Title Page

SAMPLE SCIENCE FAIR NOTEBOOK

(10 words or fewer for your project title)

These students are all looking at a winning project notebook!

A picture that in some way represents your project, placed on the front of your notebook, is always a nice touch, but is not absolutely necessary.

Wendy Gay, Teacher/Librarian, Retired, SDUSD, and Secretary, GSDSEF compiled this sample notebook.
wendy@gsdsef.org
Last updated: August, 2011

Copies may made of this notebook:
http://www.gsdsef.org/GeneralInfo/ScienceNotebookEx.pdf

A Word About Choosing a Science Fair Project Topic

Questions to ask yourself:

1. What thing(s) am I most interested in? Food? Baseball? Gardening? Pets? Chemistry? Computers? Skateboarding? Etc. What am I "passionate" about?

2. What part of this topic would really attract you?

For ideas:

Browse through your school library AND your public library
http://www.sandiego.gov/public-library/
Also see pages 15-16 of this sample notebook.

Look in newspapers (especially the *Science* section (section A) in the Monday edition of *The San Diego Union Tribune.)*

Look in magazines such as *Science News, Popular Science, Scientific American*, etc.

Talk to people - - your parents, teachers, friends, neighbors, grandparents…for ideas, and be sure to visit the *Greater San Diego Science & Engineering Fair* website at:

http://www.gsdsef.org

And try:

http://www.sciencebuddies.org/

Feel free to e-mail any questions to Phil Gay at phil@gsdsef.org or Wendy Gay at wendy@gsdsef.org or Paul Pakus at paul@gsdsef.org

Project Proposal and Signature Form (GSDSEF-1, 2012)

This form is available on the GSDSEF website:

http://www.gsdsef.org/2012/proposal2012

A SAMPLE of this form appears on the following two pages. It should be filled in on line, and printed. You may also print it and then fill it in by hand. Either way you MUST complete this form and obtain the requested signatures, before you start your project. Insert the completed copy in the front of your notebook before your screening fair.

GREATER SAN DIEGO SCIENCE & ENGINEERING FAIR (GSDSEF)

PROJECT PROPOSAL/SIGNATURE* FORM (GSDSEF-1, 2012)

This form must be completed and signed prior to starting project work. It must be placed in the student's notebook with an ABSTRACT OF THE PROJECT for the GSDSEF Screening Fair.

1. Project Title_____

Is this a continuation of a previous project? ❒ **Yes** ❒ **No**

2. STUDENT'S NAME (Last, First, Middle)_____

2a. Partner's Name (for Senior Division 2 person projects only) _____

EACH SENIOR DIVISION PARTNER MUST SUBMIT A SEPARATE PROJECT PROPOSAL FORM.

3. Address, City, Zip_____

4. Phone_____**email**_____

5. School_____**Grade**_____

6.Teacher_____

7, This project involves (check all that apply):

- ❒ **Live Vertebrate Animals** (GSDSEF-2, 2012)
- ❒ **Humans as subjects, helpers, or interviewees** (GSDSEF-3, 2012)
- ❒ **Hazardous Substances (anything that could cause injury)** (GSDSEF-4, 2012)
  - ❒ **Chemicals**
  - ❒ **Infectious Agents**
  - ❒ **Bacteria, Fungi and/or Molds**
  - ❒ **Mutagenic Agents**
  - ❒ **Carcinogenic Agents**
  - ❒ **Teratogenic Agents**
- ❒ **Human or Other VertebrateTissue**(GSDSEF-5,

8. WHERE REQUIRED (see #7 above), the following supplemental forms must be completed and included with the project proposal form (CHECK ALL THAT APPLY):

_____*Certification of Humane Treatment of Live Vertebrate Animals* (GSDSEF-2, 2012)

_____*Certification of Compliance of Research Involving Humans* (GSDSEF-3, 2012)

_____*Certification of Hazards Control* (GSDSEF-4, 2012)

_____*Certification of Vertebrate Tissue Source & Safety* (GSDSEF-5, 2012)

9. Location where experimental procedures will take place:_____

_____

10. People, companies, etc. providing equipment, materials, workspace:_____

_____

11. Describe, in 200 – 250 words, the planned project/experiment and the procedures to be used:

_____

(attach a page)

Just before the screening fair, attach a 200-250 word ABSTRACT of your project to this form.

*Continue to next page for Required Signatures

GREATER SAN DIEGO SCIENCE & ENGINEERING FAIR (GSDSEF)

PROJECT PROPOSAL/SIGNATURE FORM (GSDSEF-1, 2012)

REQUIRED SIGNATURES:

Student:

I have read the *Rules and Regulations* of the GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR and certify that my project complies with them. I understand that failure to meet the terms of these rules and regulations will result in the disqualification of my project.

SENIOR DIVISION: GSDSEF forms meet the requirements of California law; therefore, all Senior Division students agree that, should they be selected to compete at the 2012 *Intel International Science and Engineering Fair (Intel ISEF)*, when they sign all required *Intel ISEF* forms they will predate them to agree with the date on this form.

_____

Student Signature/Date

Parent/Guardian:

I am aware of all potential safety hazards connected with this project, approve the precautions being taken to ensure my student's safety and will, when appropriate, provide guidance and/or supervision. I understand that failure to comply with the *Rules And Regulations* of the GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR will result in the disqualification of the project.

_____

Parent Signature/Date

Teacher:

I approved this project prior to the student beginning work on it and verified that it complies with the *Rules And Regulations* of the GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR. Any concerns about the project's design, appropriateness, safety, or legality were submitted to the GSDSEF Scientific Review Committee (SRC) at src@gsdsef.org for approval prior to allowing the student to proceed. I understand that failure to comply with the Fair's *Rules And Regulations* will result in the disqualification of the project. I will provide all needed supervision (other than that specified on other included forms) and will ensure that this proposal and all required supplemental forms are included in the student's notebook at the screening fair. I will have the student, if invited to apply for entrance to the GSDSEF, submit all SRC requested certification forms with their *2012 Application for Entrance*.

_____

Teacher Signature/Date

Additional Advisor (if required)

When certification forms (*GSDSEF 2, 3, 4* or *5*, 2012) are signed by someone in addition to the science teacher, a signature here ensures that the procedures described on these forms will be followed.

_____

Additional Advisor Signature/Date

Timeline/Checklist

Insert Teacher assigned
Date Due
here:

_____1. **Abstract,** a brief, no more than 250 words, summary of the main points of your project, including your hypothesis, procedures, results and conclusion. THIS IS WRITTEN LAST BUT GOES IN THE FRONT OF YOUR NOTEBOOK.

_____2. **Acknowledgements,** a place for you to give credit to those who helped you with advice or supplies.

_____3. **Introduction,** a brief look at the background and goals of your research.

_____4. **Review of the Literature** (background research) this is your written report about the information you discovered when you researched your topic. 5-10 or more pages.

_____5. **Statement of the Problem or Purpose,** the question you will answer about with this project.

_____6. **Hypothesis,** an educated guess or prediction about the answer to your problem.

_____7. **Materials**, everything you used for your experiment.

_____8. **Procedures**, a step-by-step description of how you did your project.

_____9. **Findings**, also known as the DATA that you collected, the responses, reactions and results you observed.

_____10. **Conclusions**, how did your tests and experiments work out? Did your findings support or not support your hypotheses? Include a statement of what you thought of your results.

_____11. **Recommendations**, your ideas on possible uses for your findings and any additional tests which should be made. Would you do this project again, or could you continue this project another year?

_____12. **Bibliography**, an alphabetical list of at least 10 references used as you researched this project. (See page 12 of this sample notebook.)

_____13. **Appendices**, selected photos, graphs and your **Daily Log**.

_____**14. Completed Notebook and Display, ready for school fair.**

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Abstract

This is a summary of your project written AFTER ALL YOUR WORK IS COMPLETED using 200 to 250 words but no more than one page.

You do this LAST but it goes in the FRONT of your notebook.

Type your title then briefly:

State your hypothesis:

Describe your procedures:

Describe your results:

Describe your conclusions:

Your abstract is an important part of your notebook and should appear in the front of your work for all to see. You will also attach (paste) a copy of it to your display board, where screeners and judges will see it first as they begin to assess your project.

When your screening fair is completed and you have been invited to participate in the GSDSEF, you will submit a copy of your abstract with your GSDSEF on-line *Application Form*.

Acknowledgements

This is where you thank all the people who helped you. No more than a single page.

"I'd like to thank my parents, teacher(s), my librarian, for all their wonderful help and support. I would also like to thank Prof. John Smith for allowing me to use a portion of his laboratory at SDSU to run my experiments. And I give a big thank you to *Home Improvement Store* for donating the materials I needed to build my test ramp!"

Introduction

Here you tell why and how your project came to be.

In no more than a single page give a brief overview of the background and goals of your project. Why did you choose this topic, does it have social and or scientific implications in every day life, and is it manageable…will you be able to do testing?

For instance,

If you decide you want to test the properties of snow, do you live near the snow? If not, maybe you need to choose another topic.

Review of Literature

A minimum of 5 typed pages, 10+ would be better!

This is where you include a written report on the information you found when you researched your topic. This report should be double-spaced and in a readable 12 pt font. "Times" would be good.

1. An introductory paragraph.

2. The main body of your report should be written in complete paragraphs that describe what information you found in the references you looked at while researching your topic.

3. A concluding paragraph that "pulls" it all together.

REMEMBER, keep track of your sources! The old tried and true way is to use a "note card" for each source. On each "card" you list all the information you will need for your bibliography (see page 12 of this sample notebook for help with formatting a bibliography.)
Example Note cards:

Levaren, Maxine. Science Fair Projects for Dummies. New York: Wiley Publishing, Inc. 2003.

This book was a great help

Smith, John. "Skateboard Wheels." Popular Mechanics. April 1, 2004, pp. 78-82.

Not so much!

"Skateboarding Safety Tips"
www.ncs.org/Factsheets/hl/
skateboard_safety.aspx, 1995-2008

Good information/pictures

Statement of Problem or Purpose

This is where you state what "intrigued" you about your topic, or why you feel so "passionately" about it. State the problem for which you want to find an answer.

Examples:

"Half the teenagers between the ages of 13 and 18 in our country use a skateboard on a daily basis. The purpose of this project is to see if there is a way to make them safer."

Or

"Many societies use sun dried adobe bricks made of clay for building houses because it is a cheap material. The purpose of this project is to see if there is a way to make them stronger and longer lasting."

Hypothesis

NOW, based on the research paper you have written and the problem you have identified, you are ready to ask a question about your topic and to make an "educated guess" or "prediction" as to what the answer/outcome will be.

This is called your hypothesis and it goes here!

Examples:

"Based on my research on skateboard wheels I believe that Brand X wheels will allow a skateboard to stop faster than Brands A, B, C, D, E, because they are the fattest".

Or

"Based on my research on adobe building bricks, I believe that adding various binders, such as straw, hay, pine shavings, chicken wire, crushed rock or cement will strengthen them in measurable ways so the best binder can be chosen."

Materials

Every thing you used in your experiment should be listed on this page.

Example:

1. 1 skateboard
2. 6 sets of skateboard wheels
3. 1 stop watch
4. note pad
5. pencils
6. pens
7. tape measure
8. wood ramp
9. …
10. …
11. …
12. …
13. …
14. …
15. …
16. …

Procedures

On this page give a step-by-step description of how you tested your Hypothesis.

Example:

1. I assembled my materials:
   skateboard wheels
   Got out my skateboard
2. I figured out how to control the environment like light, temperature etc. (These are called variables and you need to account for as many as you can think of)
3. I began testing and recording results
4. I changed wheels after 20 trials of each set of wheels
5. …
6. …
7. …

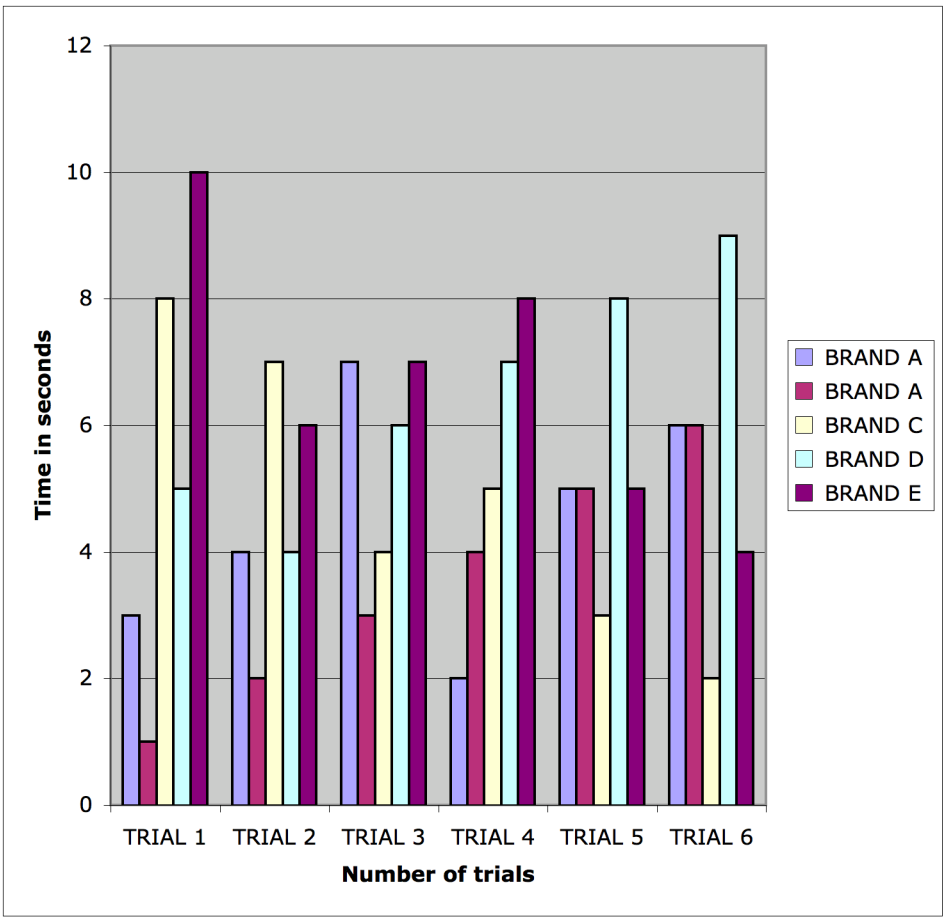
Findings

A "pretty/polished" version of the data you have collected, like responses, reactions, results you observed and recorded goes here. You may need many pages for all your findings.

Example chart and a graph:

Time trials are shown in seconds

Wheels:	TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 4	TRIAL 5	TRIAL 6
BRAND A	3	4	7	2	5	6
BRAND B	1	2	3	4	5	6
BRAND C	8	7	4	5	3	2
BRAND D	5	4	6	7	8	9
BRAND E	10	6	7	8	5	4



Conclusions

How did all your tests and experiments work out? This is where you put the answer to your hypothesis (problem, question)

Restate your Hypothesis, and then follow it with your findings:

Example:

"My hypothesis was correct/incorrect. I was surprised by…I had not anticipated…I am pleased…I am not pleased. This worked better than I expected or not. "

Recommendations

If you were to do this project over again, how would you improve it? How would you do your testing differently? Would you do more research?

1. How could you improve this project?
2. Could you extend it into a project for next year?
3. Why would you not do it again?

Bibliography

This is an alpha list of (at least 10) references including books, encyclopedias, Internet items, magazines, interviews, etc used as you researched your project. You may list any or all works you looked at even though they did not become an actual part of your project..

Samples:

A BOOK:

Author's last name, first name. Title of book. Place of publication: Publisher, copyright year.

example:

Fader, Mark. Amazing Skateboards. New York: DK Publishing, 2002, pp. 40-55.

AN ENCYCLOPEDIA ARTICLE THAT IS SIGNED:

Article author's last name, first name. "Title of article." Name of encyclopedia. Copyright year. Volume number, page(s).

example:

Clark, William W. "Gothic Art." World Book Encyclopedia. 2004. Volume 8, pp. 277-278.

AN ENCYCLOPEDIA ARTICLE THAT IS NOT SIGNED:

"Title of article." Name of encyclopedia. Copyright year. Volume number, page(s).

example:

"Golden Retriever." World Book Encyclopedia. 2003. Volume 8, p.255.

A MAGAZINE OR NEWSPAPER ARTICLE:

Article author's last name, first name. "Title or headline of article." Name of magazine or newspaper. Date of magazine or newspaper, page(s).

example:

Moore, John. "Skateboard Wheels." Popular Mechanics. April 1, 2003, pp. 27-30.

AN INTERNET ADDRESS:

Author(s)."Article Title." Name of web site. Date of posting. Name of institution/organization affiliated with site. Date of access <electronic address>. *example:*

Poland, Dave. "The Hot Button." Roughcut. October 26. 1998. Turner Network Television. October 30, 1998 <http://www.roughcut.com>.

OTHER MEDIA:

Title of material. Type of material. Place of publication: Publisher, copyright date

examples:

"Baldwin's Music." Videotape. New York: Sony Wonder, 1999.

"World War II." Encarta. CD-ROM. Seattle: Microsoft, 1999

.

AN INTERVIEW:

Name of person interviewed (last name first). Type of interview. Date.

example:

Yancey, Cindy. Personal interview. June 19, 2003.

Your finished bibliography should be alphabetized by the first word of each entry, and will look something like this:

"Baldwin's Music." Videotape. New York: Sony Wonder, 1999.

Crawford, Mary B. "Mexican Art." World Book Encyclopedia. 2004. Volume 8, pp. 284-286.

Fader, Mark. Amazing Skateboards. New York: DK Publishing, 2002, pp. 50-55.

"Golden Retriever." World Book Encyclopedia. 2004. Volume 8, p.255.

Moore, John. "Skateboard Wheels." Popular Mechanics. April 1, 2003, pp. 27-30.

Poland, Dave. "The Hot Button." Roughcut. October 26. 1998. Turner Network Television. October 30, 1998 <http://www.roughcut.com>.

"World War II." Encarta. CD-ROM. Seattle: Microsoft, 1999.

Yancey, Cindy. Personal interview. June 19, 2003.

More bibliography help:

Are you looking for an automatic bibliography maker? Try:
easy bib.com

For more information on writing bibliographies see:
http://www.bialik.netaxis.qc.ca/homework/stylesheet2.htm

For more than you ever thought you would need to know about writing a bibliography and a research paper see:
http://owl.english.purdue.edu/handouts/research/rmla.html

Appendices

This is where you put all of your notes, logs, graphs, pictures, etc.

Place things in an organized manner and use as many pages as you need.

Be SURE to KEEP your ORIGINAL RAW DATA SHEETS (do not re-copy them!) and include them as part of your Appendices, or in a separate lab book with your display. They are VERY IMPORTANT because they show your original findings.

BACKGROUND RESEARCH AT THE PUBLIC LIBRARY (SDPL)

Science & Industry, Government Publications Department, San Diego Public Library.

BOOKS

In addition to books specifically on the subject of your project, like ***soap, heat, air pressure*** or ***enzymes,*** encyclopedias and other reference books provide general background information for your experiment or project. Textbooks are also a good source of background information, so are encyclopedias. Here are a few recent reference titles:

Biology. Macmillan Reference USA, 2002. R570/BIOLOGY
Chemistry : foundations and applications. Macmillan Reference USA, 2004. R540.3/CHEMISTRY
Encyclopedia of microbiology. Academic Press, 2000- R579.03/ENCYCLOPEDIA
Kirk-Othmer encyclopedia of chemical technology. Wiley-Interscience, 2004- R660.03/KIRK
McGraw-Hill encyclopedia of science & technology. McGraw-Hill, 2002. R503/MCGRAW
Macmillan encyclopedia of weather. Macmillan Reference USA, 2001. R551.503/STEIN
The new book of popular science. Grolier, 2004. R500/NEW
Plant sciences. Macmillan Reference USA, 2001. R580/PLANT
World of microbiology and immunology. Gale, 2003. R579.03/WORLD
World of physics. Gale Group, 2001. R530.03/WORLD

MAGAZINE ARTICLES

Science Fulltext Select, a database of full-text articles from over 300 science journals, is available for searching at the Central Library. Additional databases with full text articles in many fields which are available for searching at branch libraries and from home for SDPL cardholders include **MasterFILE Premier** and **Academic Search Elite.**
You may search these databases by subject or keyword.

CHOOSING AND DOING A SCIENCE FAIR PROJECT/EXPERIMENT

Here is a sample of books on science fair projects:
The complete idiot's guide to science fair projects. Alpha Books, 2003. 507.8/O'LEARY
Design and analysis of experiments. Wiley, 2001. 001.434/MONTGOMERY
How to make your science project scientific. Wiley, 2002. 507.8/MOORMAN
Janice VanCleave's A+ science fair projects. Wiley, 2003 507.8/VANCLEAVE
Janice VanCleave's A+ science fair workbook and project journal. Wiley, 2003. 507.8/VANCLEAVE

Janice VanCleave's help! my science project is due tomorrow! : easy experiments you can do overnight. Wiley, 2002. 507.8/VANCLEAVE
More award-winning science fair projects. Wiley c2004. 507.8/BOCHINSKI
100 award-winning science fair projects. Sterling, 2001. 507.8/VECCHIONE
Science experiments on file: experiments, demonstrations, and projects for school and home. Facts on File, 2000. 507.8/SCIENCE
Science experiments index for young people. Libraries Unlimited, 2002. 507.8016/PILGER (**2005 edition on order)**
Science fair projects for dummies. Wiley, 2003. 507.8/LEVAREN
Science project ideas in the house. Enslow, 2002. 507.8/GARDNER
Strategies for winning science fair projects. Wiley, 2002. 507.8/HENDERSON
Using statistics in science projects, Internet enhanced. Enslow c2002. 507.8/KRIEGER

WEB SITES
Internet Public Library: Science Fair Project Resource Guide
A variety of web site resources, leading you through the necessary steps to successfully choose and complete a science experiment. Has links to resources and several "ask an expert" web sites.
http://www.ipl.org/div/projectguide/
California State Science Fair
Lots of resources about and for science fair projects, general and by subject, links to other science fairs sites, history of previous science fairs, and more. The final science fair of the academic year for students throughout the State of California in grades 7 - 12. Includes the results for previous California State Science Fairs.
http://www.usc.edu/CSSF/
Science Fair Central
DiscoverySchool.com has ideas and projects for kids, and tips and help for teachers and parents.
http://school.discovery.com/sciencefaircentral/
Science News for Kids
From the makers of the weekly magazine, Science News, comes a kid-friendly site devoted to a variety of science topics, puzzles, games, and science fair suggestions.
http://www.sciencenewsforkids.org/

HOMEWORK HELP
These databases available on the San Diego Public Library website provide students with homework help:

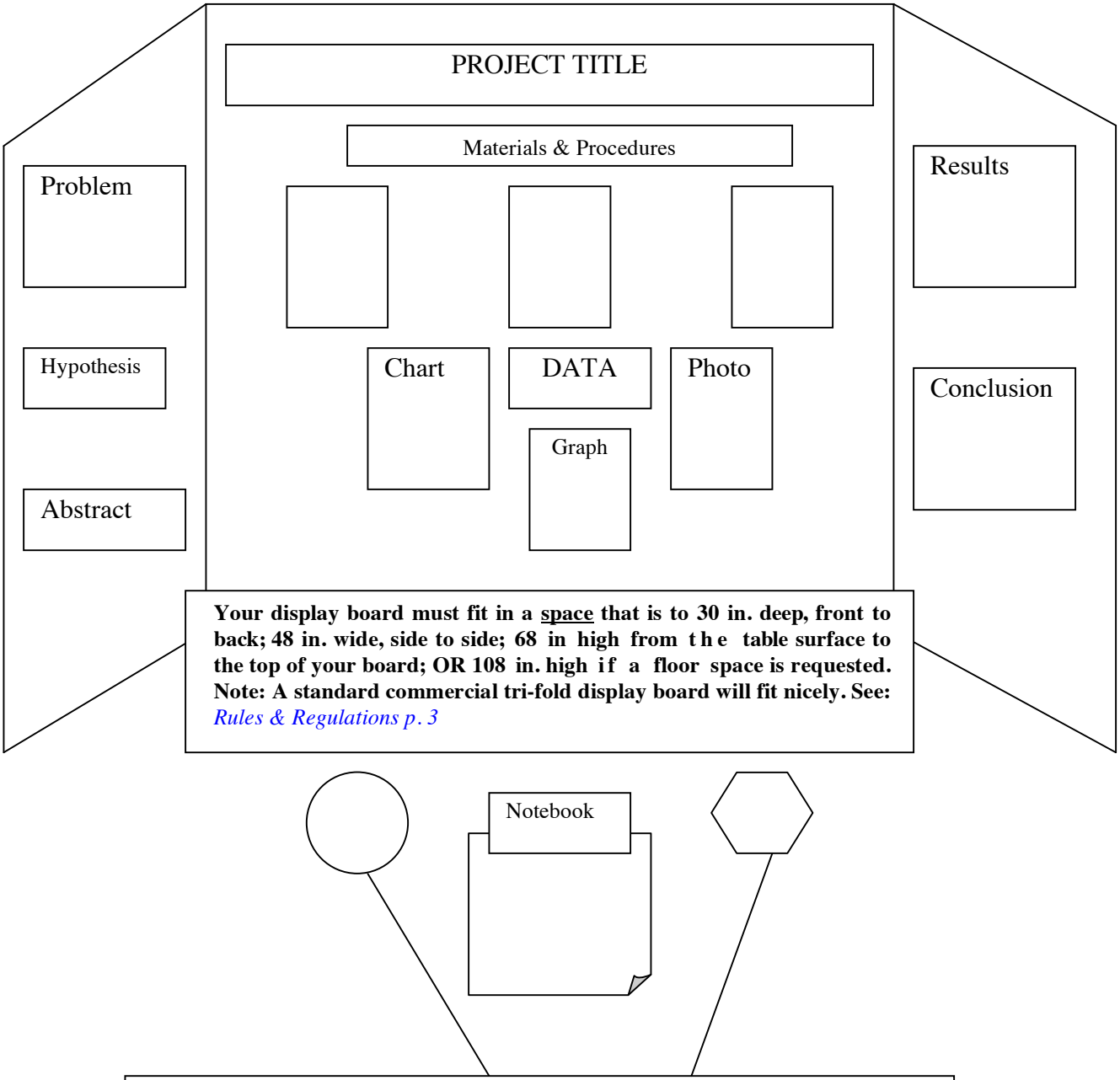
http://www.sandiego.gov/public-library/services/

RAW DATA

Raw data, any thing you did to help keep track of your work goes here at the end of your notebook. If you have a lot of data put it in separate notebooks and have it available with your display and official notebook.

Raw data could include things like hand written notes, diagrams, drawings, observations and photos, etc.

SAMPLE DISPLAY and BACKBOARD



NOTE: The *Rules & Regulations p5* for the Greater San Diego Science and Engineering Fair outline what objects can and cannot be displayed on in front of your backboard at the fair; for example NO liquid, open flame, food, sharp object, etc.