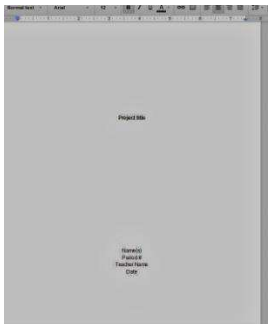
Science Fair Research Paper

WRITTEN REPORT FORMAT – EXPERIMENT / INVESTIGATION PROJECT:

Sections:

1. Title Page
2. Table of Contents
3. Abstract
4. Background Research
5. Hypothesis (prediction)
6. Experiment
   - -List of materials
   - -Step by step Procedure
   - -Variables— independent, dependent (controlled and experimental, if used)
7. Data:
   - - Recorded data (organized in a table or chart)
   - - pictures, graphs (if used)
8. Results page (explanation of data obtained)
9. Conclusion
10. Bibliography

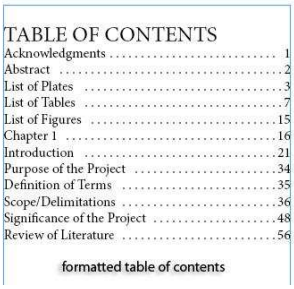
1. Title Page



Your project's name in the center of page (it can be in the form of a question).

Your name, school, teacher, grade, and period at the bottom of the page close to the bottom edge of the page.

2. Table of Contents



formatted table of contents

List the parts of your report (Abstract, Background Research, Hypothesis Experiment, Data, Results, Conclusion, and Bibliography) and the page numbers where they begin.

3. Abstract

The abstract is the last part of the project report to be written. It is written after the project is completed. It is a short summary of your project, one or two paragraphs, that tells the whole story to the reader on what the project covered and what has been accomplished..

An abstract should include:

a) Purpose of the Experiment:
- What was your topic and why did you choose it? Try to relate your purpose to the real world. The purpose can be stated like this: **"The purpose of this project is...."**
- What was your hypothesis?

b) Procedures used: (as a summary)
- What did you do for your experiment?

c) Results and Conclusions:
- What happened in your experiment?
- What did you learn from your project?

The Abstract should be included with your written report AND posted on your display! For help with your Abstract, go to: *http://www.sciencebuddies.org/science-fair-projects/project_abstract.shtml*

4. Background Research

Tell what you found out from books or other sources you used to learn about your topic and be sure those sources are listed in your bibliography.

*For help on how to research your project idea, go to: *http://www.sciencebuddies.org/science-fair-projects/project_background_research_plan.shtml#makingabackgroundresearchplan*

5. Hypothesis (Prediction) – Use If…, then… format. After you research your topic, you then have an idea (an educated guess) on what will happen in your own experiment based on other similar experiments conducted.

6. Experiment

Materials - list all materials used in your investigation. Include what, how much, and what kinds of materials you used. Keep in mind quantities are important.

GOOD LISTING	POOR LISTING
3- 15x15 cm square each of: Brawny, Gala, Scott, Generic Paper Towels	Paper Towels
250 ml beaker	Measuring Cup
750 ml water at 20 oC (temperature of the water)	Water
1 - 20x20 cm square cake pan	Container
Celsius Thermometer	Thermometer
Clock with a second hand	Clock

Procedures - Write the **experimental procedure** like a step-by-step recipe for your science experiment. A good procedure is so detailed and complete that it lets someone else duplicate your experiment exactly! If drawings will make it clearer, draw on separate pages and put it in this section. Explain in detail the things you made. Remember to NUMBER your steps.

*For more information on how to write a procedure, go to:
http://www.sciencebuddies.org/science-fair projects/project_experimental_procedure.shtml

Variables *–include your Independent and Dependent Variable*
**For more info on variables, go to: http://www.sciencebuddies.org/science-fair-projects/project_variables.shtml*

7. Data

- **Make sure to clearly label** all tables and graphs. And, include the **units of measurement** (volts, inches, grams, etc.).
- Place your **independent variable on the x-axis** of your graph and the **dependent variable on the y-axis**.

* For help with gathering data, go to: *http://www.sciencebuddies.org/science-fair-projects/project_data_analysis.shtml*

8. Results page

Describe what happened, what you observed. Show your data in an organized manner.
*For more information on data analysis, go to: *http://www.sciencebuddies.org/science-fair projects/project_data_analysis_summarizing_data.shtml*

9. Conclusion

Describe your interpretation of your results. Look over your notes, charts/tables, and log book and write what you think your data shows. You can put your opinions here. Was your hypothesis (what you expected to happen) correct? Don't be afraid to say that you might have made a mistake somewhere. Great discoveries can come from what we learn from mistakes.

Be sure to state the limitations of your project. (For example, if your project was to find out something about dogs and you used your dog, you can say, "my dog did this". This might not be the same for "other dogs." You can't say that all dogs would behave in the same way as yours because you didn't check all dogs.

FURTHER RESEARCH (as part of conclusion) The conclusion should include your ideas for future studies. You should state what you would do differently if you repeated the experiment or possible ways in which the project could be expanded in the future.

10. Bibliography

Write a list of the **three or more sources** you used for research. Record these sources (books, encyclopedias, magazines, Internet sites, etc.) that you used in a bibliography.

The work of other scientists and their contributions must be documented by citing your sources of information. It is a crime to copy ideas from others and call it your own; this is called Plagiarism and it is UNACCEPTABLE.

When writing a bibliography, the sources are listed in alphabetical order by the author's last name. You may use bullets or numbers to organize the bibliography. Scientists use different reference styles to properly list information from other sources.

- A Bibliography is typed in this form:

  Last name of author (or person you talked to), First name, "Title of article or chapter." Title of Source (book title, magazine title or "Conversation"), Place where published: Publisher Name, Date, Volume: pages.

  Example:
  Jones, Thomas A., "The Development of the Chick" Animal Development Magazine, June 1976, Vol 16:27-34.
  Peraccchio, Laura, Telephone Conversation, February 15, 1993.

- For material received from an online website, use the following format:

  Author, A. (Date). Title.

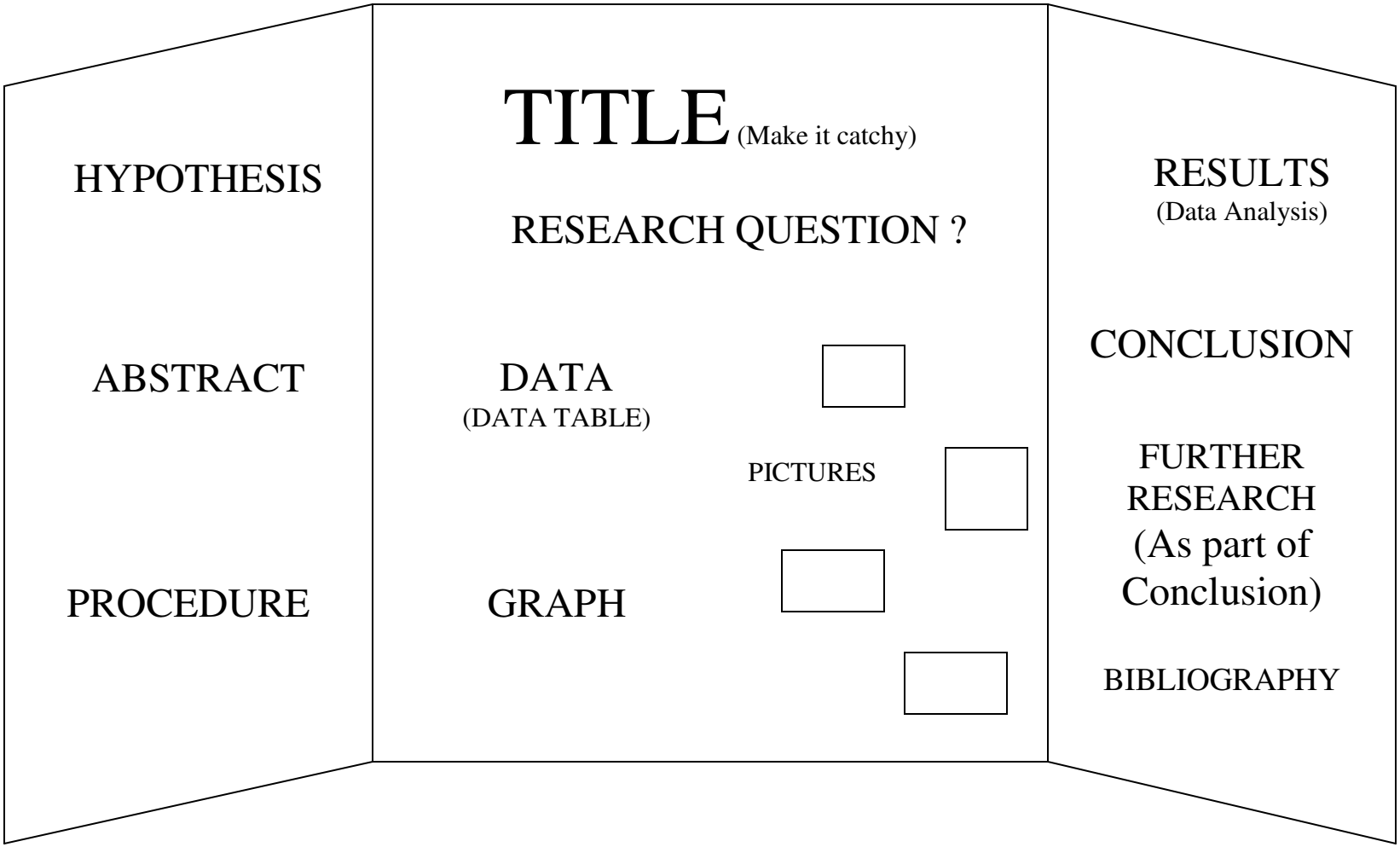
  Example: *Smith, M. (Dec. 25, 2000). How to Do Your Science Project.*

OR –

YOU MAY USE THIS WEBSITE TO HELP YOU BUILD YOUR BIBLIOGRAPHY:
http://www.citationmachine.net/apa/cite-a-website

For additional information on bibliography writing styles, go to:
http://www.sciencebuddies.org/science-fair-projects/project_bibliography.shtml?gclid=CNvI99G6wYgCFRN0NAod1h6yLA

Science Fair Poster Board



On Back of Board:

Name
School
Grade / Period
Science Teacher

When designing your display board - watch the number of colors you use. No more than 4 colors. Use an easy to read font like Arial or Times New Roman.

Maximum Size of Display Poster:

Width (side to side): 48 inches or 122 centimeters
Height (floor to top): 108 inches or 274 centimeters

POSTER BOARD DISPLAY AND PRESENTATION GUIDELINES:

DISPLAY BOARD

Create a display board so your findings can be shown at the science fair. It is a summary of your project and reflects your journal. This is your showcase. Make it creative and colorful. Below are ideas for a great display board.

- Physically sound and durably constructed, and able to stand by itself.
- Show all the steps of the Scientific Method process (except the research) with a brief explanation of each: question, hypothesis, experiment (materials, procedure, variables, and data gathered that is organized in a chart or table), analysis (graph and graph explanation), and conclusion.
- Well-organized and easy to follow from one idea to the next.
- Neat, edited, and without scribbles and **misspelled words**.
- Creative, pleasing to look at, colorful, with different font sizes to show emphasis. Include photos of the developing experiment if you have them. (Only the student doing the experiment and family members can be displayed on the board. Other children under 18 on the board need parent permission if under 18 years of age.)
- Drawn pictures, artwork, and icons that bring out the ideas of the experiment.

The journal with data should be in front of the display, if used. Students like to display items they used when doing their experiments. For reasons of safety the following items cannot be displayed at the school: **harmful chemicals, bacterial cultures, sharp objects, or any source of heat or flames. No live or preserved animals are allowed!**

MY ORAL PRESENTATION

Be ready to explain your project to another person — possibly a student, a parent, or other family. A description of each part of the project — from how the idea originated, through the literature search, the formation of the question or problem, the hypothesis, experimental design, results, analysis, conclusions, and future applications — is important to present to the listener.

Below are some key points to a good presentation.

• Practicing ahead of time in front of a mirror, family members, friends, your class, or others is very important. Sometimes practicing in front of a video camera can be helpful. While watching the video you may notice habits or ways of presenting that you wish to change.

• Try not to read from a script.

• Be positive and confident of your work. Look interested in what you are doing. The students want to know what you have done and what you have learned.

• Keep eye contact with your listeners during your presentation.

• Use your board/poster as a prop and tool to help you present you work.

• Present your work enthusiastically. Make certain you guide the listener or judge through your project. Have notebooks and reports in clear view and refer to them in your presentation so that the listener or judge will be cognizant of the amount of time, work, and effort you have invested in your project.

• Answer all questions that you can. If you are not certain of an answer, you might say, "I'm not certain, but I think it might be..." If you do not know the answer, you might give the person an idea of how you would find an answer to the question.

MY ORAL PRESENTATION: Use the following outline as a guide:

My name is_____

The title of my project is _____

I became interested in doing this project when _____

The QUESTION I asked was _____

The HYPOTHESIS I formed was _____

The PROCEDURE I used to test my hypothesis was to (Use as few words as possible.)_____

I repeated this procedure ____ times to make certain that my results were valid.

The RESULTS were _____

The results showed that my hypothesis was (supported or not supported) _____

The CONCLUSION I reached was (if your hypothesis was supported, restate your hypothesis. If your hypothesis was not supported, state your revised hypothesis.) _____

If I were to do this investigation again, I would _____
(Write in something you might change, or do differently.)

Science Fair - Academir Charter School Middle
Judge's Scoring Sheet

Date:

Student Name(s): _____

Project Title: _____

Project Elements	Possible Score	Score
Presentation: • **Neatness** • **Clarity of Text** • **Use of images, graphics, tables, and graphs**	10	
Testable question references a cause and effect relationship and a measureable change	5	
Background Research is diverse, multiple sources, complete citations	10	
Hypothesis is based on background research	10	
Variables are clearly defined (independent, controlled, dependent) – may be worded as "What I changed," "What I kept the same," and "What I measured"	10	
Materials are appropriate and a detailed list is given	10	
Procedure is sequential and describes the investigation clearly	10	
Data: Quantitative data: numbers, standard metric units, scale made up by the student Qualitative Data: words, descriptions of physical or behavioral changes	10	
Analysis: describes the trends or patterns found in the data; may have comments on reasons for trends or patterns	10	
Conclusion: based on analysis of the data; acceptance or rejection of hypothesis or success of invention/solution; suggestions for further efforts	10	

Judge's comments to the student:

Abstract concisely sums up the project explaining the experiment, the outcome, and the conclusion	5	
Total Score	100	