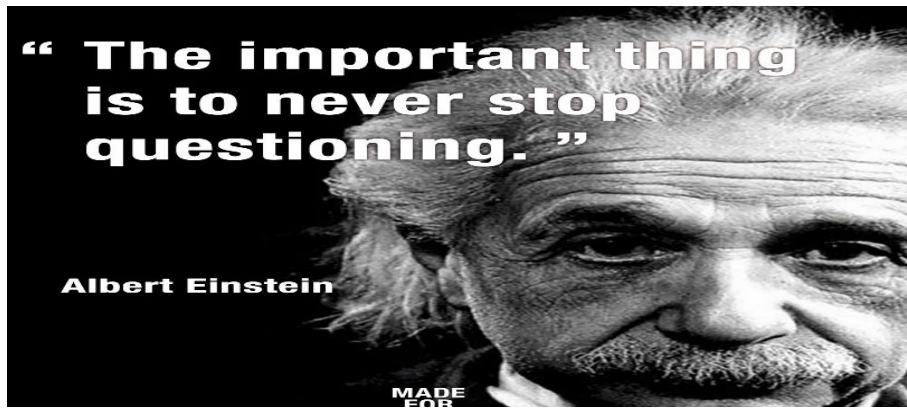


Prairie-Hills Elementary School District 144  
2019 - 2020



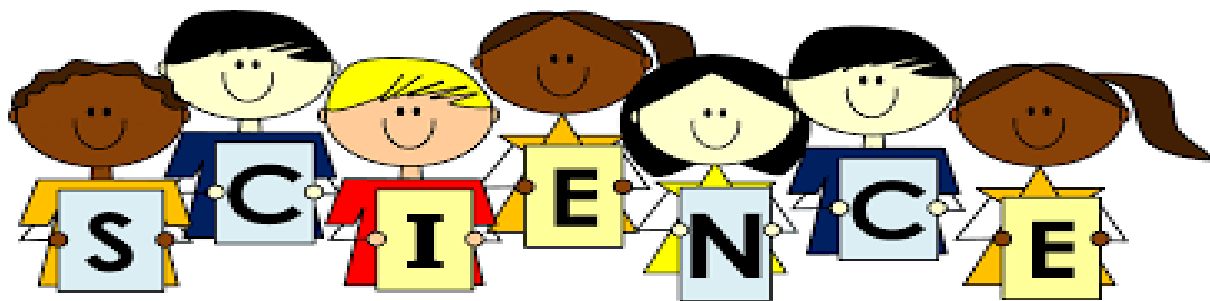
# Science Fair Packet



## **Prairie-Hills Elementary School District 144 Science Fair Schedule for PHESD144 Schools**

**2019 – 2020**

<b>Chateaux School</b>	<b>6:30 p.m.</b>	<b>January 29<sup>th</sup></b>
<b>Fieldcrest School</b>	<b>6:00 p.m.</b>	<b>February 13<sup>th</sup></b>
<b>Highlands School</b>	<b>6:00 p.m.</b>	<b>January 23<sup>rd</sup></b>
<b>Mae Jemison School</b>	<b>6:30 p.m.</b>	<b>January 28<sup>th</sup></b>
<b>Markham Park School</b>	<b>7:00 p.m.</b>	<b>January 16<sup>th</sup></b>
<b>Nob Hill School</b>	<b>6:30 p.m.</b>	<b>January 22<sup>nd</sup></b>
<b>Prairie-Hills Junior High</b>	<b>6:00 p.m.</b>	<b>January 30<sup>th</sup></b>
<b>District Competition</b>	<b>7:00 p.m.</b>	<b>February 25<sup>th</sup></b>



# Contents

- I. Flyer and Letter for Registration
- II. Introduction Letter to Teachers
- III. 2019 - 2020 Timelines
- IV. Science Fair Registration Form
- V. Experiment Summary Worksheet
- VI. OCTOBER / First Student Checklist
- VII. OCTOBER / First Teacher Checklist Rubric
- VIII. NOVEMBER / Second Student Checklist (Written Report)
- IX. NOVEMBER / Second Teacher Checklist Rubric
- X. DECEMBER / Student Checklist (Display Board-Oral Presentation)
- XI. DECEMBER / Teacher Checklist Rubric
- XII. Science Fair Dates
- XIII. Building Science Fair Rubric
- XIV. Student Information Packet
- XV. Survey (to be given later)

**Mandatory District-Wide**

# Science Fair Experiments



**All 3<sup>rd</sup> - 4th Students**

**Prepare for**

**Prairie-Hills Elementary School District 144  
Science Fair Competition!**

**Come to School with  
Your Experiment Ideas!**

# Science Fair Experiment

Dear Parent or Guardian,

We are excited to announce the *mandatory* Prairie-Hills Elementary School District 144 Science Fair. As part of the Science Curriculum, your child will be required to complete a science experiment. This is a perfect opportunity for parents and students to work together on a creative, hands-on approach of scientific principles. To make the process easy, the necessary steps for completing the experiment will be broken down and reflected in their Science Grade.

Your child will receive further information concerning the necessary steps, timelines, experiment guidelines, and other important information regarding the science fair experiment at the beginning of the school year. Listed below are suggestions on how you might support your child's progress on his/her experiment.

- Talk to your son or daughter about what he or she might be interested in finding out. Work together to formulate a question that can be answered by setting up an experiment in which **measurable data** is collected.
- Please note that no more than two (2) students are allowed to work together on one(1) science project.
- Take your son or daughter to the library or help him or her search online for information about the topic.
- Help your son or daughter think about an experiment that would help answer the experiment question.
- **3<sup>rd</sup> and 4<sup>th</sup> graders are required to conduct their own science fair experiment which must include the Scientific Method. This will eliminate the use of models or demonstrations such as volcanoes, solar system, 'How to demonstrations...' etc.**
- Every 3<sup>rd</sup> and 4<sup>th</sup> grade student will be provided with **ONE** display board by their school.
- Experiments **should not** include anything involving fire, explosives, live insects/animals or hazardous cultures.

Our District's goal for holding a Science Fair is to stimulate and nourish a fond interest in science and to foster a lifelong appreciation of scientific processes in preparation for a life in an increasingly technological society. This is also a great chance to introduce students to alternative career choices and to promote educational links among parents, community, and school.

**2019 - 2020**  
**Science Fair Timeline**  
**(Suggestive)**

**OCTOBER**

Teacher's Science Fair Packets Given  
(Explained by Science Fair Committee Member)  
Student Packets Passed Out  
Scientific Method Explained in Classroom  
Registration Form Due  
Teacher's Approval for Experiment Returned to Student  
1<sup>st</sup> Checklist Distributed  
Experiment Summary Worksheet Part A is Due

**NOVEMBER**

2<sup>nd</sup> Student Checklist Distributed  
Materials Gathered to Conduct Experiment  
Resources / Experiment Summary Worksheet Part B is Due  
Deadlines for Parts of Written Report Due (optional)  
Start Distributing Display Boards

Written Report Due

**DECEMBER**

Display and Oral Presentation Due  
(Principal/Teacher may choose specific due date. Grade will be used in appropriate quarter.)

**JANUARY**

All Science Fairs Completed in Building Level

**FEBRUARY**

DISTRICT SCIENCE FAIR (7:00 p.m.) to be held at Prairie-Hills Junior High

**INDIVIDUAL**

**SCIENCE FAIR REGISTRATION FORM**

**DUE NO LATER THAN**

**DATE:** \_\_\_\_\_

PLEASE RETURN YOUR FORM TO YOUR TEACHER

ONLY STUDENTS WHO REGISTER ON TIME WILL BE PERMITTED TO PARTICIPATE IN THE SCIENCE FAIR

**Students must submit an experiment as part of their graded classroom work.**

**It is a Science class requirement.**

GRADE LEVEL \_\_\_\_\_

HOMEROOM TEACHER \_\_\_\_\_

\*STUDENT NAME \_\_\_\_\_

\*\*EXPERIMENT TITLE  
\_\_\_\_\_

DESCRIPTION \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ I need an electrical outlet

\*All parents must sign and approve their child's Science Fair Experiment.

I acknowledge that I have received and reviewed the materials for the Science Fair and I am aware that my child is required to complete a Science Experiment.

I have approved and given permission for my child \_\_\_\_\_  
to participate in this year's Science Fair.

Student's Signature \_\_\_\_\_ Date \_\_\_\_\_

Parent's Signature \_\_\_\_\_ Date \_\_\_\_\_

Teacher's Approval of Experiment  Please Conference with your Teacher about Experiment

Teacher's Signature \_\_\_\_\_ Date \_\_\_\_\_

Teacher's Signature \_\_\_\_\_ Date \_\_\_\_\_

# EXPERIMENT SUMMARY WORKSHEET – Part A

**Student's Name:** \_\_\_\_\_

**Due Date:** \_\_\_\_\_

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

**Question (Statement of Purpose)**  
*(Written as a Question)*

**Hypothesis:**  
*If....., then I think*

**Materials I will need:**

**Procedures:**  
*(Detailed Steps)*



# EXPERIMENT SUMMARY WORKSHEET – Part B

Student's Name: \_\_\_\_\_ Due Date: \_\_\_\_\_

Title of Experiment: \_\_\_\_\_

Statement of Purpose: \_\_\_\_\_

Hypothesis: \_\_\_\_\_  
\_\_\_\_\_

**Record Data** (Data should be quantitative: numbers, stand metric units, scale made up by the student.)

--

**Conclusion** Based on analysis of the data; acceptance or rejection of hypothesis; suggestions for further efforts.

--

# OCTOBER

## Student Checklist

Due Date	Component	Completed
	Registration/Participation Slip – Signed and Returned	
	<b>Topic:</b> Choose a topic. <i>Be sure it interests you. Don't pick one because you think it will be easy. Talk with your parents about what you have decided to work on. Do not change your topic later. (Included in Participation Slip)</i>	
	<b>Purpose:</b> State your purpose as a question or a statement. <i>What is it you that you want to find out by doing this experiment? (Included in Experiment Summary Worksheet)</i>	
	<b>Hypothesis:</b> Form a hypothesis. <i>What do you think is going to happen? Based on what you know or found out, what do you think the results of your experiment will be? After doing the experiment, it may turn out that your guess was wrong. It's okay if this happens. (Included in Experiment Summary Worksheet)</i>	
	<b>Materials:</b> List all materials that will be used in your experiment. <i>Include exact quantities for each item used. (Included in Experiment Summary Worksheet)</i>	
	<b>Procedures:</b> List and describe steps taken to complete the experiment. <i>Presented in chronological order or numbered order. (Included in Experiment Summary Worksheet)</i>	
	<b>Research:</b> <i>Look at any books that might help you, make observations by simply looking at things, talk to people, and find out as much as possible about your topic. Write down any ideas you have and where you got them. (Included in Resource Form – You must have THREE!)</i>	
	<b>Deadlines:</b> All deadlines to turn in components were met.	

Note: The Experiment Summary Worksheet – Part A must be received in October. It does not need to be typewritten. If more space is needed on the Experiment Summary Worksheet, please use and staple extra paper to the original sheet.

# OCTOBER Teacher Rubric

Student: \_\_\_\_\_

Due Date	Component	Total Points
	Topic Approval – Signed and Returned	____ /15
	<b>Topic: Choose a topic.</b> Be sure it interests you. Don't pick one because you think it is easy. Talk with your parents about what you have decided to work on. (Do not change your topic later. <b>Included in Participated Slip</b> )	____ /10
	<b>Purpose:</b> State your purpose as a question or a statement. <i>What is it you that you want to find out by doing this experiment?</i> (Included in Experiment Summary Worksheet)	____ /10
	<b>Hypothesis:</b> Form a hypothesis. <i>What do you think is going to happen? Based on what you know or found out, what do you think the results of your experiment will be? After doing the experiment, it may turn out that your guess was wrong. It's okay if this happens.</i> (Included in Experiment Summary Worksheet)	____ /10
	<b>Materials:</b> List all materials that will be used in your experiment. <i>Include exact quantities for each item used.</i> (Included in Experiment Summary Worksheet)	____ /10
	<b>Procedures:</b> List and describe steps taken to complete the experiment. <i>Presented in chronological order or numbered order.</i> (Included in Experiment Summary Worksheet)	____ /10
	<b>Research:</b> <i>Look at any books that might help you, make observations by simply looking at things, talk to people, and find out as much as possible about your topic. Write down any ideas you have and where you got them.</i> (Included in Resource Form – You must have THREE!)	____ /30
	<b>Deadlines:</b> All deadlines to turn in components were met.	____ / 5
	<b>TOTAL POINTS</b>	____ /100

Note: The Experiment Summary Worksheet – Part A must be accepted in October. It does not need to be typewritten.

# NOVEMBER

## Student Checklist

### Written Report

Student: \_\_\_\_\_

Due Date	Component	Completed
	<b>Title Page:</b> The first page in the report should include the title of the experiment as well as the name and grade of the student.	
	<b>Acknowledgement Page:</b> The second page in the report should thank all individuals who assisted in the experiment.	
	<b>Table of Contents:</b> This page provides the reader with a list of the different parts of the experiment and the page number on which each section can be found.	
	<b>The Purpose:</b> State your purpose as a question or a statement. <i>What is it you that you want to find out by doing this experiment?</i>	
	<b>Hypothesis:</b> State your hypothesis. <i>What do you think is going to happen? Based on what you know or found out, what do you think the results of your experiment will be? After doing the experiment, it may turn out that your guess was wrong. It's okay if this happens.</i>	
	<b>Research:</b> This is part of the report that contains all the background information the student collected about the chosen topic. All gathered information should be summarized and presented in this section. It should be written in the student's own words and not copied from the source.	
	<b>Materials:</b> List all materials that were used in your experiment. <i>Include exact quantities for each item used.</i>	
	<b>Procedures of Investigation:</b> List and describe steps taken to complete the experiment. <i>Presented in chronological order or numbered order.</i>	
	<b>Results:</b> Tell what happened when you did the experiment. Show what happened by making a chart, graph, or table. Include the date, the time, and any other useful information. Write all measurements clearly.	
	<b>Conclusion:</b> This is a brief statement explaining why a experiment turned out the way it did. Students should explain why the events they observed occurred. The conclusion should tell whether the hypothesis was proven or not proven. It should offer an answer to the student's original purpose.	
	<b>Reference Page:</b> In alphabetical order, list all the resources that you used to research your experiment. Correct format was used.	
	<b>Conventions:</b> Proper use of spelling, grammar, punctuation, and capitalization. <b>MUST</b> be typed.	

# NOVEMBER

## Teacher Rubric

### Written Report

Student: \_\_\_\_\_

Due Date	Component	Total Points
	<b>Title Page:</b> The first page in the report should include the title of the experiment as well as the name and grade of the student.	/ 5
	<b>Acknowledgement Page:</b> The second page in the report should thank all individuals who assisted in the experiment.	/ 5
	<b>Table of Contents:</b> This page provides the reader with a list of the different parts of the experiment and the page number on which each section can be found.	/ 5
	<b>The Purpose:</b> State your purpose as a question or a statement. <i>What is it you that you want to find out by doing this experiment?</i>	/ 5
	<b>Hypothesis:</b> State your hypothesis. <i>What do you think is going to happen? Based on what you know or found out, what do you think the results of your experiment will be? After doing the experiment, it may turn out that your guess was wrong. It's okay if this happens.</i>	/ 10
	<b>Research:</b> This is part of the report that contains all the background information the student collected about the chosen topic. All gathered information should be summarized and presented in this section. It should be written in the student's own words and not copied from the source.	/ 20
	<b>Materials:</b> List all materials that were used in your experiment. <i>Include exact quantities for each item used.</i>	/ 5
	<b>Procedures of Investigation:</b> List and describe steps taken to complete the experiment. <i>Presented in chronological order or numbered order.</i>	/ 5
	<b>Results:</b> Tell what happened when you did the experiment. Show what happened by making a chart, graph, or table. Include the date, the time, and any other useful information. Write all measurements clearly.	/ 10
	<b>Conclusion:</b> This is a brief statement explaining why a experiment turned out the way it did. Students should explain why the events they observed occurred. The conclusion should tell whether the hypothesis was proven or not proven.	/ 10
	<b>Reference Page:</b> In alphabetical order, list all the resources that you used to research your experiment. Correct format was used.	/ 10
	<b>Conventions:</b> Proper use of spelling, grammar, punctuation, and capitalization. MUST be typed.	/ 10

**TOTAL POINTS** /100

# DECEMBER Student Checklist

Student: \_\_\_\_\_

## Display Board

Due Date	Component	Completed
	<b>Title:</b> <i>Does the title catch people's attention and is it large enough to be read from across the room?</i>	
	<b>Purpose</b>	
	<b>Hypothesis</b>	
	<b>Procedures of Investigation</b>	
	<b>Materials</b>	
	<b>Results/ Graphs/ Charts:</b> <i>Did the student use pictures and diagrams to effectively convey information about the experiment?</i>	
	<b>Conclusion</b>	
	<b>Conventions:</b> <i>Proper use of spelling, grammar, punctuation, and capitalization on all elements on the display board.</i>	
	<b>Neatness</b>	
	<b>Organization:</b> <i>Are the sections on the display board organized like a news paper so they are easy to follow?</i>	

## Oral Presentation

Due Date	Component	Completed
	<b>Introduction:</b> <i>Student introduces himself and gives the title of the experiment.</i>	
	<b>Statement of Purpose/ Hypothesis</b>	
	<b>Explanation of Procedure</b>	
	<b>Explanation of Results/Charts and Graphs</b>	
	<b>Conclusion</b>	
	<b>Good Posture and Eye Contact</b>	
	<b>Speaks Clearly</b>	

## DECEMBER Teacher Rubric

Student: \_\_\_\_\_

### Display Board

Due Date	Component	Total Points
	<b>Title:</b> <i>Does the title catch people's attention and is it large enough to be read from across the room?</i>	/ 5
	<b>Purpose</b>	/ 5
	<b>Hypothesis</b>	/ 5
	<b>Procedures of Investigation</b>	/ 5
	<b>Materials</b>	/ 5
	<b>Results/ Graphs/ Charts/Visual Items:</b> <i>Did the student use pictures, diagrams, and/or visual items to effectively convey information about the experiment?</i>	/ 20
	<b>Conclusion</b>	/ 5
	<b>Conventions:</b> <i>Proper use of spelling, grammar, punctuation, and capitalization on all elements on the display board.</i>	/ 20
	<b>Neatness</b>	/ 10
	<b>Organization:</b> <i>Are the sections on the display board organized like a news paper so they are easy to follow?</i>	/ 20
<b>TOTAL:</b>		<b>/ 100</b>

### Oral Presentation

Due Date	Component	Total Points
	<b>Introduction/Acknowledgements:</b> <i>Student introduces himself and gives the title of the experiment. Thanks all who had helped or encouraged student.</i>	/ 5
	<b>Statement of Purpose/ Hypothesis</b>	/ 5
	<b>Explanation of Procedure/Materials</b>	/ 10
	<b>Explanation of Results/Charts, Graphs, and Visual Items</b>	/ 20
	<b>Conclusion</b>	/ 10
	<b>Answers Questions Effectively</b>	/ 10
	<b>Personal Reflections:</b> <i>What I learned and what I would have done differently.</i>	/ 10
	<b>Good Posture and Eye Contact</b>	/ 15
	<b>Speaks Clearly</b>	/ 15
<b>TOTAL:</b>		<b>/ 100</b>

## Building Level Scoring Report

SCIENCE FAIR PROJECT WRITTEN REPORT THE WRITTEN REPORT INCLUDED THE FOLLOWING ELEMENTS:	
ACKNOWLEDGEMENT PAGE	
TABLE OF CONTENTS	
STATEMENT OF THE PROBLEM / PURPOSE	
HYPOTHESIS	
VARIABLES / RESEARCH	
PROCEDURES OF INVESTIGATION	
RESULTS	
CHARTS / GRAPHS	
CONCLUSION	
REFERENCES / WORK CITES	
CONVENTIONS - Proper use of CAPITALIZATION, PUNCTUATION, SPELLING AND GRAMMAR	
ALL FACTS AND PICTURES IN THE RESEARCH PAPER HAS BEEN REFERENCED	
TOTAL TEACHER CLASSROOM POINTS	

CUMULATIVE POINTS EARNED	
PRESENTATION BOARD	
WRITTEN REPORT	
ORAL PRESENTATION	
CUMULATIVE POINTS	



Student: \_\_\_\_\_

Project Number: \_\_\_\_\_

Total: \_\_\_\_\_

### BUILDING SCIENCE FAIR RUBRIC

Display ( 21 points maximum)

Purpose and Hypothesis	----- 3 ----- The problem has been defined and it states a testable question. A prediction has been made and it accurately relates to the problem.	----- 2 ----- The problem has been defined and it states a testable question. A prediction has been made, but it does not relate to the problem.	----- 1 ----- The problem has been defined, or a prediction has made, but not both.	----- 0 ----- Neither the problem nor a prediction is present.	Points Awarded
Materials	----- 3 ----- Materials are listed giving exact quantities used and all measurements are in metrics, if applicable.	----- 2 ----- Materials are listed and measurements are in metrics, if applicable.	----- 1 ----- Not all materials are listed or measurements are not in metrics, where applicable.	----- 0 ----- No materials are listed.	Points Awarded
Procedure	----- 3 ----- Procedures are completely and accurately listed sequentially and clearly describe the investigation.	----- 2 ----- Procedures are partially listed in sequential order and/or partially describe the investigation.	----- 1 ----- Procedures are not listed sequentially and do not describe the investigation.	----- 0 ----- Procedure is missing.	Points Awarded
Results	----- 3 ----- Results are organized in tables or graphs; easily read by someone not familiar with the work. Data is quantitative; explanations are given when needed.	----- 2 ----- Results are organized in tables or graphs, but may be confusing. Data is quantitative; explanations are given when needed.	----- 1 ----- Results are not organized in tables or graphs, not quantitative, and/or difficult to understand.	----- 0 ----- Results are not present.	Points Awarded
Conclusion	----- 3 ----- A concise evaluation and interpretation of the data and/or results; referred to purpose and hypothesis and suggests further efforts.	----- 2 ----- An adequate evaluation and interpretation of the data and/or results; referred to purpose and hypothesis.	----- 1 ----- Conclusion is present, but is not consistent with data collected.	----- 0 ----- No conclusion present.	Points Awarded
Conventions	----- 3 ----- Good grammar and spelling are evident. There are not any mistakes.	----- 2 ----- Good grammar and spelling are evident. There are minimal mistakes.	----- 1 ----- Numerous spelling and grammar mistakes are present, but it does not significantly interfere with understanding the project.	----- 0 ----- Numerous spelling and grammar mistakes are present which significantly interferes with understanding the project.	Points Awarded
Artistic Qualities	----- 3 ----- Display is neat, organized, and appealing; related pictures have been added.	----- 2 ----- Display is neat, appealing, and well organized; pictures have been added but are not related to the project.	----- 1 ----- Display is neat, organized, or appealing but not all three; pictures have not been added.	----- 0 ----- Display was carelessly prepared, sloppy.	Points Awarded

**Scientific Method: Overall Impression of Project (18 points maximum)**

<b>Knowledge Gained</b>	----- 3 ----- Exhibits a thorough understanding of topic as demonstrated through presentation and correct responses to questions. Student has acquired scientific skills.	----- 2 ----- Exhibits a basic understanding of topic area as demonstrated through presentation and correct responses to questions. Demonstrates some acquired scientific skills.	----- 1 ----- Is somewhat familiar with topic area but cannot answer all questions effectively. Demonstrates minimal acquired scientific skills.	----- 0 ----- Demonstrates no knowledge gained, nor scientific skills.	<b>Points Awarded</b>
<b>Scientific Approach</b>	----- 3 ----- Has a well defined problem and uses a logical, orderly method for solving the problem. Problem was solved using scientific principles.	----- 2 ----- Has an adequately defined problem and attempted to follow scientific method.	----- 1 ----- Has an adequately defined problem OR attempted to follow scientific method, but not both.	----- 0 ----- No evidence of scientific method used.	<b>Points Awarded</b>
<b>Experimental Approach: Variable</b>	----- 3 ----- Single independent variable was tested for each experimental group; controlled variables are substantially and accurately accounted for.	----- 2 ----- Single independent variable was tested for each experimental group; controlled variables are partially accounted for.	----- 1 ----- More than a single independent variable was tested.	----- 0 ----- Variables were not controlled.	<b>Points Awarded</b>
<b>Experimental Approach: Control Group</b>	----- 3 ----- Method was appropriate and effective. A control or comparison group was in evidence.	----- 2 ----- Method was appropriate. A control or comparison group was partially evident.	----- 1 ----- Method was inappropriate, but an attempt for control or comparison was made.	----- 0 ----- Experimentation was not performed (i.e. a demonstration or exhibit). No control group was present.	<b>Points Awarded</b>
<b>Reliability Of Data</b>	----- 3 ----- Data collected is numerical and metric, if applicable. More than three trials provide for more than adequate data. Data is reliable.	----- 2 ----- Data collected is numerical and metric, if applicable. More than one trial has been performed but not enough for adequate data.	----- 1 ----- Data collected is not numerical and metric, if applicable and/or only one trial has been performed.	----- 0 ----- No data collected.	<b>Points Awarded</b>
<b>Validity of Conclusion</b>	----- 3 ----- Conclusion is completely and accurately based on analysis of data.	----- 2 ----- Conclusion is partially based on analysis of data.	----- 1 ----- Conclusion is present but inconsistent with data.	----- 0 ----- No conclusion is present.	<b>Points Awarded</b>

**Oral Presentation (9 points maximum)**

<b>Presentation Quality</b>	----- 3 ----- Clear presentation; concisely summarizes the project. Information is relevant and pertinent	----- 2 ----- Adequately summarizes the project. Presentation is easy to follow.	----- 1 ----- Inadequately summarizes the project. Presentation is difficult to follow.	----- 0 ----- Information jumbled, irrelevant; presentation unclear.	<b>Points Awarded</b>
<b>Dynamics</b>	----- 3 ----- Speaks fluently with good eye contact; polite, dynamic, and interested in their project.	----- 2 ----- Student was polite and interested in their project. Moderate eye contact; relied on note cards or board.	----- 1 ----- Very little eye contact; relied heavily on note cards or board. Seems slightly interested in the project.	----- 0 ----- No eye contact, read from note cards or board. Did not seem interested.	<b>Points Awarded</b>
<b>Presentation Order and Relevance</b>	----- 3 ----- Entire presentation relates to the scientific method and it follows the proper sequential order.	----- 2 ----- Entire presentation relates to the scientific method, but the order of presentation is not in proper sequence.	----- 1 ----- Most of the presentation relates to the scientific method and/or order of presentation is not in proper sequence.	----- 0 ----- Very little of the presentation relates to the scientific method and/or no order is evident.	<b>Points Awarded</b>





**STUDENT'S PACKET  
FOR  
THE  
SCIENCE FAIR  
EXPERIMENT**

## **SCIENCE EXPERIMENT STEPS**

1. Choose a topic. Be sure it interests you. Don't pick one because you think it will be easy. Talk it over with your parents and when you have decided, inform your teacher, and do not ask to change your topic later. Get your Registration form for your teacher signed by your parent and turn it in.
2. State your purpose as a question. What is it that you want to find out by doing this experiment?
3. Research your problem. Look at any books/websites that might help you, make observations by simply looking at things, talk to people, and find out as much as possible about your topic. Write down any ideas you have and where you got them. Also, keep note of all information needed for citing your resources.
4. Form a hypothesis. What do you think is going to happen? Based on what you know or found out from step #3, what do you think the results of your experiments will be? After doing the experiments, it may turn out that your guess was wrong. It is okay if this happens.
5. Plan your experiment. How will you test your hypothesis? What experiments will you do? How will you measure the results? Where will you keep your information? Be sure to keep notes and write down everything you do and what happens.
6. Collect all your materials. Find a place to keep things where others won't bother them. Let other family members know what you are doing so they don't throw your materials away by mistake.
7. Conduct your experiments. Remember, the more times you do an experiment the more reliable and accurate the results will be. Do each experiment at least three times and get an average of the results for your graph. Use something to measure your experiments: a ruler or yardstick if you are measuring distance, a clock to measure time, etc. Check the measurements to be sure you are correct.
8. Record your data. As you do your experiments, you will want to write down what you saw or found out. Organize this information in an orderly manner. Put the date, time, and any other useful information. Write your measurements clearly.
9. Draw conclusions. What did you learn from your experiments? Have you proved or disproved your hypothesis? You made a guess about what you thought would happen. Now tell what really did happen. You don't lose points if your guess turned out to be wrong.
10. Prepare your titles, charts, graphs, drawings, and diagrams. Make them large enough to see, neat, and colorful.
11. Construct your science fair display. Get your cardboard display board from your teacher so you can show all your work and have your hands free to point to sections when you give your presentation.
12. Prepare and practice your presentation. Be able to tell about what you used what you did in your experiments, and what you found out. Know it well enough that you don't have to read it from the display.
13. Plan a time line so you don't leave everything until the last minute. If you need help, tell your parents and your teacher, the earlier the better.
14. Relax and Enjoy yourself. You will do a GREAT job!

## **SCIENCE FAIR RULES**

**Aw! You mean there are rules? Of course there are, silly. This is made by adults!**

1. Number one rule..... Think safety first before you start! Make sure you have recruited your adults to help you.
2. Never eat or drink during an experiment and always keep your work area clean.
3. Wear protective goggles when doing any experiment that could lead to eye injury.
4. Do not touch, taste, or inhale chemicals or chemical solutions.
5. Respect all life forms. Animals are not allowed to be used in experiments. Do not perform an experiment that will harm a person.
6. All experiments should be supervised by an adult.
7. Always wash your hands after doing the experiment, especially if you have been handling chemicals.
8. Dispose waste properly.
9. Any experiment that involves animals, drugs, firearms, or explosives are NOT permitted.
10. Any experiment that breaks district policy, and/or local, state, or federal laws are NOT permitted.
11. Use safety on the Internet! NEVER write to anyone without an adult knowing about it. Be sure to let an adult know about what websites you will be visiting, or have them help you search.
12. If there are dangerous aspects of your experiment, like using a sharp tool or experimenting with electricity, please have an adult help you or have them do the dangerous parts. That's what adults are for so use them correctly. (Besides, it makes them feel important!)

## Science Fair Written Report

The written report is a summary of everything that you did to investigate your topic. The written report provides others with vital information on what your experiment is about as well as its effect on your understanding of the topic. We are expecting 3 - 5 pages as a written report for each project. All of the information/data researched must be included in the written report. This report provides you with the opportunity to think about all the aspects of our experiment and share your ideas with others.

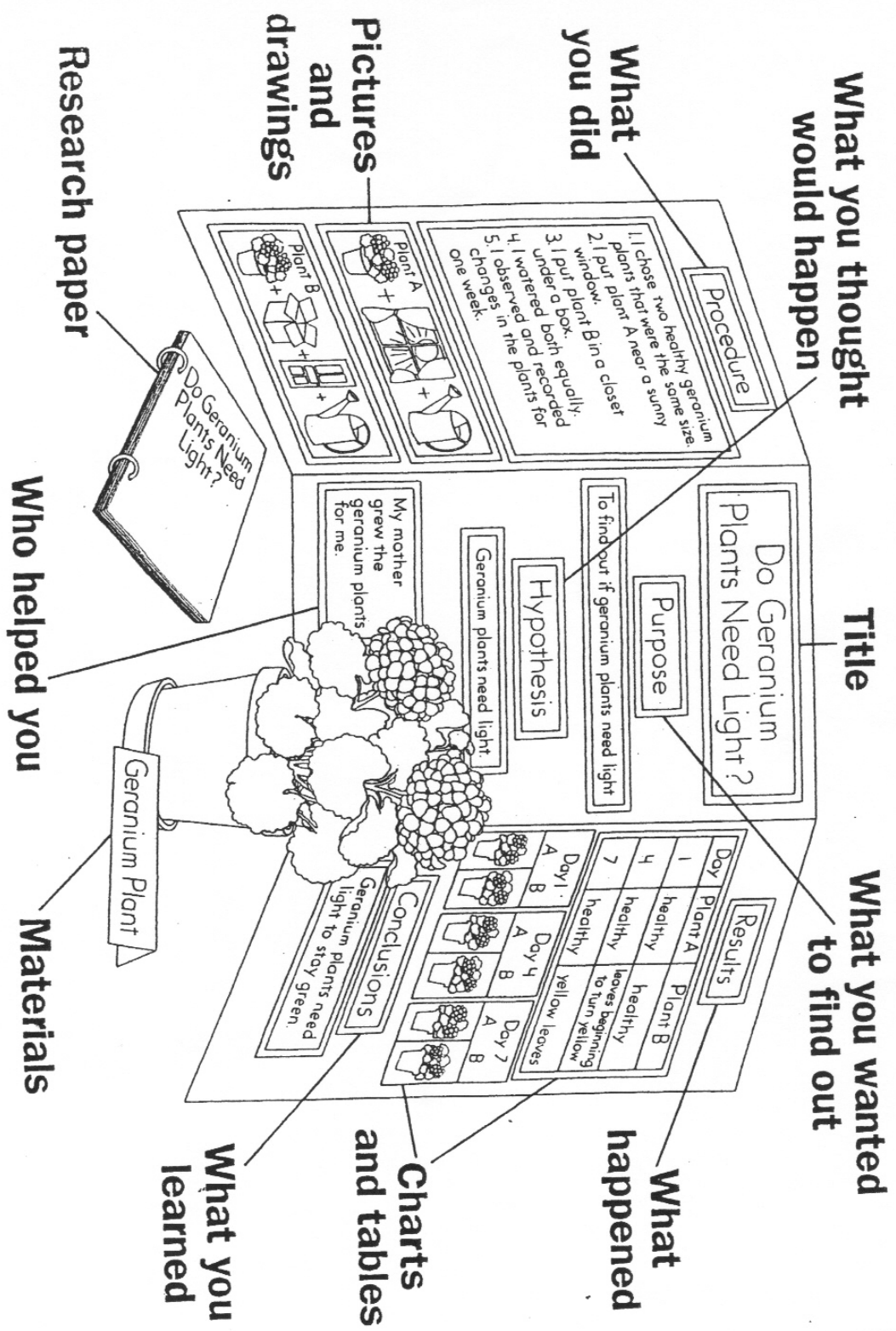
Reports should be neatly bounded in an attractive binder and it must be typewritten.

- Typed, doubled spaced. One inch margins, and 12 pt Times New Roman Font
- Remember to put headings/titles on graphs/charts/tables
- All photographs must have captions explaining their significance
- Before you hand in your report make sure to reread, revise, and rewrite
- Recheck your calculations, spelling, and grammar.

All written report for a science fair experiment should include:

- ✓ **Title Page:** The first page in the report should include the title of the experiment as well as the name and grade of the student.
- ✓ **Acknowledgment:** Here is where you thank everyone who helped to make your experiment successful (including Mom and Dad.) Everyone that you interviewed, including teachers, scientists, and other experts in the field should be mentioned here.
- ✓ **Table of Content:** This page provides the reader with a list of the different parts of the experiment and the page number on which each section can be found.
- ✓ **Statement of Purpose:** State the purpose of the experiment **in the form of a question.**
- ✓ **Hypothesis:** You must have a hypothesis before you complete the experiment. A hypothesis is an educated guess about what you think will occur as a result from completing your experiment.
- ✓ **Research:** This is the part of the report that contains all the background information that you collected about your topic. Any books or articles read from the internet/journal, authorities on the topic that you talked to, or outside materials collected should be summarized in this section. **This section should be written in your own words and NOT copied from your resources.**
- ✓ **Materials:** This is a list of all the materials and supplies used in the experiment. Quantities and amounts of each should also be indicated.
- ✓ **Procedure:** You will list and describe the steps you took to complete the experiment. Usually this is listed in a numbered sequence. This part shows the stages of the experiment so that another person can carry out the experiment.
- ✓ **Observations and Results:** In this section, you will tell what you learned from the experiment. It is also **IMPORTANT** to include all graphs, charts, or other visual data (pictures) that helps to show your results.
- ✓ **Conclusion:** This is a brief statement explaining why your experiment turned out the way it did. You should explain why the events you observed occurred. Using the word “because” is a good way to turn an observation into a conclusion. The conclusion should tell whether the hypothesis was proven or not proven. Also give the reason(s) why you chose to learn more about the subject. You could also add what you know now that you didn’t know before you completed your experiment.
- ✓ **Reference Page:** The bibliography should list all the printed materials the student used to carry out the experiment. Items should be listed in alphabetical order in a standard format. These website are a great place to go to find the proper way of writing a bibliography. <http://www.bibme.org/> , <http://www.easybib.com> or <http://www.knightcite.com> Also <http://www.lcYTE.com> lets you “tag” information from Internet sources as you research.

# Displaying a Science Fair Project



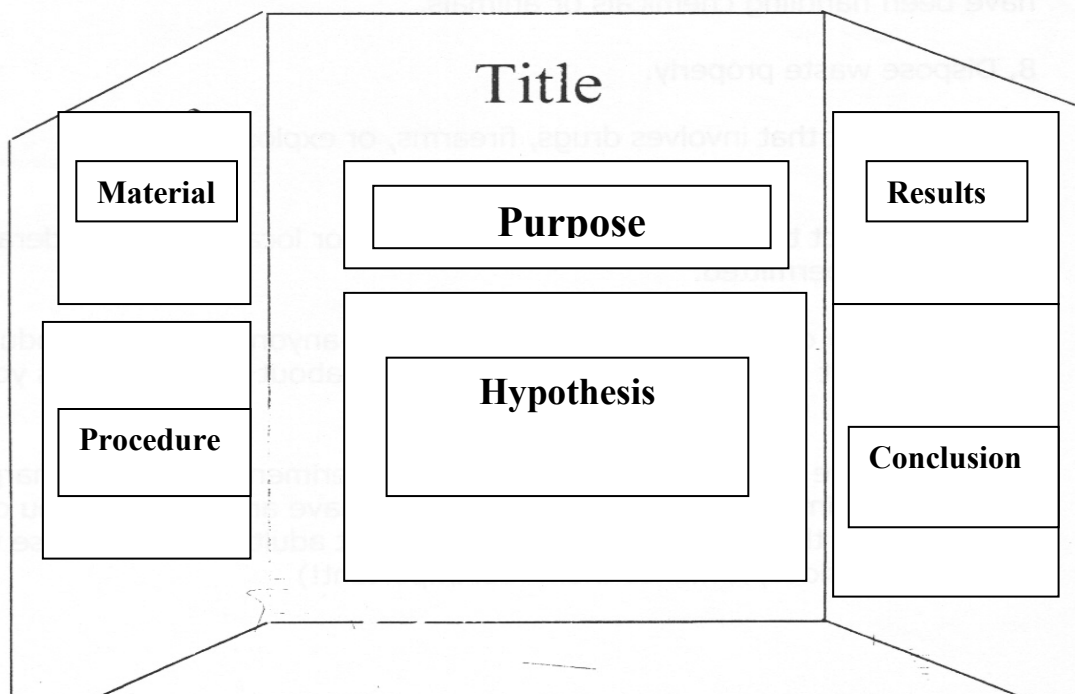
Teacher: Reproduce this page and the "Science Fair Time Line" page. Send them home with students to inform parents about the science fair and to help students prepare their projects. You may wish to use this chart with Frank Schaffer's *The Scientific Method* bulletin board set (FS-9492) and *Work Like a Scientist* chart (FS-2427).



**CHECKLIST  
PROJECT POSTER BOARD**

1. **Statement of Purpose** – State the purpose of the project **in the form of a question.**
2. **Hypothesis** – State the hypothesis (educated guess that answers the project question)
3. **Materials** – List the materials used in the experiment
4. **Procedure** – Describe how the experiment was carried out. Provide a step-by-step explanation of how you conducted the experiment. Include drawings or photographs to help clarify your procedures.
5. **Data/Results** – Present data tables and graphs that show the outcome of your experiment
6. **Conclusion** – compare your results to your hypothesis. Did your findings support your hypothesis or not?

**Miscellaneous:** Be sure to include name(s)  
Include photographs or drawings  
This is a visual way to communicate to others so take your time and do a good job.



# Science Fair Websites

1. **California State Science Fair:** Read about this science fair which has been going on since 1952! You can learn how to enter, get help with your own experiment, or see a directory of past experiments. <http://www.usc.edu/CSSF/>
2. **Cyber Fair:** See sample fair experiments, look through other student's examples, and see the steps involved in judging experiments. <http://www.isd77.k12.mn.us/resources/cf/welcome.html>
3. **Experimental Science Experiments:** Outlines steps in preparing a experiment (complete with an ideas list), and suggests the best ways to prepare one at different grade levels. <http://www.isd77.k12.mn.us/resources/cf/SciProjIntro.html>
4. **Science Buddies:** Use the topic selection wizard to help you figure out what science experiments interest you most. Once you have a topic, get help doing research, setting up the experiments, and completing them. <http://www.sciencebuddies.org/>
5. **Science Fair Central:** Includes cool experiment ideas, a science fair handbook, reviews of students' experiments, and more from Discovery Channel School. <http://school.discovery.com/sciencefaircentral/>
6. **Science Fair Experiment Resource Guide:** Samples, ideas, magazines, resources, and more. Includes a list of sites that explain the Scientific Method. <http://www.ipl.org/div/kidspace/projectguide/>
7. **Scientific Method:** Describes the five steps of the Scientific Method that are helpful when creating a science fair experiment. Includes examples of wording and sample experiments to explain certain steps. <http://school.discoveryeducation.com/sciencefaircentral/Getting-Started/Investigation.html>
8. **Super Science Fair Experiments:** Guide to experiments, topics, experiments, and tips for successfully completing a science experiment, including the six steps of the Scientific Method. <http://www.super-science-fair-projects.com/>
9. **What Makes a Good Science Fair Experiment?:** Short guide written by a group of experienced judges for the California State Science Fair. [http://www.usc.edu/CSSF/Resources/Good\\_Project.html](http://www.usc.edu/CSSF/Resources/Good_Project.html)

## Your Science Fair Oral Presentation

A lot of kids are scared of speaking in public or to a teacher/judge. Just imagine they are a fellow scientist who just wants you to share what you learned.

Relax, smile, and have fun. Remember, you are the expert and you had fun doing the experiment. But if you are a little nervous, we listed some things that you need to do during the presentation.

Helpful Hints:

- Look sharp, feel sharp, and you will be sharp. Dress nice that day, be polite, and speak clearly. You will show that you have confidence. Don't forget to look at your audience.
- Introduce yourself. Point to the title of your display. Tell your audience why you chose to study this.
- State your problem that you studied (your question.) Tell them about your hypothesis (what you thought might happen.)
- Talk about what you learned while researching your topic.
- Talk about the sources (books, websites, and interviews) that helped you understand your topic.
- Tell about your experiment and explain the steps you took to conduct your experiment. Be sure to mention all the materials involved and point out the pictures that you may have taken.
- If it applies, be sure to show them that you tested your experiment at least 3 times.
- Show them all of the cool graphic organizers that you made, like your tables and charts. Remember to point out the labeled parts of your graph or table to show that you know what it represents.
- Be sure to explain what your data means. Make sure you can read your graphs and tables. Let them know if you were surprised by the results, or if you know what would happen because you studied about it.
- Make sure you sound like an expert on your topic. Always use the appropriate vocabulary especially by using words from the Scientific Method, like: Problem, Hypothesis, Procedure, Results, and Conclusions.

INDIVIDUAL

SCIENCE FAIR REGISTRATION FORM

**DUE NO LATER THAN**

**DATE:** \_\_\_\_\_

PLEASE RETURN YOUR FORM TO YOUR TEACHER

ONLY STUDENTS WHO REGISTER ON TIME WILL BE PERMITTED TO PARTICIPATE IN THE SCIENCE FAIR

**Students must submit an experiment as part of their graded classroom work.**

**It is a Science class requirement.**

GRADE LEVEL \_\_\_\_\_

HOMEROOM TEACHER \_\_\_\_\_

\*STUDENT NAME \_\_\_\_\_

\*\*EXPERIMENT TITLE  
\_\_\_\_\_

DESCRIPTION \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ I need an electrical outlet

\*All parents must sign and approve their child's Science Fair Experiment.

I acknowledge that I have received and reviewed the materials for the Science Fair and I am aware that my child is required to complete a Science Experiment.

I have approved and given permission for my child \_\_\_\_\_  
to participate in this year's Science Fair.

Student's Signature \_\_\_\_\_ Date \_\_\_\_\_

Parent's Signature \_\_\_\_\_ Date \_\_\_\_\_

Teacher's Approval of Experiment

Please Conference with your Teacher about Experiment

Teacher's Signature \_\_\_\_\_ Date \_\_\_\_\_

# EXPERIMENT SUMMARY WORKSHEET – Part A

Student's Name: \_\_\_\_\_

Due Date: \_\_\_\_\_

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

**Question (Statement of Purpose)**  
*(Written as a Question)*

**Hypothesis:**  
*If....., then I think*

**Materials I will need:**

**Procedures:**  
*(Detailed Steps)*

# EXPERIMENT SUMMARY WORKSHEET – Part B

**Student's Name:** \_\_\_\_\_ **Due Date:** \_\_\_\_\_

**Title of Experiment:** \_\_\_\_\_

**Statement of Purpose:** \_\_\_\_\_

**Hypothesis:** \_\_\_\_\_  
\_\_\_\_\_

**Record Data** (Data should be quantitative: numbers, stand metric units, scale made up by the student.)

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**Conclusion** Based on analysis of the data; acceptance or rejection of hypothesis; suggestions for further efforts.

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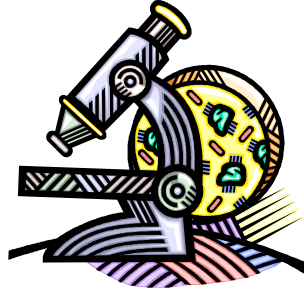
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Resource #1

You must have 3 Resources



**Resource:**

Type of Resource: \_\_\_\_\_

Website: http://\_\_\_\_\_

Author: \_\_\_\_\_

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

Publishing Company: \_\_\_\_\_

Location of the Publishing Company: \_\_\_\_\_

Date of Publication: \_\_\_\_\_

**Information found in your own words:**

(Must be at least one paragraph summary.)

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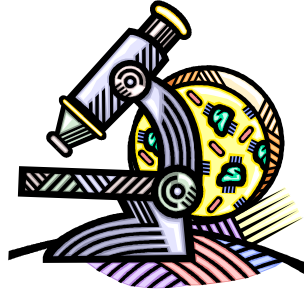
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Resource #2

You must have 3 Resources



**Resource:**

Type of Resource: \_\_\_\_\_

Website: http://\_\_\_\_\_

Author: \_\_\_\_\_

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

Publishing Company: \_\_\_\_\_

Location of the Publishing Company: \_\_\_\_\_

Date of Publication: \_\_\_\_\_

**Information found in your own words:**

(Must be at least one paragraph summary.)

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Resource #3

You must have 3 Resources



**Resource:**

Type of Resource: \_\_\_\_\_

Website: http://\_\_\_\_\_

Author: \_\_\_\_\_

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

Publishing Company: \_\_\_\_\_

Location of the Publishing Company: \_\_\_\_\_

Date of Publication: \_\_\_\_\_

**Information found in your own words:**

(Must be at least one paragraph summary.)

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## OCTOBER Student Checklist

Due Date	Component	Completed
	Permission/Participation Slip – Signed and Returned	
	<b>Topic:</b> Choose a topic. <i>Be sure it interests you. Don't pick one because you think it will be easy. Talk with your parents about what you have decided to work on. Do not change your topic later. (Included in Participation Slip)</i>	
	<b>Purpose:</b> State your purpose as a question or a statement. <i>What is it you that you want to find out by doing this experiment? (Included in Experiment Summary Worksheet)</i>	
	<b>Hypothesis:</b> Form a hypothesis. <i>What do you think is going to happen? Based on what you know or found out, what do you think the results of your experiment will be? After doing the experiment, it may turn out that your guess was wrong. It's okay if this happens. (Included in Experiment Summary Worksheet)</i>	
	<b>Materials:</b> List all materials that will be used in your experiment. <i>Include exact quantities for each item used. (Included in Experiment Summary Worksheet)</i>	
	<b>Procedures:</b> List and describe steps taken to complete the experiment. <i>Presented in chronological order or numbered order. (Included in Experiment Summary Worksheet)</i>	
	<b>Research:</b> <i>Look at any books that might help you, make observations by simply looking at things, talk to people, and find out as much as possible about your topic. Write down any ideas you have and where you got them. (Included in Resource Form – You must have THREE!)</i>	
	<b>Deadlines:</b> All deadlines to turn in components were met.	

Note: The Experiment Summary Worksheet – Part A must be accepted in October. It does not need to be type written.  
 If more space is needed on the Experiment Summary Worksheet, please use and staple extra paper to the original sheet.

## NOVEMBER Student Checklist Written Report

Student: \_\_\_\_\_

Due Date	Component	Completed
	<b>Title Page:</b> The first page in the report should include the title of the experiment as well as the name and grade of the student.	
	<b>Acknowledgement Page:</b> The second page in the report should thank all individuals who assisted in the experiment.	
	<b>Table of Contents:</b> This page provides the reader with a list of the different parts of the experiment and the page number on which each section can be found.	
	<b>The Purpose:</b> State your purpose as a question or a statement. <i>What is it you that you want to find out by doing this experiment?</i>	
	<b>Hypothesis:</b> State your hypothesis. <i>What do you think is going to happen? Based on what you know or found out, what do you think the results of your experiment will be? After doing the experiment, it may turn out that your guess was wrong. It's okay if this happens.</i>	
	<b>Research:</b> This is part of the report that contains all the background information the student collected about the chosen topic. All gathered information should be summarized and presented in this section. It should be written in the student's own words and not copied from the source.	
	<b>Materials:</b> List all materials that were used in your experiment. <i>Include exact quantities for each item used.</i>	
	<b>Procedures of Investigation:</b> List and describe steps taken to complete the experiment. <i>Presented in chronological order or numbered order.</i>	
	<b>Results:</b> Tell what happened when you did the experiment. Show what happened by making a chart, graph, or table. Include the date, the time, and any other useful information. Write all measurements clearly.	

	<b>Conclusion:</b> This is a brief statement explaining why a experiment turned out the way it did. Students should explain why the events they observed occurred. The conclusion should tell whether the hypothesis was proven or not proven. It should offer an answer to the student's original purpose.	
	<b>Reference Page:</b> In alphabetical order, list all the resources that you used to research your experiment. Correct format was used.	
	<b>Conventions:</b> Proper use of spelling, grammar, punctuation, and capitalization. MUST be typed.	

## DECEMBER Student Checklist

Student: \_\_\_\_\_

### Display Board

Due Date	Component	Completed
	<b>Title:</b> <i>Does the title catch people's attention and is it large enough to be read from across the room?</i>	
	<b>Purpose</b>	
	<b>Hypothesis</b>	
	<b>Procedures of Investigation</b>	
	<b>Materials</b>	
	<b>Results/ Graphs/ Charts:</b> <i>Did the student use pictures and diagrams to effectively convey information about the experiment?</i>	
	<b>Conclusion</b>	
	<b>Conventions:</b> <i>Proper use of spelling, grammar, punctuation, and capitalization on all elements on the display board.</i>	
	<b>Neatness</b>	
	<b>Organization:</b> <i>Are the sections on the display board organized like a news paper so they are easy to follow?</i>	

### Oral Presentation

Due Date	Component	Completed
	<b>Introduction:</b> <i>Student introduces himself and gives the title of the experiment.</i>	

	<b>Statement of Purpose/ Hypothesis</b>	
	<b>Explanation of Procedure</b>	
	<b>Explanation of Results/Charts and Graphs</b>	
	<b>Conclusion</b>	
	<b>Good Posture and Eye Contact</b>	
	<b>Speaks Clearly</b>	

**NOTES**

