NEWNHAM
*OPTIONAL PARTICIPATION
(extra Credit!)

August 23, 2019

Dear Parents,

It's that time of year again! Join the fun as we share our learning in scientific investigations and prepare for this year's science fair. MES' science fair will be held during the week of November 11, 2019. Science projects are due Friday, November 8, 2019. The most outstanding projects will be showcased and honored at the district-wide Elementary Science Fair in January 2020.

Information on the project, including criteria and guidelines and a suggested timeline are attached with this letter. Your child's teacher has discussed the project expectations in detail; however, we ask that you review this information with your child as well. It is important that students meet and follow all criteria and guidelines. The science projects should show the student's interest and workmanship. You are encouraged to support and guide your child through this process, but please allow him/her to understand the full scope of the project and the learning behind it.

The Science Fair Project "Proposal Form" is also attached with this letter and is due next Thursday, August 29, 2019.

We are excited and look forward to this event! If you have any questions or a need for project materials, please contact your child's teacher. We are here to help!

Sincerely,

Science Fair Team

23 agosto 2019

Queridos padres,

¡Es ese momento del año otra vez! Únase a la diversión mientras compartimos nuestro aprendizaje en investigaciones científicas y nos preparamos para la feria de ciencias de este año. La feria de ciencias de MES se llevará a cabo durante la semana del 11 de noviembre de 2019. Los proyectos de ciencias deben presentarse el viernes 8 de noviembre de 2019. Los proyectos más destacados se exhibirán y honrarán en la Feria de Ciencias Primarias de todo el distrito en enero de 2020.

En esta carta se adjunta información sobre el proyecto, incluyendo criterios y pautas y un cronograma sugerido. El maestro de su hijo ha hablado de las expectativas del proyecto en detalle; sin embargo, le pedimos que también revise esta información con su hijo. Es importante que los estudiantes cumplan y sigan todos los criterios y pautas. Los proyectos de ciencias deben mostrar el interés y la mano de obra del alumno. Se lo alienta a apoyar y guiar a su hijo a través de este proceso, pero permita que comprenda el alcance completo del proyecto y el aprendizaje que lo respalda.

El "Formulario de propuesta" del Proyecto de la Feria de Ciencias también se adjunta con esta carta y se debe entregar el próximo jueves 29 de agosto de 2019.

¡Estamos emocionados y esperamos este evento! Si tiene alguna pregunta o necesita materiales para el proyecto, comuníquese con el maestro de su hijo. ¡Estamos aquí para ayudar!

Sinceramente,

Equipo de feria de ciencias

Science Fair Project Proposal Form

DUE NO LATER THAN
Thursday, August 29, 2019

PLEASE RETURN THIS FORM TO YOUR SCIENCE TEACHER

Students are ~~required~~ invited to complete a project for this year's science class.
<u>Completed projects are due in the auditorium on Friday, November 8, 2019</u>.

GRADE LEVEL ______________

HOMEROOM TEACHER ____

*STUDENT NAME ____

**PROJECT TITLE ____

DESCRIPTION ____

____

____

____

____

__________ I need an electrical outlet

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

I acknowledge that I have received and reviewed the Science Project Guidelines. I am aware that my child is required to complete a Science Project.

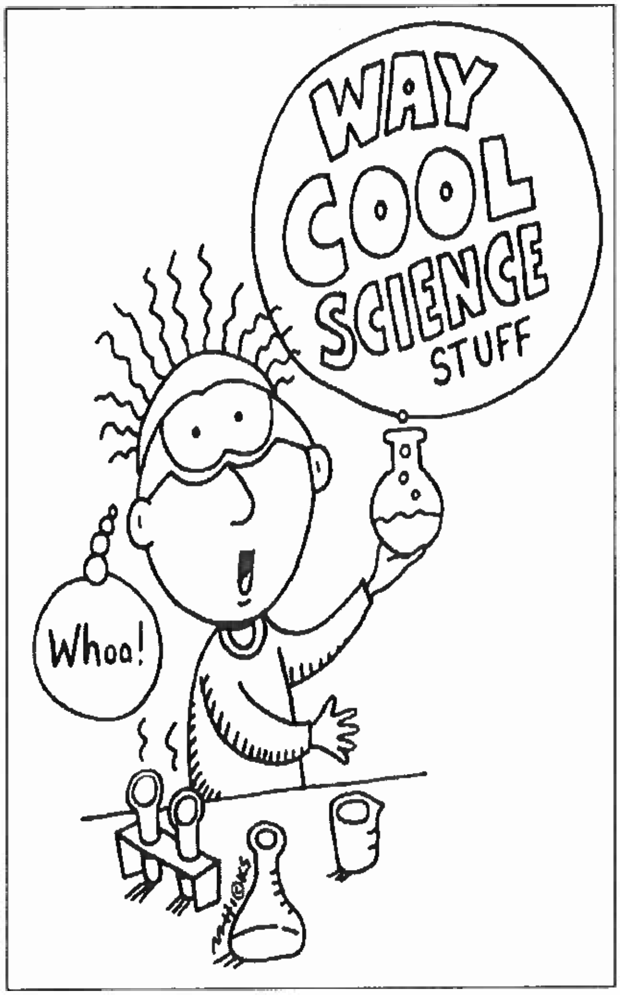
Student's Signature ____ Date ____________________

Parent's Signature ____ Date ____________________

Teacher's Approval of Project ☐ Please Conference with your Teacher about Project ☐

Teacher's Signature ____ Date ____________________

Okay, now get to work on your project!!
What's that? You still need help getting started?

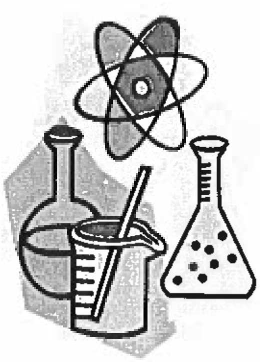


Introducing:
The Most Fabulous, Scientific, All Helpful, Kid Friendly and Most Excellent Science Fair Project Planner Known to Kid Kind:

Elementary Science Fair Planning Guide

2019-2020

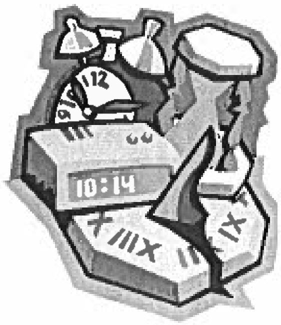
Just follow these easy steps and you too can create a wonderful award winning science project, thought up entirely by you!!!



VERY IMPORTANT: *Before you turn this page, recruit an adult to help you. They come in very handy, especially if you are nice to them and tell them you won't blow up any-thing....*

My adult's name is ___________________

From this point forward you are now... A SCIENTIST!!



STUDENT TIMELINE

for

SCIENCE FAIR PROJECT

TASK	Suggested Completion Date	Parent's Initials
1. Choose, and submit for teacher approval, a research question to investigate (Proposal must be submitted by 08/29)	08/29	
2. Do preliminary research. Collect and read books for your topic. Browse the internet for articles; interview friends, neighbors.	09/06	
3. Develop a hypothesis (your best guess) based on your preliminary research.	09/09	
4. Decide on the procedure that you will use to test your hypothesis.	09/13	
5. Make a list of your materials. Gather your materials.	09/15	
6. Conduct your experiment or build and test your invention. Compile your research or collection. Record data. Take pictures.	10/19	
7. Organize your data and results.	10/22	
8. Write your conclusion based on your results. Write a "real world" application of what you learned.	10/26	
9. Write a draft of your science fair report (summary of what you did)	10/30	
10. Proofread your draft or have someone else proofread it. Type or write a final copy of your report.	11/02	
11. Assemble your science fair display board and display items.	11/05	
12. Turn in your science fair project (report, display board and display items) in the auditorium.	11/08	
13. Take your science fair project home.	11/15	

Science Project Planning Guide

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-Or-

What is inside this packet in case you are impatient and you want to jump around?

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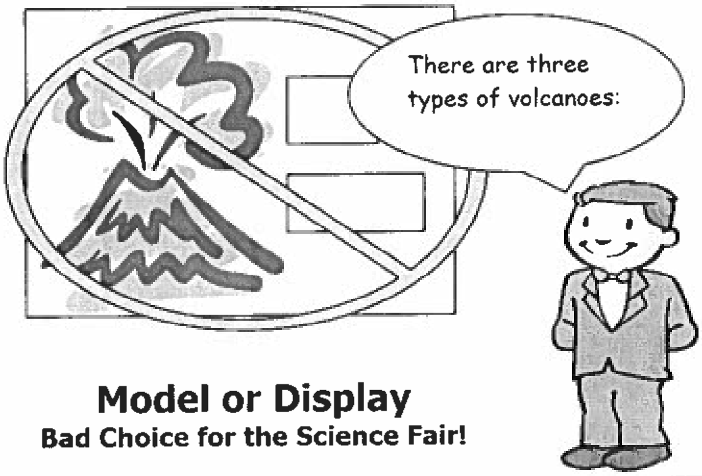
Types of Science Projects:

There are two types of science projects: Models and Experiments. Here is the difference between the two:

BORING !!!!! DON'T DO THIS……



Model or Display
Bad Choice for the Science Fair!

A Model, Display or Collection:

Shows how something works in the real world, but doesn't really test anything

Examples of display or collection projects can be: "The Solar System", "Types of Dinosaurs" , "Types of Rocks", "My gum collection..." Examples of models might be: "The solar system" or "How an Electric Motor Works", "Tornado in a Bottle"

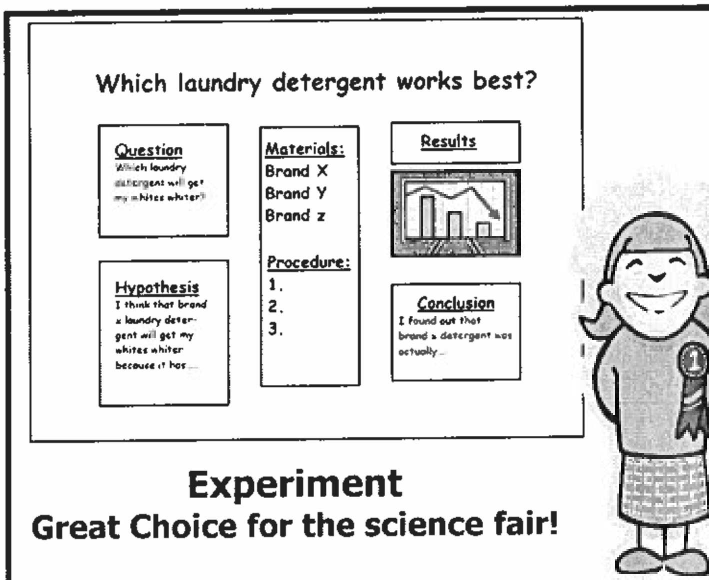
COOL!!!!! DO THIS

An Experiment:

Lots of information is given, **but it also has a project that shows testing being done and the gathering of data.**

Examples of experiments can be: "The Effects of Detergent on the Growth of Plants", "Which Paper Towel is more Absorbant" or "What Structure can Withstand the Most Amount of Weight"

You can tell you have an experiment if you are testing something several times and changing a variable to see what will happens. We'll talk about variables later....

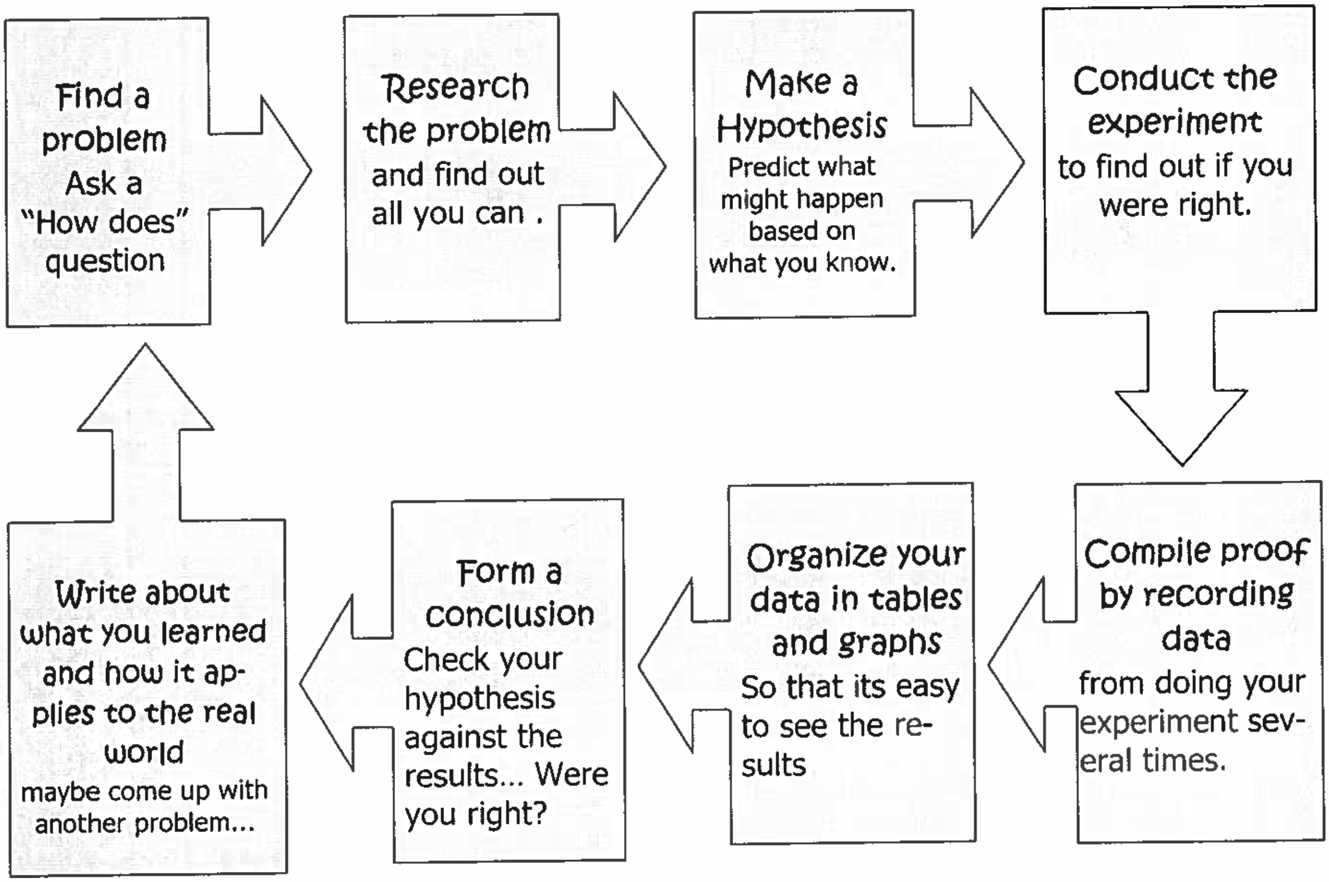


Experiment
Great Choice for the science fair!

So What Type of Project Should You Do?

Even though you can learn a lot from building a model or display, I recommend that you do an **Experiment!!!** Why? Well, they are fun, they are more interesting and most of all, they take you through the **SCIENTIFIC METHOD,** which is the way real scientists investigate in real science labs.

So what is the Scientific Method?



Choosing a category that interests you...

All Great Projects start with great questions but before you get started on a great question you need to pick a subject or topic that you like. There are three different categories of a Science Project to choose from. They are:

Life science: This category deals with all animal, plant and human body questions that you might have and want to do an experiment about. Remember not to intentionally hurt an animal during an experiment. If you are dealing with animals, please let an adult assist you. It is okay to do experiment on plants, as long as they don't belong to someone else, like don't do an experiment on your mom's rose bushes unless you ask her first...

Life science also includes studying behaviors, so it's a perfect category to try taste tests, opinion surveys, animal behavior training (or even training behavior in humans...like baby brothers or sisters...)

Physical Science: If you like trying to figure out how things work, then this is the category for you! It includes topics about matter and structure, as well as electricity, magnetism, sound, light or anything else that you might question, "How does it work and what if I do this to it, will it still work?" But remember, you always need to ask an adult first.

Physical Science also includes the composition of matter and how it reacts to each other. These are the science experiments that may have bubbling and oozing going on, like figuring out what is an acid and what is a base. It is a perfect category to try to mix things together to see what will happen. Again, if you are experimenting with possibly dangerous things, you need to recruit an adult to help you out.

Earth and Space Sciences: This category is really awesome because it covers all sorts of topics that deal with the Earth or objects in space. This includes studying weather, Geology (which is the study of everything that makes up the Earth, like rocks, fossils, volcanoes, etc..), and the study of all that is in space, including the stars, our sun and our planets. Unfortunately this topic is also where most kids mess up and do a collection or model project instead of an "Experiment," so be careful!!! (Models are ok so that you can explain your project, but an experiment is required).

Now It's Your Turn:

Write down your favorite Science Project Category and what it is you want to learn more about:

My favorite Category is ____

(Life Science, Physical Science, Earth and Space Science)

I want to do an experiment involving

____

____

____

Step 1: Coming up with a Good Question…

Now that you have picked out a topic that you like and that you are interested in, it's time to write a question or identify a problem within that topic. To give you an idea of what I mean you can start off by filling in the question blanks with the following list of words:

The Effect Question:

What is the effect of _______________ on ____________________?

sunlight	on the growth of plants
eye color	pupil dilation
brands of soda	a piece of meat
temperature	the size of a balloon
oil	a ramp

The How Does Affect Question:

How does the ___________________ affect ___________________?

color of light	the growth of plants
humidity	the growth of fungi
color of a material	its absorption of heat

The Which/What and Verb Question

Which/What ____________________ (verb) ______________________?

paper towel	is	most absorbent
foods	do	meal worms prefer
detergent	makes	the most bubbles
paper towel	is	strongest
peanut butter	tastes	the best

Now its your turn:

Create your Science Project question using either the "Effect Question", the "How does Affect Question" or the "Which/What and Verb Question":

____

____

____

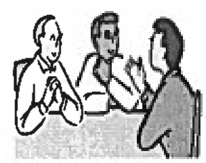
Step 2: Doing the Research and forming a Hypothesis

So you've picked your category and you've chosen a topic. You even wrote a question using the cool fill in the blank template. Now it is time to research your problem as much as possible. Becoming an expert at your topic is what real scientists do in real labs.

So how do you become an expert? 

<u>YOU READ!!!!</u>
READ about your topic. RESEARCH!!! READ magazine articles and books from the library. READ articles from the internet. Take note of any new science words you learn and use them. It makes you sound more like a real scientist. Keep track of all the books and articles you read. You'll need that list for later.

<u>YOU DISCUSS!!</u>
Talk about it with your parents. Talk about it with your teachers. Talk about it with experts like Veterinarians, Doctors, Weathermen or others who work with the things you are studying. Sometimes websites will give you e-mail addresses to experts who can answer questions.... <u>But again, do not write to anyone on the internet without letting an adult supervise it.</u> (*hint: take pictures of yourself interviewing people)



OK...

Then when you think that you can't possibly learn anymore and the information just keeps repeating itself, you are ready to...

Write a Hypothesis 

Now it is the time to PREDICT what you think will happen if you test your problem. This type of "SMART GUESS" or PREDICTION is what real scientists call A HYPOTHESIS. Using this fancy word will amaze your friends and will have you thinking like a full-fledged scientist.

So how do you begin? Well, just answer this very simple question:

What do you think will happen, (even before you start your experiment)?

Example Problem:	Which Paper Towel is more absorbent?
Example Hypothesis:	I think Brand X will be more absorbent because it's a more popular brand, or it is thicker and the people I interviewed said that the more expensive brands would work better

(This hypothesis not only predicts what will happen in the experiment, but also shows that the "Scientist" used research to back up his prediction.)

Now it's your turn:

Write down the problem and create a <u>Hypothesis</u> based on what you have researched.

Problem:____

____

Research: My problem is about this subject: ____________________

(sample topics could be magnetism, electricity, buoyancy, absorbency, taste, plant growth, simple machines or other scientific topics that relate to your problem. If you are having problems finding out what the topic is, ask your teacher or an adult to help you on this one....)

Books I found in the library on my topic are:

Title: Author:

____

____

____

Internet sites that I found on my topic are:

____

____

____

People I talked to about my topic are:

____

____

____

Some important points that I learned about my topic are

- ____________________________________
- ____________________________________
- ____________________________________
- ____________________________________

Hypothesis: I think that ____________________________________

(will happen) because (my research shows...)________________________

____

____

____

Step 3: Testing your Hypothesis by doing an experiment

Now we've come to the good part. The part that all scientists can't wait to get their little hands on... you guessed it... The EXPERIMENT!

Designing an experiment is really cool because you get to use your imagination to come up with a test for your problem, and most of all, you get to accept (or reject) your hypothesis. **Be sure to take a few pictures as you go through your experiment.**

First: **Gather up your materials**: What will you need to perform your experiment? The safest way to do this is get the adult you recruited to help you get the stuff you need. Oh, did I mention to take pictures or draw pictures of your materials. This will come in handy when you are making your board display.

Second: **Write a PROCEDURE.** A procedure is a list of steps that you did to perform an experiment. Why do you need to write it down? Well it's like giving someone a recipe to your favorite dish. If they want to try it, they can follow your steps to test if it's true. Scientists do this so that people will believe that they did the experiment and also to let other people test what they found out.

Third: **Identify your variables.** The variables are any factors that can change in an experiment. Remember that when you are testing your experiment you should only **test one variable at a time** in order to get accurate results. In other words, if you want to test the affect that water has on plant growth, then all the plants you test should be in the same conditions, these are called **controlled variables:** same type of dirt, same type of plant, same type of location, same amount of sunlight, etc. The only variable you would change from plant to plant would be the amount of water it received. This is called the **independent or manipulated variable.** The independent variable is the factor you are testing. The results of the test that you do are called the **dependent or responding variables.** The responding variable is what happens as a result of your test. Knowing what your variables are is very important because if you don't know them you won't be able to collect your data or read your results. **If you have any questions about the variables, please ask me.**

Fourth: **TEST, TEST, TEST.** Remember you want your results to be consistent in order for it to be a good experiment, in other words, when you cook from a recipe you expect the outcomes to be the same if you followed the directions (or procedure) step by step. So that means you need to do the experiment more than once in order to test it properly. I recommend 2 or 3 times. More is better! Don't forget to take pictures of the science project being done and the results.

Fifth: **Collect your DATA.** This means write down or record the results of the experiment every time you test it. Be sure you also organize it in a way that it is easy to read the results. Most scientists use tables, graphs and other organizers to show their results. **(THINK ABOUT THE 2 PROJECTS I SHOWED YOU IN THE CLASS).** Organizing makes the results easy to read, and much easier to recognize patterns that might be occurring in your results. But don't make a graph or table because i asked you to, use it to benefit your project and to help you make sense of the results. There is nothing worse than having graphs and tables that have nothing to do with answering the question of a science project.

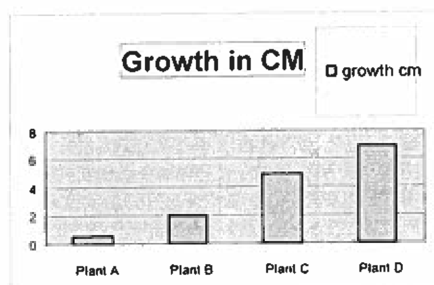
Time out: How Do You Collect Data?!!?

- **Keep a science journal:** A science journal is a type of science diary that you can keep especially if your experiment is taking place over a long period of time. I suggest you do that if your experiment is over a period of a week or more. In your journal you can record observations, collect research, draw and diagram pictures and jot down any additional questions you might have for later.
- **Have the right tools to do the job:** Make sure you have the stuff you need to take accurate measurements like rulers, meter tapes, thermometers, graduated cylinders or measuring cups that measure volume. The recommended standard of measurement in science is metric so if you can keep your measurements in meters, liters, Celsius, grams, etc..., you are doing great!

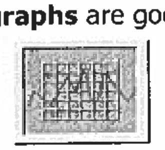
Plant	**Amount of water per day**	**Size it grew in two weeks**
(controlled variable)	(independent variable)	(responding variable)
Plant A	none	.5 cm
Plant B	5 ml	2 cm
Plant C	10 ml	5 cm
Plant D	20 ml	7 cm

- **Tables, charts and diagrams** are generally the way a good scientist like you would keep track of your experiment trials. Remember you are testing several times!
- A table is organized in columns and rows and **ALWAYS** has labels or headings telling what the columns or rows mean. You will probably need a row for every time you did the experiment and a column telling what the independent variable was (what you tested) and the responding variable (the result that happened because of the independent variable)
- **Be accurate and neat!** When you are writing your tables and charts please make sure that you record your data in the correct column or row, that you write neatly, and most of all that you record your data as soon as you collect it **SO YOU DON'T FORGET WHAT HAPPENED!!!!** Sometimes an experiment might be hard to explain with just a table, so if you have to draw and label a diagram (or picture) to explain what happened, it is recommended that you do.
- **Use the right graph for your experiment**. There is nothing worse than a bad graph. There are all types of graph designs, but these seem to be easy to use for science fair experiments.
- **Pie graphs** are good to use if you are showing percentages of groups. Remember that you can't have more than 100% and all the pieces need to add up to 100%. This type of graph is great if you are doing surveys

- **Bar graphs** are good to use if you are comparing amounts of things because the bars show those amounts in an easy to read way. Usually the bars go up and down. The x axis (or horizontal axis) is where you label what is being measured, (like plant A, B, C and D) and the y axis (or vertical axis) is labeled to show the unit being measured (in this case it would be centimeters that the plant grew)



- **Line graphs** are good to use if you are showing how changes occurred in your experiments over time. In this particular case you would be using the x axis to show the time increments (minutes, hours, days, weeks, months) and then you would use the Y axis to show what you were measuring at that point in time.



Sixth: **Write a Conclusion:** Tell what happened. Was your hypothesis right or wrong or neither? Were you successful, did it turn out okay? Would you change anything about the experiment or are you curious about something else now that you've completed your experiment. **TELL WHAT YOU LEARNED FROM DOING THIS EXPERIMENT.**

Seventh: Understand its Application. Write about how this experiment can be used in a real life situation. Why was it important to know about it?

Now it's your turn

Materials: (take pictures!)

List the Materials that you will need for your science experiment here:

1. ____________________
2. ____________________
3. ____________________
4. ____________________
5. ____________________
6. ____________________
7. ____________________
8. ____________________
9. ____________________
10. ____________________

Variables:

List the variables that you will control, the variable that you will change and the variables that will be the results of your experiment:

My controlled variables are (the stuff that will always stay the same): ____________________

____

____

My independent variable is (this is the thing that changes from one experiment to the next, it is what you are testing): ____________________

My responding variables might be (in other words, the results of the experiment)

Procedure: **(the steps.... Don't forget to take pictures)**

List the steps that you have to do in order to perform the experiment here:

1st.... ____

2nd ____

3rd ____

4th ____

5th.... ____

____

____

____

Design a table or chart here to collect your information

(Did I mention that you needed to take pictures of you doing the actual experiment?)

Use the Graph paper at the end of this booklet to make a graph of your results from your table.

Conclusion:

Now tell what you learned from this and if you were able to prove your hypothesis. Did it work? Why did it work or why didn't it work? Accept or reject? What did the results tell you? Sometimes not being able to prove a hypothesis is important because you still proved something. What did you prove?

____

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Application:

(How does this apply to real life?)
It's important to know about this experiment because......

____

____

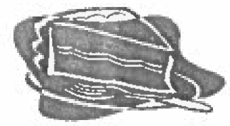
____

____

Step 4: The Presentation & why you needed those pictures....

But first, a school fable....

Sammy and Sally both baked cakes for the bake sale with the same cake mix and by following the same directions. When Sammy got his cake out of the oven, he carefully took it out of the pan, smoothed the chocolate frosting neatly and decorated his cake so that it looked delicious. Sally on the other hand, smashed her cake slightly when getting it out of the pan and globbed the frosting on parts of the cake. As you may have already guessed, everyone wanted some of Sammy's cake and no one wanted Sally's. Sally couldn't figure out why, because she tasted both and they both tasted the same...



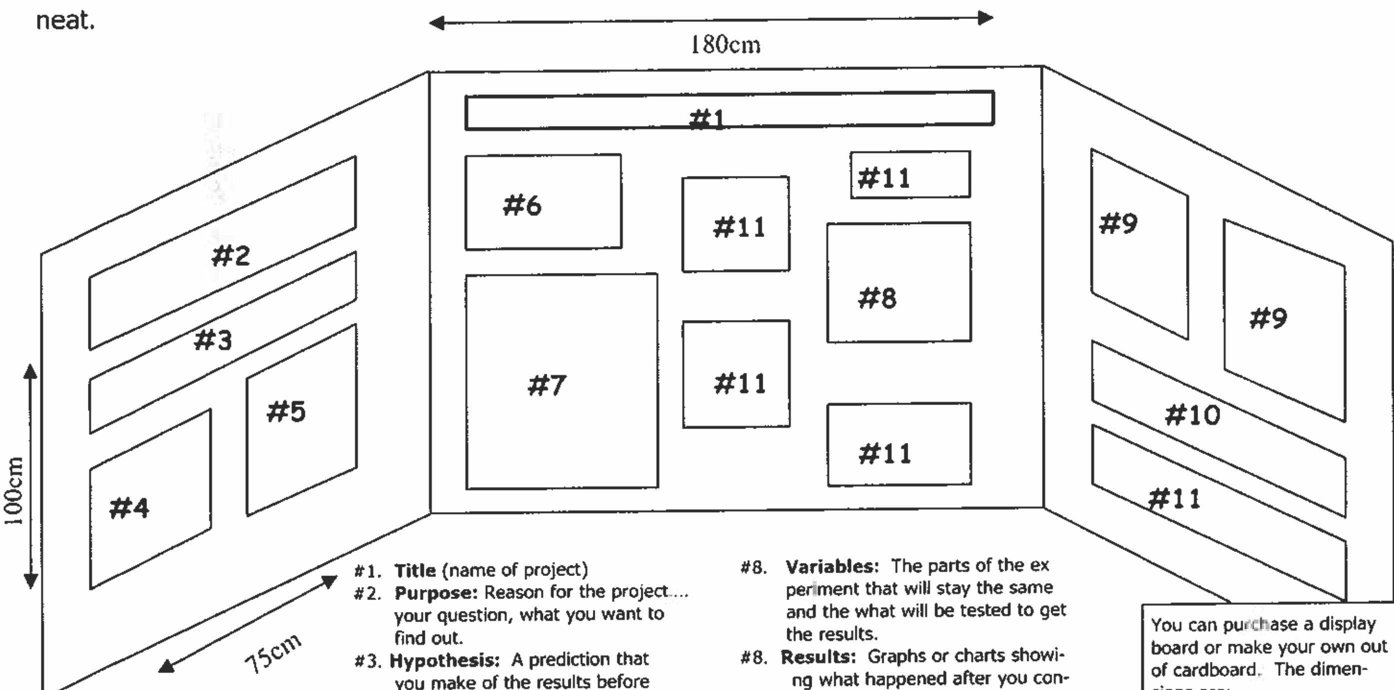
A good display is like a piece of cake

You may have become the leading expert of your topic and have the most interesting experiment results, but if you don't make your science project look good, well, your chances of doing well will crumble like Sally's cake. Your display board is kind of like an advertisement for all your hard work. So take my advice:

BE NEAT!! Have an easy to read display that has neat writing, easy to read graphs and tables and you guessed it.... Pictures!! pictures!! (Did you remember to take pictures?)

MAKING A MOUTH WATERING DISPLAY

This is an example of a neat looking Science Display Board. It is just an example. Depending on your information and the amount pictures, tables and graphs, you may have a different layout. Just make sure it is neat.



#1. **Title** (name of project)
#2. **Purpose:** Reason for the project.... your question, what you want to find out.
#3. **Hypothesis:** A prediction that you make of the results before conducting the experiment.
#4. **A report** of your research on the subject.
#5. **Books and Resources:** A list of the books you read and websites you used. Also list your inter views.
#6. **Materials:** a list of the supplies needed for the experiment.
#7 **Procedure:** The steps or directions that you used to conduct the experiment.
#8. **Variables:** The parts of the ex periment that will stay the same and the what will be tested to get the results.
#8. **Results:** Graphs or charts showing what happened after you conducted your experiment.
#9. **Conclusion:** Telling what happened.. Did it work, were you right about the hypothesis? What did you learn?
#10. **Application:** Explain how your experiment relates to the real world.
#11. **Pictures,** pictures and more pictures...

You can purchase a display board or make your own out of cardboard. The dimensions are:

Height: 100 CM

Length: 180 CM

Depth: 75 CM

It has to be able to stand on its own

* Note: A regular tri-fold board (36 x 48) will be accepted.

2019 – 2020 SCIENCE FAIR JUDGING RUBRIC

Title of Project ____

Student Name & Number ______________________________________

Teacher ____

<table>
<tr><th>Science Projects</th><th>Engineering Projects</th></tr>
<tr><td>I. Research Question (10 pts.)
• Clear and focused purpose (4pts)
• Testable using scientific methods (4pts)
• Identifies contribution to field of study (2pt)</td><td>I. Research Problem (10 pts.)
• Description of a practical need or problem to be solved (4pts)
• Definition of criteria for proposed solution (4pts)
• Explanation of constraints (2pt)</td></tr>
<tr><td>II. Design and Methodology (15 pts.)
• Well-designed plan and data collection methods (10pts)
• Variables and controls defined, appropriate and complete (5pts)</td><td>II. Design & Methodology (15 pts.)
• Exploration of alternatives to answer need or problem (5pts)
• Identification of a solution (5pts)
• Development of a prototype/model (5pts)</td></tr>
<tr><td>III. Execution: Data Collection, Analysis & Interpretation (20 pts.)
• Systematic data collection and analysis (15pts)
• Sufficient data collected to support interpretation and conclusions (5pts)</td><td>III. Execution: Construction & Testing (20 pts)
• Prototype matches intended design (5pts)
• Prototype has been tested in multiple conditions/trials (5pts)
• Prototype demonstrates engineering skill and completeness (10pts)</td></tr>
<tr><td colspan="2">IV. Creativity (20 pts.)
• Project demonstrates creativity/originality/inventiveness in one of the above criteria (20 pts)</td></tr>
<tr><td colspan="2">V. Presentation (35 pts.)
Tri-Fold Poster Board (10 pts.)
• Logical organization of material (4pts)
• Clarity of graphics and legends (3pts)
• Supporting documentation well selected and displayed (3pts)
Interview (25 pts.)
• Clear, concise, thoughtful responses to questions (5pts)
• Understanding of basic science relevant to project (5pts)
• Understanding of interpretation and limitations of results and conclusions (5pts)
• Degree of independence in conducting project (5pts)
• Quality of ideas for further research (5pts)</td></tr>
</table>

Rater: __________

Total Points: __________

Science Project Rules and Regulations

You mean there are rules? Of course there are!!!

Safety Rules First

1. Number one rule... think safety first before you start. Make sure you have recruited an adult 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. Do not perform an experiment that will harm an animal.
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 or animals.
8. Dispose waste properly.
9. Any project that involves explosives is not permitted.
10. Any project 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 sharp tools 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 Project Rules

1. Adults can help, in fact we want them to get involved. They can help gather materials, supervise your experiment and even help build the display.
2. Experiments are recommended over collections and models. You will not score very high unless you do an experiment, so save the models and collections for a class project. You will be scored on the use of the Scientific Method (I told you that on page 2.)
3. You cannot bring the materials of your experiment for the display or perform the experiment live. You will only be scored on your presentation and board. You can however, mount things on your board in a type of 3D display, but remember that your board has to be able to stand by itself, so don't get carried away. If you do mount things on the board, try not to mount something expensive that you bought and make sure you have things mounted securely so they don't fall off. YOU MAY NOT MOUNT ANY FOOD OR ORGANIC MATERIALS!
4. Displays must be on display boards or can be made with cardboard. They can be no longer than 100cm in height, 180 cm in length and 75cm deep. They must stand alone. See the display making page if you need a diagram.
5. No recording or transmitting devices are permitted. (no tape recorders or secret walkie talkies, cell phones or other James Bond toys.)

If you completed everything in this packet you probably have a terrific science project, and you are now a real scientist! Good Job!
But...

If you still need more ideas, here is a list websites that you can check out about science projects to give you even more ideas.

Websites

Internet Public Library
http://www.ipl.org/div/kidspace/projectguide/ Are you looking for some help with a science fair project? If so, then you have come to the right place. The IPL will guide you to a variety of web site resources, leading you through the necessary steps to successfully complete a science experiment. (*Note: site will indicate closed, but still open for research!)

Discovery.com: Science Fair Central
http://school.discovery.com/sciencefaircentral/ "Creative investigations into the real world." This site provides a complete guide to science fair projects. Check out the 'Handbook' which features information from Janice VanCleave, a popular author who provides everything you need to know for success. You can even send her a question about your project.

Science Project Idea Exchange
http://www.halcyon.com/sciclub/cgi-pvt/scifair/guestbook.html
This site has lists of science fair project ideas and a chance to share your ideas with others on the web!

Cyber-Fair
http://www.ipl.org/div/projectguide/choosingatopic.html
This site has one-sentence explanations of each part of a science project. The site also has an explanation of what makes a good project and an explanation of how to come up with your own science fair project.

Science Kids
http://www.sciencekids.co.nz/projects.html
Find a wide range of science fair projects for kids as well as ideas that will help challenge and guide children through whatever subject they investigate.

Science Project Ideas
Simply a list of ideas for you to choose from!
https://sciencebob.com/science-fair-ideas/ideas/

Science Fair Project Ideas (A great site!) There tons of ideas here! (one of my favorite sites!)
http://www.education.com/science-fair/

The Yuckiest Site in the Internet
http://yucky.kids.discovery.com/

Science Fair Primer
http://users.rcn.com/tedrowan/primer.html A site to help students get started and run a science fair project.

Science Fair Adventure
http://www.sciencefairadventure.com/
Science fair projects, science fair ideas, and science experiments at Science Fair Adventure, where we make science fun! (Step-by-step procedures!)

Science Buddies
http://www.sciencebuddies.org/
Hands-on science resources for home & school

What Makes A Good Science Fair Project
http://www.usc.edu/CSSF/Resources/Good_Project.html A website from USC that gives a lot of good tips and ideas to think about regarding what makes a good science fair project. Advice for students as well as teachers and parents is included.

Project Categories and Subcategories

ANIMAL SCIENCES
- Animal Behavior
- Cellular Studies
- Development
- Ecology
- Genetics
- Nutrition & Growth
- Physiology
- Systematics & Evolution

BEHAVIORAL & SOCIAL SCIENCES
- Clinical and Developmental Psychology
- Cognitive Psychology
- Physiological Psychology
- Sociology & Social Psychology

BIOCHEMISTRY
- Analytical Biochemistry
- General Biochemistry
- Medicinal Biochemistry
- Structural Biochemistry

BIOMEDICAL & HEALTH SCIENCES
- Disease Diagnosis
- Disease Treatment
- Drug Development & Testing
- Epidemiology
- Nutrition
- Physiology & Pathology

BIOMEDICAL ENGINEERING
- Biomaterials & Regenerative Medicine
- Biomechanics
- Biomedical Devices
- Biomedical Imaging
- Cell and Tissue Engineering
- Synthetic Biology

CELLULAR & MOLECULAR BIOLOGY
- Cell Physiology
- Genetics
- Immunology
- Molecular Biology
- Neurobiology

CHEMISTRY (CH)
- Analytical Chemistry
- Computational Chemistry
- Environmental Chemistry
- Inorganic Chemistry
- Materials Chemistry
- Organic Chemistry
- Physical Chemistry

COMPUTATIONAL BIOLOGY & BIOINFORMATICS
- Biomedical Engineering
- Computational Pharmacology
- Computational Biomodeling
- Computational Evolutionary Biology
- Computational Neuroscience
- Genomics

EARTH & ENVIRONMENTAL SCIENCES
- Atmospheric Science
- Climate Science
- Environmental Effects on Ecosystems
- Geosciences
- Water Science

EMBEDDED SYSTEMS
- Circuits
- Internet of Things
- Microcontrollers
- Network & Data Communications
- Optics
- Sensors
- Signal Processing

ENERGY: CHEMICAL
- Alternative Fuels
- Computational Energy Science
- Fossil Fuel Energy
- Fuel Cells and Battery Development
- Microbial Fuel Cells
- Solar Materials

ENERGY: PHYSICAL
- Hydro Power
- Nuclear Power
- Solar
- Sustainable Design
- Thermal Power
- Wind

ENGINEERING MECHANICS
- Aerospace & Aeronautical Engineering
- Civil Engineering
- Computational Mechanics
- Control Theory
- Ground Vehicle Systems
- Industrial Engineering-Processing
- Mechanical Engineering
- Naval Systems

ENVIRONMENTAL ENGINEERING
- Bioremediation
- Land Reclamation
- Pollution Control
- Recycling, Waste Management
- Water Resources Management

MATERIALS SCIENCE
- Biomaterials
- Ceramics & Glasses
- Composite Materials
- Computation & Theory
- Electronic, Optical & Magnetic Materials

MATHEMATICS
- Algebra
- Analysis
- Combinatorics, Graph Theory, and Game Theory
- Geometry and Topology
- Number Theory
- Probability and Statistics

MICROBIOLOGY
- Antimicrobials & Antibiotics
- Applied Microbiology
- Bacteriology
- Environmental Microbiology
- Microbial Genetics
- Virology

PHYSICS AND ASTRONOMY (PH)
- Astronomy and Cosmology

- Atomic, Molecular, and Optical Physics
- Biological Physics
- Computational Physics & Astrophysics
- Condensed Matter & Materials
- Instrumentation
- Magnetics, Electromagnetics, & Plasmas
- Mechanics
- Nuclear & Particle Physics
- Optics, Lasers, Masers
- Quantum Computation
- Theoretical Physics

PLANT SCIENCES

- Agronomy
- Development & Growth
- Ecology
- Genetics/Breeding
- Pathology
- Physiology
- Systematics & Evolution

ROBOTICS & INTELLIGENT MACHINES

- Biomechanics
- Cognitive Systems
- Control Theory
- Machine Learning
- Robot Kinematics

SYSTEMS SOFTWARE

- Algorithms
- Cyber Security
- Databases
- Operating Systems
- Programming Languages

TRANSLATIONAL MEDICAL SCIENCE

- Disease Detection and Diagnosis
- Disease Prevention
- Disease Treatment and Therapies
- Drug Identification and Testing
- Pre-Clinical Studies

* *All Categories can include other as a subcategory

THE FOLLOWING ITEMS ARE NOT ALLOWED AT PROJECTS

NOT ALLOWED PER SAFETY REGULATIONS

- **Living or dead organisms**, including fungi, animals, plants and microorganisms
- **Taxidermy specimens, parts, pelts**
- **Preserved vertebrate or invertebrate animals** or animal parts, including cells
- Human or animal **food** of any kind
- Human or animal **parts or body fluids** (including bones, urine, bloodstains)
- **Plant materials** including potpourri, grain, birdseed, spices, leaves, flowers, logs, branches, etc. Plastic or other inorganic replicas or photographs should be used instead. (Exception: manufactured construction materials used in building the project or display)
- **Soil, sand, rock, minerals, or waste** samples, even if fully encased in acrylic
- **All chemicals**, including water.
- **All liquids, gels, powders, and creams**, such as shampoo, sunscreen, salt, soap, agar, etc.
- **Dry ice** or other sublimating solids
- **Hazardous substances or devices**, including poisons, drugs, firearms, weapons, martial arts weapons, ammunition, etc.
- **Sharp items**, including syringes, needles, pipettes, nails, knives
- **Flames or highly flammable materials**
- **Glass** or glass objects unless deemed by the Display & Safety Committee to be an integral and necessary part of the project (e.g., glass that is an integral part of a computer screen)
- **Hammering, pinching, or pounding devices** that are not fully immobilized, pulleys or hinges with pinch points, etc.
- **Batteries** with open-top cells, **Drones, or 3-D Printers**
- Any apparatus or item deemed unsafe by any member of the SRC, the Display & Safety committee, judges, or the GSEF staff (e.g., vacuum tubes or dangerous ray-generating devices, pressurized or empty tanks that previously contained combustibles, etc.)

NOT ALLOWED PER DISPLAY REGULATIONS

- **Acknowledgments**, endorsements, thanks.
- **Awards**, medals, flags, logos (including school and university logos).
- **Give-away items** such as flyers, pens, postcards, CDs, business cards, etc. You may give out unaltered copies of your Official Abstract Form.
- **Contact information** of any finalist or their school: email or postal address, social media address, QR code, telephone, business card, fax number, or contact URL (URLs used solely to cite the sources of photos are permitted).
- **Active Internet** or email connections.
- For Continuation projects, no prior years' written material or visual depictions on the display board. However, previous years' logbooks and binders may be on the table if desired and if clearly marked, e.g. "Year I." The project title should mention which year the project is, e.g., "Year Two".