

SCIENCE
FAIR
PROJECT
INFORMATION
PACKET

7th Grade Science Fair Project

- ✓ This packet is designed to give you a summary of all the information you need to complete the science fair project.
- ✓ **Please follow directions carefully!**
- ✓ Although we will spend time in class working on the different elements of the project, I will not be able to personally guide each of you through every step of the project. You will actually need to read through this information to find the answers to the majority of your questions.
 - Please read the information in this packet first. If you still have questions, see me.
- ✓ You will need to choose a topic in either the life science or physical science areas
- ✓ There are many interesting web sites that offer great science fair project ideas.

There are **FOUR** parts to the Science Fair Project:

1. Background Research Paper
 - a. A typed 500-word minimum research paper
 - b. Must include an outline and bibliography and be properly cited
 - c. This will be the background work for the experiment
2. Scientific Investigation
 - a. Investigation Plan
 - i. States the **Problem, Hypothesis, Procedure, and Safety Considerations** for the experiment.
 - b. Journal
 - i. A hand-written notebook with everything you do for the experiment, including all data (data tables) and measurements.
 - c. Actual Experiment or Survey
 - d. Follow-up
 - i. Summarizes your **Procedure, Results** of the experiment with data, and your **Conclusion**.
3. Exhibit Board
 - a. Display board to be exhibited at our BCS class science fair.
 - b. Project Notebook that contains:
 - i. Background Research Paper
 - ii. Investigation Plan
 - iii. Follow-Up
 - iv. Journal
4. Oral Presentation
 - a. Given before the 7th grade class, describing the project and results (3-5 minutes)

Part 1: Background Research Paper

- ✓ This is the research paper portion of your project.
- ✓ The research you will do should be background information for your experiment.
 - For example: If your experiment is on how earthworms affect the growth rates of geraniums, you will need to do background research on earthworms, their impact on soil, and on geraniums
- ✓ This paper should be a minimum of 500 words, and should include parenthetical references, an outline, and a bibliography.
- ✓ You will need to do research at the Library and if possible, research online as well.

Research Paper Format:

- ✓ Begin with an introductory paragraph
- ✓ Follow this with 3 – 5 body paragraphs
- ✓ End with a conclusion paragraph
- ✓ 500 – word minimum

Grammar Tips:

- ✓ Do not use contractions (use *cannot* instead of *can't*)
- ✓ Do not quote multiple sentences in a row. Include some of your own thoughts.
- ✓ Do not talk about “you” or “I.” Just state what you have found.
- ✓ Do not say, “I am going to tell you about...” or “This paper is about...”
- ✓ Write out numbers less than 100. (use *thirty three* instead of 33)
- ✓ Do not ask the reader questions.

Typed Paper Tips:

- ✓ Double space everything.
- ✓ Use a 12 point font.
- ✓ Use one-inch margins around the entire page.
- ✓ Use a regular print font, like Times New Roman.
- ✓ Indent each new paragraph five spaces, or one tab.

Part 1: Background Research Paper Outline

- ✓ This will be a “blueprint” for your paper and should give me an idea of what you will be writing about.
- ✓ Remember, the Research Paper is the background information which will help you make a logical and informed hypothesis regarding how your experiment will turn out.
- ✓ You will be writing about the key things that are involved in your experiment.

Topic Outline:

- ✓ Your revised outline will be the foundation upon which you build your research paper.
- ✓ If your outline is well organized and complete, the chances are good that your paper will also be organized, focused, and will say what you want it to say.
- ✓ A topic outline uses **simple phrases** to convey the topic or ideas
- ✓ Your outline should contain a **summary** of the body of your report with the information and the facts gathered from your research that support the purpose of your paper.
- ✓ Your heading and subheadings represent one or more paragraphs in the written report.

Topic Outline Example:

- ✓ This example shows the **minimum** expected from you in your outline.

Outline

- I. Introduction
- II. Television influences children
 - A. Language development
 - B. Experts debate
- III. Television issues are serious
 - A. Augmentation of vocabulary
 - B. Encouragement of reading
- IV. Television enhances language development
 - A. Advantages for teachers
 - B. Judging the worth of TV programming
- V. Conclusion

GRADING PAGE

Science Fair Project: Outline

This outline is the:

- Rough Draft Second Draft Final Draft
- The assignment required _____ “points” or topics

You need to have:

- An introductory paragraph
- First body paragraph
- Second body paragraph
- Third body paragraph
- A conclusion paragraph
 - Remember, don’t introduce any new information in the conclusion paragraph, just recap what you have already stated.

Things that are good:

- _____
- _____
- _____

Things that could be improved:

- _____
- _____
- _____

Part 1: Background Research Paper

Hints for Taking Notes

- ✓ Now that you have gathered reference materials and written a first outline, it is time to do the research. Using your first outline as a guide, you will read through the research materials you have gathered. As you read, you will take notes on material that will help you write your research paper.
- ✓ How many note cards do you need? You will need about 3 -5 note cards per page.
- ✓ **Remember, the more note cards you have, the easier your report will be to write.**
- ✓ Follow these hints:
 1. Use only the front side of your note cards. This will simplify your organization of information when you begin your rough draft.
 2. Write a heading or a question on each note card. Use the main topics and subtopics from your first outline as possible headings. You may have several note cards with the same heading or question, but the note card information may be from different sources.
 3. As you read the information from your resource material, briefly summarize the information *in your own words* on the note card. Remember to write down main ideas and facts. Do not copy word for word from a source unless you plant to *quote* the author in your paper.
 4. As you are doing your research, you may come upon new information that you wish to include in your report. Make new headings or questions and cards for this information too. You may need to adjust your outline to include this new information.
 5. For each source, you will create a Bibliography Card (see page 5). Number each source.
 6. Each of the bibliography cards that you wrote should be numbered so that you can match them back to their source. If you are going to use a direct quote or statistics that will need parenthetical references (see page 6-7), write down the page number at the bottom of the page.

Part 1: Background Research Paper Bibliography Cards

Once you have decided upon a reference, you need to make a bibliography card for it. Bibliography cards will **help you keep track of all your sources of information**. Every book, magazine article, encyclopedia article, or other reference that provides information or background for your research paper will require its own bibliography card.

Record the bibliography information on a 3" by 5" index card or on a half sheet of paper. The examples below show how a completed bibliography card should look. Notice that the cards are "reverse indented" (the first line begins at the left margin, while all other lines are indented). This is the proper format for a bibliography card (and your bibliography entries).

BIBLIOGRAPHY CARDS

1. Copy the bibliographical information accurately from your information source using the examples provided below as a guide. This information will be transferred to your bibliography page.
2. Assign a different source code to each card (for example ○, ▲) and place it in the upper righthand corner. It can be either a symbol, number, letter, or color. That way each information source can be identified quickly.
3. Write your name on the back of each card so, if it is misplaced, it can be returned.

Book - one author


X
Author's last name, first name. <u>Title</u> . Place: Publisher, Date.

Book - two or three authors


*
Hogshead, Nancy and Gerald Couzens. <u>Asthma and Exercise</u> . Boston, MA: Holt, Inc., 1989.

Examples of Bibliography Cards Continued


Book - four or more authors


Blank, Henry, et al.* <u>Study Skills for the High School Student</u> . Boston, MA: Houghton Mifflin, 1985.
*Latin for "and others"


Book - no author given


<u>Historical Maps on File</u> . New York: Facts on File, 1984.


Pamphlet


Life Skills Ed. Inc. <u>Hypertension</u> . Boston, MA: Life Skills Ed., 1989.
Note: if no date is given use n.d. Author and publisher may be the same.

Editor, translator or compiler


Coming, C.T., ed. <u>Bringing America Home</u> . New York: Random Press, 1983.
ed - abbr. for editor for translator use "trans." for compiler use "comp."


Article in encyclopedia signed


Green, Richard. "District Attorney". <u>Encyclopedia Americana</u> . 1994 ed.
Note: pages are omitted on your bibliography page.


Article in encyclopedia unsigned

X
"Dix, Dorothy." <u>Encyclopedia Americana</u> . 1994 ed.
Note: pages are omitted on your bibliography page.

Radio or television program


Cousteau, Jacques, narr. & dir. "Diving for Roman Plunder." KCET, Los Angeles, CA, Mar. 14, 1978.
Narrator, director, or writer should be supplied if available

Film


Ross, Herbert, dir.* <u>The Turning Point</u> . with Anne Bancroft, Shirley MacLaine. 20th Cent. Fox, 1978.
* dir. - director

Examples of Bibliography Cards Continued

CD-ROM

Z
<p>"Leeching." <u>Compton's Interactive Encyclopedia</u>. Version 4.0. CD-ROM. 1997.</p>

Separately titled vol. in a set

B
<p>Chenney, Maxwell. <u>Great Philosophers</u>. vol.3: <u>Aristotle</u>. ed. by George Jacobs. 10 vol. New York: Simon & Schuster, 1975.</p>

Author's work in a collected work

Q
<p>Coleridge, Samuel Taylor. <u>The Complete Works of Samuel Taylor Coleridge</u>. ed. by W.G.T. Shedd, vol. I: <u>Aids to Reflection</u>. New York: Harper & Row, 1984.</p>

Article in periodical - signed

Y
<p>Wolenik, Bob. "Gold and Silver in New IRAs?" <u>Coinage</u> Feb. 1995: 16 - 20.</p> <p style="font-size: small;"> ↑ author ↑ pages ↑ title of article ↑ date ↑ magazine title </p> <p>Note: weekly or monthly mag. requires no vol. number.</p>

Article in periodical - unsigned

W
<p>"The Library of Congress Revealed." <u>Life</u> Dec. 1992: 53 - 58.</p>

Newspaper

●
<p>"Miss America is More Than Just a Pretty Face." <u>USA Today</u>, 1986: sec A, p. 11.</p>

Personal interview

□
<p>Lunden, Joan. <u>Good Morning America</u>. ABC Studios, N.Y., NY Interview April 16, 1991.</p> <p style="font-size: small;">↑ interviewee</p>

Examples of Bibliography Cards Continued

Internet - Author Given

○
Clinton, Bill. "Campaign Promises." White House Information Page. http://whitehouse.gov (10/31/03). date you went online

Internet - author not given

▽
"The American Presidency." <u>Grolier On-Line</u> . http://lgi.grolier.com/presidents/preshome.html (October 10, 1998).

* Remember: The Internet is not the source of the information, but a tool for locating it.

GRADING PAGE

Science Fair Project: Notecards

- You were required to have _____ notecards or facts. You have _____.

For each notecard / fact:

- Information must be paraphrased or put into your own words
- Refer to the bibliography (which source did you get each fact from?)

When you are writing your background research paper:

- Make sure that for **each fact** you write into your paper (whether it is a direct quote or a phrase that is put into your own words), you must include **parenthetical references**.
- Try to follow your outline, so that you have one topic for each paragraph.
- A paragraph should have at least 5 sentences.
- Make sure that you have an introduction paragraph and a conclusion
- DO NOT talk about what you are going to do in your experiment or what you think will happen in your experiment. Just talk about what other people already know about your topic.

Examples of parenthetical references:

- If you got the information from a book, put the author's last name and the page number you found the information on. If several sentences all came from the same source, you can place the parenthetical reference after the last sentence.
 - Even if you put the information into your own words, you still must use parenthetical references!

An ultrasound is a machine that uses sound waves to gather information about an unborn baby. This method is usually used when the mother has been pregnant for sixteen to nineteen weeks. (Pinkston & Anderson 111)
- If the information came from a website, you do not need to include a page number, just the nickname for that website.

Ultrasounds are also used to see muscles, tendons, and many internal organs. It can also be used to guide doctors while they are completing biopsies or other delicate medical procedures. ("Wikipedia")
- My bibliography page for these two sources would be:

Pinkston, William S. Jr & Anderson, David R. *Life Science, Second Edition*. Greenville, South Carolina: Bob Jones University Press. 1999.

"Wikipedia" <http://en.wikipedia.org/wiki/Ultrasound> Accessed on 03/26/09.

Part 1: Background Research Paper Parenthetical References

- ✓ Using quotations marks and Parenthetical References (PR) are required if you use someone else's words or ideas in your report.
- ✓ Changing one or two words is not enough of a change.
- ✓ Trying to pass off someone else's words as your own is called plagiarism and is illegal.

How to use a Parenthetical Reference:

- ✓ Parenthetical references should include the first word of the bibliography entry to which you are referring (usually the author's last name) and the page number that the information was found in. This information is written inside parentheses.
- ✓ No comma, period, colons, etc. should be used to separate the two items (last name and page number)
- ✓ Insert the PR after the words or ideas taken from another source. Place them where a pause would naturally occur to avoid disrupting the flow of your writing (usually at the end of a sentence).

When to use a Parenthetical Reference:

- ✓ Always use a PR for a direct quotation (When you are copying exact words from a resource).

Dr. James Hoyt has said, "Life is more than a jumble of molecules" (Brown 25).

- ✓ Use a PR when you are rephrasing someone else's idea that contains an opinion or theory that is not considered common knowledge.

The newest and largest dinosaur remains have been found in Texas (Brown 56).

- ✓ Statistics that are not common knowledge require a PR.

In 1975, more baby girls were named Jennifer than any other name (Stut 11).

This little known statistic would require a PR

- ✓ Statements that appear to be contrary to popular belief also require a PR.

At breakfast, more adults consume soft drinks than milk (Breakfast of Champions 13).

In this case, the name of the book was used, not the author's name

- ✓ Do not use a PR when rephrasing information that is considered common knowledge

Soft drinks are a carbonated beverage.

Part 1: Background Research Paper Parenthetical References, cont.

More examples:

- ✓ Typical parenthetical reference

Genetic engineering was dubbed “eugenics” by a cousin of Darwin’s, Sir Frances Galton, in 1885 (Bullough 176).

- ✓ Author is mentioned

Bullough writes that genetic engineering was dubbed “eugenics” by a cousin of Darwin’s, Sir Frances Galton, in 1885 (176).

You can list the author’s last name again in the PR as (Bullough 176) but it is not needed as the author’s name has been mentioned in the sentence.

- ✓ Citing an anonymous work

Statistics indicate that drinking water can make up twenty percent of a person’s total exposure to lead (*New World Almanac* 32).

- ✓ Citing one out of two or more books by the same author

Communication on the job is more than talking; it is “inseparable from your total behavior (Cox, *Why Things Go Wrong* 47).

If in your Bibliography, you have two books listed with the same author, you will need to do this type of PR to make it clear which book you are referring to.

- ✓ Citing plays (especially Shakespeare) *Rare on a science project*

The reference should include act, scene, and lines. Use no Roman numeral, commas, or spaces in your PR.

In the first act of the play named after him, Hamlet comments, “How weary, stale, flat, and unprofitable, seem to me all the uses of this world” (1.2.133-134).

- ✓ Long quotes

Any quote of more than three typed lines is considered long. Indent 10 spaces. Keep it double spaced. Quotation marks are not used.

In Robert Smith’s book, he describes sunspots:

From time to time small dark areas called sunspots appear on the sun’s surface. Astronomers have noticed that these markings move across the sun’s disk from east to west or left to right as we observe the sun in the southern sky. (66)

This is the one occasion where the end punctuation comes before the PR.

Part 1: Background Research Paper Bibliography Examples

Rules for a Bibliography Page (also called “Works Cited”)

- Begin each entry flush with the left margin. If the entry runs more than one line, indent additional lines five spaces
- DOUBLE SPACE EVERYTHING!
- List each entry alphabetically by the first word of the entry.
- BOOKS: A typical entry should include author, title (in *italics* if typed or underlined if handwritten), city of publication (state isn’t necessary if it is a well known city), publishing company and date of publication.
- WEBSITES: A typical entry should include an author (if possible), the FULL WEB ADDRESS, the date you accessed the website. If no author is available, give the website a nickname and use that to alphabetize it in your Bibliography page and for your Parenthetical References within your paper.
- PERIODICALS: A typical entry for a periodical should include author of the article, name of periodical, date, page numbers of the article.
- The “OWL at Purdue” is a great resource for formatting questions:
<http://owl.english.purdue.edu/owl/resource/747/12/>

See below for examples. PLEASE ASK FOR HELP IF YOU HAVE QUESTIONS!!!

These examples are organized by TYPE, realize that your bibliography needs to be organized ALPHABETICALLY by the first word in the entry.

Correct citation	Type of citation
Gorman, Elizabeth. <i>Prairie Women</i> . New Haven: Yale University Press, 1986.	Book (One author)
Caper, Charles and Lawrence T. Teamos. <i>How to Camp</i> . Philadelphia: Doubleday, 1986.	Book (Two authors)
Ellis, Doris et.al. <i>History of Japan</i> . New York: Harcourt, Brace and World, Inc., 1989.	Book (Three or more authors)
Vanderkirk, Pamela, ed. <i>Ten Short Plays</i> . Los Angeles: Nowell Book Co., 1982.	Book (One editor)
Lockhard, David J. and Charles Heimler, eds. <i>The Oregon Trail</i> . New York: Bonanza Books, 1992.	Book (Two editors)
Carlson, David et.al., eds. <i>Encyclopedia of Animal Life</i> . Boston: Houghton Mifflin Co., 1985.	Book (Three or more editors)
Allende, Isabel. "Toad's Mouth." Trans. Margaret Sayers Peden. <i>A Hammock beneath the Mangoes: Stories from Latin America</i> . Ed. Thomas Colchie. New York: Plume, 1992. 83-88.	Book (Single work from an anthology)

Correct citation	Type of citation
American Medical Association. <i>The American Medical Association Encyclopedia of Medicine</i> . Ed. Charles B. Clayman. New York: Random, 1989.	Book by Corporate Author
Hawthorne, Nathaniel. <i>Twice-Told Tales</i> . Ed. George Parsons Lathrop. Boston: Houghton, 1883. 1 Mar. 2002. < http://eldred.ne.mediaone.net/nh/ttt.html >. Keats, John. <i>Poetical Works</i> . 1884. <i>Bartleby.com: Great Books Online</i> . Ed. Steven van Leeuwen. May 1998. 5 May 2003 < http://www.columbia.edu/126/ >.	Book Online Book Online (Part of Scholarly Project)
Roberts, Sheila. "A Confined World: A Rereading of Pauline Smith." <i>World Literature Written in English</i> . 24(1984): 232-38. Rpt. in <i>Twentieth Century Literature Criticism</i> . Ed. Dennis Poupard. Vol. 25. Detroit: Gale, 1988. 399-402.	Gale Literary Criticism (previously published scholarly article in a collection)
Doctorow, E.L. Introduction. <i>Sister Carrie</i> . By Theodore Dreiser. New York: Bantam, 1985. v-xi.	Introduction, Preface, Foreword, or Afterword
Stowe, Harriet Beecher. "Sojourner Truth, the Libyan Sibyl." 1863. <i>The Heath Anthology of American Literature</i> . Ed. Paul Lauter et al. Vol. 1. Lexington, Heath, 1994. 2425-33.	One volume of multivolume work
<i>Maps 'n' Facts</i> . Computer Software. Broderbund Software, 1995.	Computer Software
Frost, James. "Strawberries in a Field." <i>Perrine's Literature: Structure, Sound, and Sense</i> . Ed. Thomas R. Arp and Greg Johnson. New York: Heinle and Heinle, 2002.	Poem
Frost, James. "Strawberries in a Field." Literature Resource Center. Alabama Virtual Library. 15 March 2004. < http://www.avl.lib.al.us >.	Poem Online
Crane, Stephen. "The Open Boat." Literature Resource Center. Alabama Virtual Library. 12 March 2004. < http://www.avl.lib.al.us >.	Short Story Online
Cather, Willa. "Paul's Case." <i>Perrine's Literature: Structure, Sound, and Sense</i> . Ed. Thomas R. Arp and Greg Johnson. New York: Heinle and Heinle, 2002.	Short Story in an Anthology

Correct citation	Type of citation
Dunn, Samuel. "Re: Any Ideas for My Country Project." E-mail to Tom Jones. 26 Feb. 2003.	E-mail <u>**</u>
Barnridge, Thomas H. "Baseball." <i>World Book Encyclopedia</i> . 2001.	Encyclopedia (Signed article) <u>*</u>
"Egypt." <i>The New Encyclopedia Britannica</i> . 2002.	Encyclopedia (Unsigned article) <u>*</u>
Ito, Philip J. "Papaya," World Book Encyclopedia, 1998 ed. <i>The World Book Multimedia Encyclopedia</i> , CD-ROM version of <i>The World Book Encyclopedia</i> .	Encyclopedia (CD-ROM) <u>*</u>
"Egypt." <i>Encyclopedia Britannica Online</i> . Vers. 97.1.1. Mar. 1997. Encyclopedia Britannica. 29 Feb. 2000 < http://www.search.eb.com/ >.	Encyclopedia (Internet) <u>*</u>
<i>The Empire Strikes Back</i> . Dir. George Lucas. Perf. Mark Hamill, Harrison Ford, Carrie Fisher. Twentieth Century Fox, 1980.	Film
United States Office of Management and Budget. <i>Budget of the United States Government, Fiscal Year 1999</i> . Washington: GPO, 1999.	Government Publication
Whitehurst, Daniel, former mayor of Fresno. Personal interview. 5 Mar. 2003.	Interview (Personal)
Smith, John. "Beowulf: Archetypal Hero." English 102 Class. Vestavia Hills High School, Vestavia Hills, AL. 28 March 2003.	Lecture
Lin, Michael. "Compressing Online Graphics." Online posting. 27 April 1999. MacWeb. 28 Feb. 2003 < http://www.graphica.com/digitizing/intor.html >.	Listserv Posting
Cannon, Angie. "Just Saying No to Tests." <i>U.S. News & World Report</i> . Oct. 1999: 34.	Magazine
Cannon, Angie. "Just Saying No to Tests." <i>U.S. News & World Report</i> 18 Oct. 1999: 3. Alabama Virtual Library. Vestavia Hills High School Library, Vestavia Hills, AL. 28 Feb. 2003. < http://www.avl.lib.al.us >.	Magazine, Online News Subscription Service (Alabama Virtual Library)
Elliott, Michael. "The Biggest Fish of Them All." <i>Time</i> . 8 March 2003. 11 March 2003. < http://www.time.com/time >.	Online Magazine (Magazine web site)

Barrow, Matthew. "Skipping School? Plan On Walking." <i>Sacramento Bee</i> . 13 Oct. 1999, California final ed.: A1+.	Newspaper Article, (Signed)
"Gorilla attacks Martian." <i>National Enquirer</i> 16 Mar. 1999: A-14.	Newspaper Article, (Unsigned)
Bradley, Donald. "Is There a Right Way?" <i>Kansas City Star</i> 23 May 1999: 2-4. SIRS Researcher. Alabama Virtual Library.. 28 Feb. 2003. < http://www.avl.lib.al.us/ >.	Newspaper Article, Online News Subscription Service (SIRS)
"Charles Frazier." <i>Contemporary Authors Online</i> . 2001. Galegroup.com. Alabama Virtual Library. 28 February 2003 < http://www.avl.lib.al.us/ >.	Gale Literary Criticism Online (Unsigned)
McCarron, Bill. "Images of War and Peace: Parallelism and Antithesis in the Beginning and Ending of Cold Mountain." <i>The Mississippi Quarterly</i> . 52.2 (1999): 273. Galegroup.com. Alabama Virtual Library. 25 February 2003. < http://www.avl.lib.al.us >..	Gale Literary Criticism Online (Signed)
Achenbach, Joel. "America's river." <i>Washington Post</i> . 5 May 2002. 20 July 2003 < http://www.washingtonpost.com/wp-dyn/articles/A13425-2202May1.html >.	Newspaper Article (Newspaper Website)
<i>Your Health</i> . New York: Modern Woman, 1996.	Pamphlet
"Karma Chameleon." <i>Northern Exposure</i> . CBS. KCRA, Sacramento. 29 Feb. 2000.	Television or Radio (Live)
Smith, Greg. "Rhesus Monkeys in the Zoo." No date. Online image. <i>Monkey Picture Gallery</i> . 3 May 2003. < http://monkeys.online.org/rhesus.jpg >.	Published Photograph
"Candy Cotton at the Fair." Birmingham, AL. Personal photograph taken by Quincy Adams. 5 March 2004.	Personal Photograph
Adams, Mindy. "Critical Eye for the Fantasy Guy." 4 January 2004. Online PowerPoint. <i>Studyguide.org</i> . 7 March 2004. < www.studyguide.org/fantasy.htm >.	Power Point Online
<i>Civil War Diary</i> . Videotape. New World Entertainment, 1990.	Videotape
Springsteen, Bruce. "Dancing in the Dark." <i>Born in the USA</i> . Columbia, 1984. Music video. Dr. Brian De Palma. VH1. 10 May 2002.	Music Video

Correct citation	Type of citation
<p>"Cabinet Nominations," Chapter 20. <i>Powers of the President</i>. Laser videodisc. Pioneer Communications of America, Inc. American Broadcasting Companies, Inc., 1995.</p>	<p>Video Laserdisc</p>
<p>"Castles in Medieval Times." <i>yourchildlearns.com</i>. 2000. Owl and Mouse Educational Software. 9 March 2003. <http://www.yourchildlearns.com/castle_history.htm>.</p>	<p>Web Page that is part of a larger web site</p>
<p>Schrock, Kathleen. "Digital Gadgets." <i>Kathy Schrock's Guide for Educators</i>. 20 February 2002. Discovery Channel. 11 March 2003. <http://school.discovery.com/schrockguide/gadgets.html>.</p> <p>"Great Gatsby Study Guide." <i>studyguide.org</i>. 5 January 2002. 11 March 2003. <http://www.studyguide.org/gatsby_study_guide.htm>.</p> <p>Note: If no title for the page is provided, write Home page (do not underline and do not use quotation marks).</p>	<p>Web page (Personal or Professional)</p>
<p><i>The Cinderella Project</i>. Ed. Michael N. Salda. Vers. 1.1. Dec. 1997. De Grummond Children's Lit. Research Collection, University of Southern Mississippi. 9 March 2003. <http://www-dept.usm.edu/~engdept/cinderella/cinderella.html>.</p>	<p>Web page from a university (scholarly online project)</p>
<p>"Langston Hughes Poetry Circles." February 2003. National Council of Teachers of English. 10 March 2003. <http://www.ncte.org/special/LangstonHughes/>.</p>	<p>Web page (Professional Organization)</p>

***While you may wish to consult a general reference source like a comprehensive encyclopedia for background information, avoid using and citing such resources in documented literary papers. More specialized sources are preferred.**

****The following resources are NOT credible and should never be used or cited in a documented literary paper: Wikipedia, SparkNotes®, Cliff's®Notes, PinkMonkey Notes® and similar sources. Be very cautious in your use of resources from the Internet. Essays by middle school and high school students should certainly not be deemed reliable. Similarly, comments on books which are randomly submitted by readers lack credibility.**

GRADING PAGE

Science Fair Project: Bibliography

This bibliography is the:

- Rough Draft Second Draft Final Draft
 The assignment required _____ sources.

About your bibliography:

- You have a TOTAL of _____ sources.
 You have _____ sources from the internet
 You have _____ sources that are books.

For your internet sources:

- You need to give each website a nickname
 You need to list the entire web address
 You need to list the date you accessed that website.
 Other:

For your book sources:

- List the last name of the author, then the first name
 Italicize or underline the title of the book (important words should be capitalized)
 Give the city and state it was published in
 List the publishing company
 List the year it was *most recently* printed or copyrighted in.
 Other:

Other types of sources:

- You need to list your date as: _____
 You need to list the page numbers you will be using from this source.
 Other:

Things to work on:

- Your bibliography must be double spaced
 The second line of each source must be “indented”
 Your sources should be put in alphabetical order by the first word or name.
 Other:

GRADING PAGE

Science Fair Project: Bibliography (cont.)

Examples of Bibliography Entries:

1. "Instructables." <http://www.instructables.com/id/s3;lozdsdfsersegrhyfe28dlzm/>
Accessed on 3/9/09
2. McGreevy, Paul. *Cats and Dogs: A Short History of Domesticated Animals*. San Francisco, CA: Pearson Hudson Press, 1987.
3. Smith, Stacy. "What is the Best Way to Treat a Sunburn?" *Woman's Day Magazine*. March 5, 2009: 25-27.

Information:

1. This is a website. It has been given a nickname, "Instructables." The full web address is given. Then the date.
2. This is a book. The author is listed, last name first. The name of the book is in *italics* or underlined (if hand-written). The city of publication, along with the state is given, followed by the publishing company and year of publication.
3. This is a magazine article. The author is listed, last name first. The title of the article is given in "quotation marks." The date of publication is listed with the page numbers the article was found on.

GRADING PAGE

Rough Draft of Background Research Paper

Rough Draft was:

- Turned in on time Late _____ days

Format of paper

- At least 250 words
- Less than 250 words
- Went above and beyond the 250 words
- Was double spaced
- Please fix on your final draft:** Needs to be double spaced (either when handwriting or if typing)

Grammar

- Avoided using “you,” “your,” “I,” “my,” etc
- Avoided using contractions (spelled out words like “cannot” or “did not” instead of using “can’t” or “didn’t”)
- Spelled out any numbers under 100 (ninety nine, twenty five percent, etc.)
- Used complete sentences
- Other: _____

- Please fix on your final draft:** Take out “you,” “your,” “I,” “my,” etc
- Please fix on your final draft:** Take out contractions (“can’t” or “didn’t”) and instead, spell out words like “cannot” or “did not”
- Please fix on your final draft:** Take out the actual numbers (like 99 or 25%) and instead, spell out any numbers under 100 (ninety nine, twenty five percent, etc.)
- Please fix on your final draft:** Avoid run-on sentences, or sentence fragments. You must write in complete sentences

Spelling

- No spelling errors found
- Occasional spelling errors found
- Many spelling errors found

Parenthetical References

- Were used to show which resource each fact came from (even if the facts were paraphrased or put into student’s own words)
- Each source in your Bibliography needs to also show up in your Parenthetical References. This “proves” that you used each source in your Bibliography. If you didn’t use it in your paper, you can’t list it in your Bibliography!
- Were used occasionally (**Your final draft will need to contain more**)
- Were not used at all (**Your final draft will need to contain these**)

GRADING PAGE

Rough Draft of Background Research Paper (cont.)

Bibliography:

- You have a TOTAL of _____ sources. You need to have 5 sources in your final draft

For your internet sources:

- You need to give each website a nickname
 - You need to list the entire web address
 - You need to list the date you accessed that website.
 - Other:
-

For your book sources:

- List the last name of the author, then the first name
 - Italicize or underline the title of the book (important words should be capitalized)
 - Give the city and state it was published in
 - List the publishing company
 - List the year it was *most recently* printed or copyrighted in.
 - Other:
-

Things to work on:

- Your bibliography must be double spaced
 - The second line of each source must be “indented”
 - Your sources should be put in alphabetical order by the first word or name.
 - Other:
-

Examples of Bibliography Entries:

4. “Instructables.” <http://www.instructables.com/id/s3;lozdsdfsersegrhyfe28dlzm/>
Accessed on 3/9/09
5. McGreevy, Paul. *Cats and Dogs: A Short History of Domesticated Animals*. San Francisco, CA: Pearson Hudson Press, 1987.
6. Smith, Stacy. “What is the Best Way to Treat a Sunburn?” *Woman’s Day Magazine*. March 5, 2009: 25-27.

GRADING PAGE

Final Draft of Background Research Paper (cont.)

	7 (or fewer) points	8 points	9 points	10 points	Score
Formatting	Paper is difficult to read.	Paper is messy, does not have lines skipped, or is not double spaced	Paper does not have lines skipped or is not double spaced	Paper is either neatly handwritten in a dark ink with lines skipped, or is typed in a 12 point font and double spaced.	
Structural Organization	Essay lacks logical progression of ideas	Essay includes brief skeleton (introduction, body, conclusion) but lacks transitions	Essay includes logical progression of ideas aided by clear transitions	Essay is powerfully organized and fully developed	
Spelling	Frequent errors in spelling	Several spelling errors	Confuses homonyms (their vs there or its vs it's, etc.)	Nearly error-free which reflects clear understanding and thorough proofreading	
Grammar	Frequent errors in grammar (run-on sentences, fragments, etc.)	Several grammatical errors.	Occasional grammatical errors and questionable word choice (Using "I" or "you" in the essay)	Nearly error-free	
Punctuation	Frequent errors in punctuation	Several errors in punctuation	Occasional errors in punctuation	Nearly error-free	
Understanding of Material	Apparent misunderstanding of material	Limited understanding of material displayed by vague, unclear language	Developing understanding of material	Clear understanding of material displayed by clear, concrete language and complex ideas	
Information	Essay addresses topic but loses focus by including irrelevant ideas	Essay is focused on topic and includes few loosely related ideas	Essay is focused on the topic and includes relevant ideas. Essay mentions science fair project.	The essay is focused, purposeful, and reflects clear insight and ideas. Essay does not mention specifics about science fair project	
Support	No parenthetical references are used = 0	Scattered parenthetical references	Several parenthetical references	Parenthetical references are used to give credit to ideas, statistics, or information that does not belong to the author	
Bibliography	No bibliographic information is included = 0	Less than 3 sources are listed.	Either 3-4 sources are listed or Websites do not have the retrieval date listed or entries are not in alphabetical order	At least five sources are listed in the Bibliography. Websites have the date they were retrieved listed. Entries are listed in alphabetical order	
Turned in on due date	Turned in three days late	Turned in two days late	Turned in one day late	Turned in on due date	

Papers that are under 500 words , will have the overall grade reduced. 1 – 50 words = -2.5% 51-100 words = -5% 101-150 words = -7.5% 151-200 words = -10% 201-250 words = -12.5% 251-300 words = -15%	Total # of words _____ <input type="checkbox"/> Reached 500 words or <input type="checkbox"/> Short _____ words	Included Rough Draft with Report? <input type="checkbox"/> Yes <input type="checkbox"/> No	Included Outline with Report? <input type="checkbox"/> Yes <input type="checkbox"/> No
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Part 2: Scientific Investigation

Investigation Plan

- ✓ This is the beginning of your Scientific Investigation and must include the following information:

1. Problem

Write out your problem in question form. What are you trying to solve?

Examples:

- How does fertilizer affect plant growth?
- How does gender affect mice's ability to find their way through a maze?

2. Hypothesis

The hypothesis is a proposed solution to the problem being considered. It is an educated guess as to the solution to the given problem. This should be written in sentence form.

Examples:

- Fertilizer will help plants to grow quicker and taller than plants that do not receive fertilizer
- Female mice will be able to find their way through a maze quicker than male mice.

3. Procedures

A well-written procedure must always include two main sections:

- A well-written step-by-step sequence of activities that can be followed by anyone testing your hypothesis. The sequence of activities must describe the variable, the independent variable, the dependent variable, the control group, and the experimental group.
- A list of all materials used to test this hypothesis. Drawings and/or photographs are essential for a clear understanding of how materials are to be used.

4. Safety Considerations for the Experiment

In paragraph form, write out any precautions you may have to take to insure proper safety with your experiment.

- ✓ Each of these parts should be typed.
✓ You will need to include each of these in a typed form on your display board.

Part 2: Scientific Investigation

Investigation Plan

Important Vocabulary

Hypothesis

- ✓ The hypothesis is a testable statement that you make as an answer to the question you have about your topic. This statement is important because it will be used to guide the entire experiment. The hypothesis can be stated as an “if – then” statement.
 - **Example:** “If I give ten Dalmatians a choice between two brands of dog treats, they will prefer brand X (name of brand) over brand Y (name of other brand).”
- ✓ The hypothesis also gives the relationship between two variables (the independent and dependent variables) in your experiment. So before you write your hypothesis, you need to understand what the variables are.

Variable

- ✓ A variable is anything that affects your topic and can change in your experiment.
 - **Example:** If you were studying a specific type of plant, variables could include air temperature, soil type, container size, the material the container is made from, amount of sunlight, amount and type of water, and so forth. Anything that can help or harm the plant is a variable.

Independent Variable

- ✓ The independent variable is the one thing that you change in your experiment to figure out what impact it has on the topic you study.
 - **Example:** If you wanted to find out what treat Dalmatians prefer, you would have to offer the treats to the dogs at approximately the same time of day, put the treat at the same distance from each dog, be sure that each dog is fed about the same time every day, and find dog treats that are about the same size and consistency (hard, soft, chewy). These are all variables that you would need to control. The **one thing** that you should change is the brand of treat being offered to the dog. The brand is the independent variable. This is the one thing that you deliberately change.

Dependent Variable

- ✓ When you change one factor (the independent variable), you will watch what happens to the rest of your experiment. What happens is called the dependent variable. The dependent variable is that factor of your experiment that changes as a result of the independent variable.
 - **Example:** How will you know which brand of dog treats the dogs prefer? Which brand gets munched down first? If you were comparing two brands of similar dog treats, you would expect that the dogs would eat their favorite kind of dog treat first. So the treat which was eaten first would be the dependent variable.

Control Group

- ✓ As you plan your variables, you need to try to include a group of test subjects that will demonstrate how the experiment will work when the independent variable is not applied. This is known as the control group.

Experimental Group

- ✓ The group of test subjects that you use to show what happens when the independent variable is applied is called the experimental group. You should plan to measure both results in your data if possible. Then it is clear what changes are caused by the independent variable.
 - **Example:** In the case of the dog treats, if the dogs have been eating one of the brands all along, you would have to time the dogs to see how long they took to eat that brand for the control group, then give them the old and new kinds to see which kind was eaten first and how long it took for the experimental group.

GRADING PAGE

Science Fair Project: Investigation Plan

1. Problem

- Missing this section completely
- The problem was stated as a clear question that is relevant and testable
- The problem was NOT stated as a clear question
- The problem was not "testable"
 - Could be rephrased as:

- Other:

2. Hypothesis

- Missing this section completely
- Hypothesis is an educated guess that attempts to answer the question stated in the problem
- The hypothesis needs to be reworked or rephrased
 - Could be rephrased as:

- Other:

3. Procedure

- Missing this section completely
- The procedure is carefully listed with a lot of detail
- General idea is portrayed (more information is needed)
- Not enough information
- Other:

GRADING PAGE

Science Fair Project: Investigation Plan (cont.)

4. Safety Considerations

- Missing this section completely
- Safety considerations are carefully and accurately listed
- If there are no safety considerations, that is stated
- Please write "there are no safety considerations" if there truly are none. Do not just leave this section blank.
- This section should include:

- Other:

General Comments:

- Spells out numbers under 100
- Spells out contractions
- Does not use "you," "I," "me," "my," "mine," etc.
- No spelling errors
- No grammatical errors
- Uses complete sentences
- Other:

Please fix:

- Do not use "you," "I," "me," "my," "mine," etc.
- Spell out any numbers under 100
- Spell out contractions (can't = cannot, didn't = did not, etc)
- Occasional spelling errors
- Occasional grammatical errors
- Incomplete Sentences
- Many spelling errors
- Many grammatical errors

Part 2: Scientific Investigation Journal

- ✓ Your journal is a history and progression of your science project.
- ✓ It begins the first day you receive the assignment and ends the day you turn it in.
- ✓ It is your science project's diary.
- ✓ Every time you work on your project, you need to write it down in your journal.
- ✓ You should use a spiral bound 8 x 10 notebook, or something similar.
- ✓ Include only **one entry per page** and **date** every entry.
- ✓ For each entry, record the **amount of time** you spent on the task recorded.
- ✓ When your experimentation begins, you will refine your procedure in detail and write it out in your journal, step-by-step, drawing and labeling any apparatus you use and explaining how all the variables are controlled.
- ✓ Your data is first taken in your journal.
- ✓ Record all data in **metric measurements** (length in centimeters or meters, weight in grams, etc).
- ✓ Your journal **must be handwritten**. No part of it may be typed.
- ✓ This is your record of everything you do for your experiment. Everything!!!
Examples include:
 - Going to the store and buying supplies
 - Watering a plant each day
 - Timing an event
 - Taking measurements
 - Turning in assignments

Part 2: Scientific Investigation Using Graphs

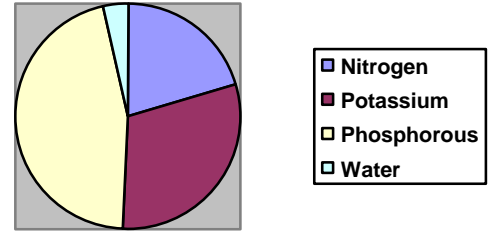
- ✓ As you plan the experiment, you must decide what you will measure and how you will explain your data.

- ✓ Types:

- **Circle graphs** (also called *pie charts*)

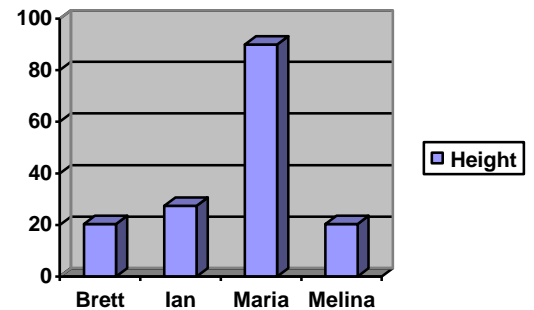
- Used to show portions of an amount, as well as how a part's share relates to the whole. Each "slice" of the circle graph shows a percent of the whole.
- You cannot show how two variables are related using a circle graph

Composition of Fertilizer



- **Bar graphs**

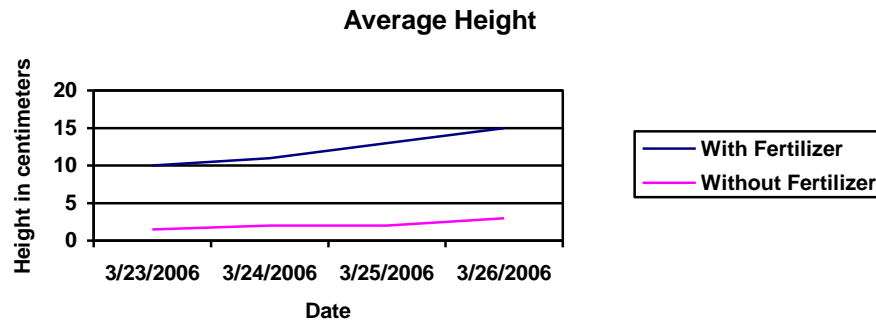
- Used to compare quantities which do not continually change.
- The independent variable is always placed on the x-axis.
- You chose the scale by looking at the highest and lowest numbers.
 - Suppose you want to compare the height of four people. People's heights do not usually change very rapidly, at least not from day to day.
 - In the example experiment with fertilizer, a bar graph would be a poor choice because you would only have two bars, one for the control group and one for the experimental group.



- **Line graphs**

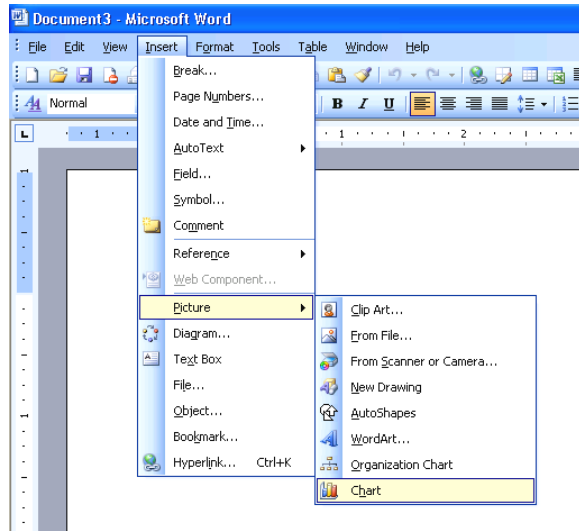
- Used to show how one variable in an experiment responds to the change in another.
- Pairs of numbers are used to express a relationship between the dependent and independent variable.
- In a line graph, the independent variable is placed on the x-axis (horizontal) and the dependent variable goes on the y-axis (vertical).
- Line graphs are most often used because they can help you answer the hypothesis, your "if-then" question, by showing you patterns in your data.

- Unlike circle and bar graphs, you can plot many sets of data on one graph
 - In an example experiment on fertilizer, the line graph would be the best choice because you could quickly get a picture of how your independent variable (addition of fertilizer) affected the dependent variable (height of plant).
 - There would be two lines on the graph, one for the control group and one for the experimental group.

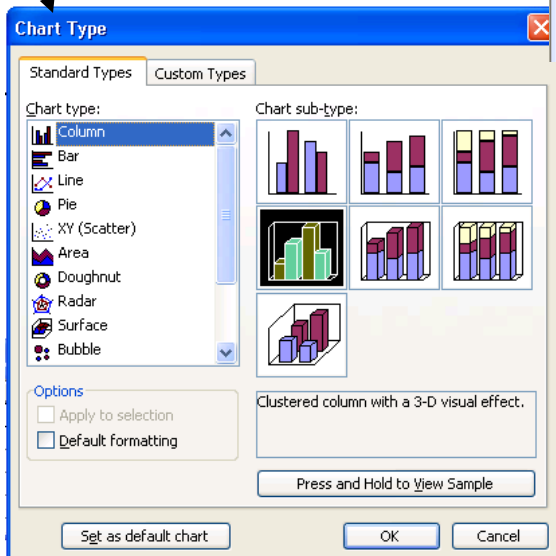
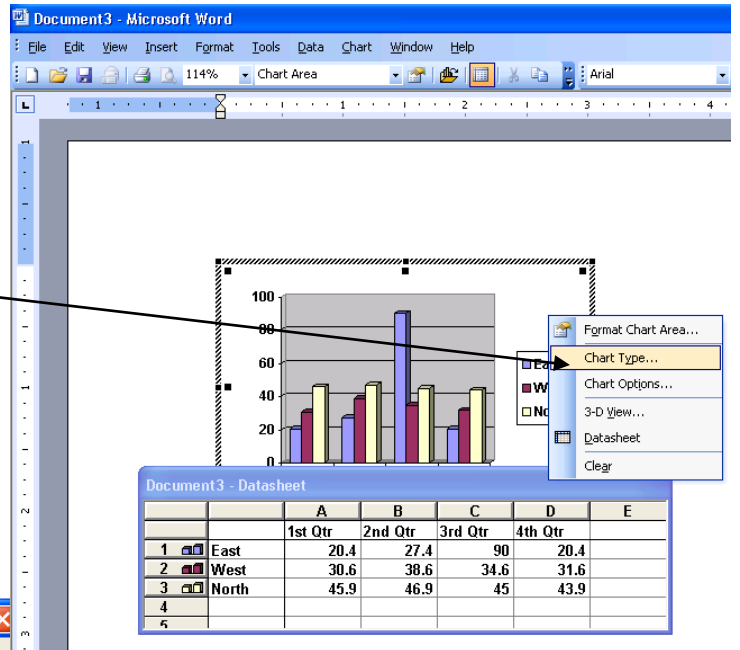


Using Microsoft Word to Create Graphs

1. Go to **Insert** on Toolbar
2. Click on **Picture**
3. Click on **Chart**



4. The chart will appear
5. Click on the “East,” “West,” “North” labels and change to your categories.
6. Click on the numbers in columns A – D and change to your data.
7. You can add more categories, data, or change colors.
8. You can also change the type of chart (pie, line, etc.) by “right clicking” on the chart.
9. This screen will pop up and you can choose from these types of graphs:
 - column, bar, line, pie, scatter, area, doughnut, radar, surface, bubble, stock, cylinder, cone, pyramid.



Part 2: Scientific Investigation Follow Up

- ✓ This is to be written *after* your experiment or survey is completed.
- ✓ It must include the following information:
 1. **Procedure**
 - ✓ This is a *short* summary of your procedures of the experiment.
 - ✓ This should NOT be a detailed step-by-step explanation
 2. **Results**
 - ✓ This is where you explain what happened in your experiment.
 - ✓ You must include some kind of graph or picture with your results.
 - A well-explained graph shows a clear representation of the experimental data.
 - Most graphs show the relationship between two or more things.
 3. **Conclusion**
 - ✓ A scientific conclusion is a statement that either proves or disproves a given hypothesis and makes statements as to what further experimentation can be done to broaden the scope of the problem that is being considered.
 - ✓ Sometimes results are inconclusive. In this case, discuss which procedures that should be changed and could be tried again.
 - ✓ Sometimes your hypothesis is proven to be wrong. In this case, explain what you did wrong or did not take into account for during your experiment.

GRADING PAGE

Science Fair Project: Follow Up Paper

- | | |
|--|---|
| <input type="checkbox"/> Paper was turned in on time | <input type="checkbox"/> Paper was neat |
| <input type="checkbox"/> Paper was _____ days late | <input type="checkbox"/> Paper was messy
(Please FIX) |

1. Procedure:

- In one to two sentences, student summarizes the process he or she followed for the experiment.
- Correct grammar / spelling were used
- Information was written in complete sentence(s)
- PLEASE FIX:** Statement is not applicable
- PLEASE FIX:** Shorten this statement
- PLEASE FIX:** Add more information to this statement
- PLEASE FIX:** Should not list a step-by-step explanation, just a summary
- PLEASE FIX:** Spelling errors
- PLEASE FIX:** Grammar errors
- PLEASE FIX:** Write as a complete sentence
- PLEASE FIX:** Section needs to have a title

2. Results:

- This is a rough draft and student has not yet completed the actual experiment.
- This section must be completed by the time the final draft is due
- In complete sentence(s), student summarizes what happened in the experiment
- AND The student uses one of the following to show the results:
 - Photographs
 - Graph
 - Data table
- PLEASE FIX:** Statement is not applicable
- PLEASE FIX:** Shorten this statement
- PLEASE FIX:** Add more information to this statement
- PLEASE FIX:** Spelling errors
- PLEASE FIX:** Grammar errors
- PLEASE FIX:** Write as a complete sentence
- PLEASE FIX:** Section needs to have a title "Results"
- PLEASE FIX:** Student needs to describe what happened in the experiment
- PLEASE FIX:** Section needs to have a picture, photograph, chart, or graph *showing* the results

GRADING PAGE

Science Fair Project: Follow Up Paper (cont.)

3. Conclusion:

- This is a rough draft and student has not yet completed the actual experiment.
- This section must be completed by the time the final draft is due
- Student states whether the hypothesis was proven or disproven by this experiment.
- Student gives possible based on this experiment applications (how can this be applied to everyday life)
- Student talks about what went well in the experiment
- Student describes how procedures could be changed to come up with different/more accurate results
- If applicable, student describes problems or complications that came up during the experiment.
- PLEASE FIX:** Statement is not applicable
- PLEASE FIX:** Shorten this statement
- PLEASE FIX:** Add more information to this statement
- PLEASE FIX:** Spelling errors
- PLEASE FIX:** Grammar errors
- PLEASE FIX:** Write as a complete sentence
- PLEASE FIX:** Section needs to have a title "Conclusion"

Part 3: Exhibit Board

- ✓ The dimensions of your Exhibit Board should be *no larger* than:
 - 122 cm wide x 76 cm deep x 198 cm tall
 - Or 4 ft wide x 2.5 ft deep x 6.5 ft tall
- ✓ These items **MUST** be included on your Exhibit Board:
 1. **Title / Problem** – In question form, in large letters
 2. **Hypothesis** – In sentence form
 3. **Procedures** – Well outlined list
 4. **Results**
 - Follow Up information – tables and graphs of data. Can include photographs
 5. **Conclusions**
 - Follow Up information – statement that proves your hypothesis to be either true or false. It also makes statements as to what further experimentation can be done to broaden the scope of the problem being considered.
 6. **Abstract** (see p. __)
 - Summary of the experiment, its results, and conclusions.
 7. **Acknowledgments**
 - If you have included any pictures, or had **any** help from anyone, you must acknowledge what they did.
 8. **Project Notebook** (see p. __) can sit on table, in front of exhibit board
 9. **Optional Items** – materials used in experiment, purpose of experiment, pictures or actual items used in project, problems incurred, variables, control or experimental groups.
 10. **Do NOT Include** –
 - Your name on anything!
 - Faces of people in your photographs
 - Anything that is messy or ripped.
 - Anything that is or was alive.

Part 3: Exhibit Board , cont.

- ✓ Other tips and ideas to keep in mind:
 1. Use “foamcore” for the exhibit board, if possible.
 2. Use colors on your display, if possible
 3. Use photography in your procedure whenever possible (however, do not include people’s faces in the photographs).
 4. Use the metric system on all measurements.
 5. Do NOT put your name on ANYTHING!
 6. Do NOT include anything that is or was alive.

Project Notebook

- ✓ These items MUST be included in the Project Notebook:
 1. **Background Research Paper** (from Part 1)
 - Typed, clean copy
 - 500 word minimum
 - Bibliography
 - Outline
 2. **Investigation Plan** (from Part 2)
 - Typed
 - States Problem, Hypothesis, detailed Procedures, and Safety issues
 3. **Follow-Up** (from Part 3)
 - Typed
 - Gives a summary of the Procedure, your Results (with data, graphs, tables, etc.) and your Conclusion
 4. **Journal**
 - Everything you did regarding the experimental process, as well as any required Consent Forms

GRADING PAGE

Science Fair Project: Sketch of Exhibit Board

Sketch was:

- Turned in on-time
- Turned in _____ late
- Neatly done
- Messy

Your sketch includes the following components:

- Title / Problem
 - On the actual exhibit board, this will be stated as a question, in large letters
- Hypothesis
 - On the actual exhibit board, this will be stated as a complete sentence
- Procedures
 - On the actual exhibit board, this will be given as a step by step outline
- Results
 - On the actual exhibit board, this will include the Results portion of the Follow Up Paper.
 - On the actual exhibit board, this section will have tables, graphs, or photographs of the results. (Remember that photographs cannot show the faces of people)
- Conclusion
 - On the actual exhibit board, this will include the Conclusion portion of the Follow Up Paper
 - On the actual exhibit board, this will be a complete sentence that states whether your experiment proved or disproved your hypothesis.
 - On the actual exhibit board, this will also include information about what further experimentation could be done
- Abstract
 - On the actual exhibit board, you will include a clean copy of your Abstract
- Acknowledgements
 - On the actual exhibit board, you will give credit to ANYONE who helped you (and what they did)

For the final project, you will need to include the PROJECT NOTEBOOK on the table IN FRONT of your Exhibit Board. This notebook contains:

- Clean copy of your Background Research Paper (with Bibliography)
- Clean copy of your Investigation Plan
- Clean copy of your Follow-Up Paper
- Journal
 - Each date that you worked on your project is listed
 - Each date is listed on a separate page

GRADING PAGE

Science Fair Project: Actual Exhibit Board

	0 points	4 points	6 points	8 points	10 points	Your Score
Title or Problem	No title			Easy to read, but not stated in question form	Stated in question form; easy to read	
Hypothesis	None listed	Confusing or unclear	Doesn't answer the question given in the problem	Easy to read, but not a complete sentence	Stated in sentence form; easy to read	
Procedure	None listed	Very vague directions	General ideas, not in a "list" format	Lists most steps. Clear enough for another student to follow	Well defined list that another student could follow easily	
Results	None listed	Inadequate description of results. No tables, graphs, or photographs. Data and observations are incorrect or missing. Relevant labels or units are missing.	Adequate description of results. No tables, graphs, or photographs. Data and observations are incomplete or do not include sufficient details. Units or labels may be missing.	Doesn't describe results. Includes tables, graphs, or photographs. Data and observations are complete and correct.	Superior job of describing information. Includes tables, graphs, or photographs. Data and observations are complete and correct, with all relevant units and labels (in metric)	
Conclusions and Explanations	None listed	Conclusions and explanations are missing or do not make sense given the student's data and observations. Student does not describe further experimentation possibilities	Conclusions and explanations are incomplete or not supported by sufficient details. Student does not describe further experimentation possibilities	Conclusions and explanations are complete and supported by student's data. Student describes further experimentation possibilities	Conclusions and explanations are complete and supported by student's data. Student describes at least two areas for further experimentation	

GRADING PAGE

Science Fair Project: Actual Exhibit Board (cont.)

	0 points	4 points	6 points	8 points	10 points	Your Score
Abstract	None given	Abstract is incomplete or confusing	Two portions of the abstract are missing or confusing	One portion of the abstract is missing or confusing	Includes all required portions in the abstract	
Acknowledgments	None given				Acknowledgments listed	
Project Notebook	No notebook in front of Exhibit Board	Project Notebook is missing three components	Project Notebook is missing two components	Project Notebook is missing one component	Project Notebook includes the Background Research Paper, Investigation Plan, Follow-Up Paper, and Journal	
Clarity and Layout	No effort	No apparent logical order of exhibit board, unclear focus	Content is loosely connected	Sequence of information is well-organized for the most part, but more clarity is needed	Organized layout, information is very clearly labeled	
Neatness, Spelling, and Grammar	No effort	Project is done with some effort. Many spelling or grammatical errors.	Project is adequately done. Spelling or grammatical errors.	Project is nicely done. Occasional spelling or grammatical errors	Project is neatly done, no spelling or grammatical errors	
Following directions	More than 3	3 problems	2 problems	1 problem	Name is not listed, board looks neat and professional, and dimensions are within limits	

GRADING PAGE

Science Fair Project: Project Notebook

	0 points	4 points	6 points	8 points	10 points	Your Score
Background Research Paper	Not included		No Bibliography included	Graded copy of the Background Research Paper	Has a clean copy of their Background Research Paper	
Investigation Plan	Not included	Missing three sections	Missing two sections	Procedures are vague, not very detailed OR Missing one section	Includes their Question, Hypothesis, Procedures, and Safety Considerations	
Follow Up Paper	Not included	Two sections are missing	One section is missing OR there are two problems in one section	Results are missing a description or are missing visuals. OR Conclusions are missing a section.	Includes their Procedures (summary), Results (description and visuals), and Conclusions (referring back to hypothesis, giving other areas for consideration, problems, etc.	
Journal	Not included		All entries are listed on a single page		Each date is listed on a separate page	
Neatness	No effort	Project Notebook shows very little effort	Project Notebook is adequately done	Project Notebook is nicely done	Project Notebook is put together neatly.	

Part 3: Exhibit Board

Abstract

- ✓ This serves as a preview to your work.
- ✓ List a title.
- ✓ Include these areas:
 1. Objectives / Goals
 2. Methods and Materials
 3. Results
 4. Conclusions

Examples:

What Makes Good Electrical Conductors? (Grades 4-5)

Objectives / Goals: The objective of my project is to determine which materials make the best electrical conductors.

Methods and Materials: I used wood, plastic, copper, steel, and tin as my materials to be tested. I also used a volt / ohms meter and the test probes to make my measurements.

Results: The meter I used showed the metals to all be excellent conductors and that the plastic and wood did not conduct an electrical current.

Conclusions: My conclusion is that the metals I tested were excellent conductors of electrical current and that neither plastic nor wood conducts electricity.

The Effect of Surface Finish on Rocket Drag (Grades 6-12)

Objectives / Goals: My project was to determine if surface finish has an effect on the drag of a model rocket. I believe that a model with a smooth surface will have lower drag and will reach higher altitudes.

Methods and Materials: Five model rockets with identical size and shape, but different surface preparations were used. One rocket was left with an unfinished surface, three had surfaces finished to various degrees of smoothness, and the fifth rocket had its surface sealed, primed, sanded with 600 grit, painted, and covered with clear gloss. The rockets were ballasted to weigh the same and flown ten times each with B 5-4 motors.

Results: The rocket with the clear gloss finish consistently reached the highest altitudes of all 5 rockets, while the unfinished rocket consistently reached the lowest altitude.

Conclusions: My conclusion is that surface finish has an important role in model rocket drag and altitudes they can achieve.

GRADING PAGE

Science Fair Project: Abstract

- Paper was turned in on time
- Paper was _____ days late
- Paper was neat
- PLEASE FIX:** Paper was messy

1. Objectives/Goals:

- In one to two sentences, student summarizes what he or she hopes to accomplish or prove with this science fair project. Statement could be similar to the hypothesis
- Correct grammar / spelling were used
- Information was written in complete sentence(s)
- PLEASE FIX:** Statement is not applicable
- PLEASE FIX:** Shorten this statement
- PLEASE FIX:** Add more information to this statement
- PLEASE FIX:** Spelling errors
- PLEASE FIX:** Grammar errors
- PLEASE FIX:** Write as a complete sentence
- PLEASE FIX:** Section needs to have a title

Examples:

- “Objectives and Goals”
- “Objectives/Goals”
- “Objectives”
- “Goals”

2. Materials/Methods:

- In complete sentence(s), student summarizes what materials he or she needs to complete the science fair project (actual experiment).
- In complete sentence(s), student summarizes the basic process he or she will use during the actual experiment.
- Correct grammar / spelling were used
- Information was written in complete sentence(s)
- PLEASE FIX:** Statement is not applicable
- PLEASE FIX:** Shorten this statement
- PLEASE FIX:** Add more information to this statement
- PLEASE FIX:** Describe materials used
- PLEASE FIX:** Describe the process or methods
- PLEASE FIX:** Spelling errors
- PLEASE FIX:** Grammar errors
- PLEASE FIX:** Write as a complete sentence
- PLEASE FIX:** Section needs to have a title “Materials / Methods”

GRADING PAGE

Science Fair Project: Abstract (cont.)

3. Results:

- This is a rough draft and student has not yet completed the actual experiment.
- This section must be completed by the time the final draft is due
- In complete sentence(s), student summarizes what happened in the experiment
- PLEASE FIX:** Statement is not applicable
- PLEASE FIX:** Shorten this statement
- PLEASE FIX:** Add more information to this statement
- PLEASE FIX:** Spelling errors
- PLEASE FIX:** Grammar errors
- PLEASE FIX:** Write as a complete sentence
- PLEASE FIX:** Section needs to have a title “Results”

4. Conclusions:

- This is a rough draft and student has not yet completed the actual experiment.
- This section must be completed by the time the final draft is due
- In complete sentence(s), student summarizes what they learned or general comments about the success of the experiment.
- PLEASE FIX:** Statement is not applicable
- PLEASE FIX:** Shorten this statement
- PLEASE FIX:** Add more information to this statement
- PLEASE FIX:** Spelling errors
- PLEASE FIX:** Grammar errors
- PLEASE FIX:** Write as a complete sentence
- PLEASE FIX:** Section needs to have a title “Conclusions”

GRADING PAGE

Science Fair Project: Oral Presentation

	0 points	1 points	2 points	3 points	4 points	Your Score
Speaking Skills	No effort	Monotone; speaker seemed uninterested in material	Little eye contact; fast speaking rate, little expression, mumbling	Clear articulation of ideas, but apparently lacks confidence with material	Exceptional confidence with material displayed through poise, clear articulation, eye contact, and enthusiasm	
Clarity	No effort	No apparent logical order of presentation, unclear focus	Content is loosely connected, transitions lack clarity	Sequence of information is well-organized for the most part, but more clarity with transitions is needed	Development is clear through use of specific and appropriate examples; transitions are clear and create a succinct and even flow	
Content	No effort	Unclear and information appears randomly chosen	Clear, but supporting information is disconnected	Many relevant points, but they are somewhat unstructured	Exceptional use of material; abundance of various supported materials	
Description Of Exhibit Board	No effort	No explanation of exhibit board, briefly mentions process	Minimal explanation of exhibit board and no mention of process	Simple explanation of exhibit board and process	Very detailed explanation of exhibit board and process	

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INTERESTING WEB SITES

<http://school.discovery.com/sciencefaircentral/>

Science Fair Central from Discovery School. Has handbooks, tips, idea lists, questions and answers, even a section just for parents.

<http://www.ars.usda.gov/is/kids/fair/ideasframe.htm>

Suggests some project ideas from agriculture and gives sample steps for performing experiments.

<http://www.sciserv.org/isef/primer/index.asp>

This is the website for the International Science and Engineering Fair (ISEF). A rule book and other important forms can be downloaded from this site.

<http://www.usc.edu/CSSF/Resources/>

Links to online resources that might help with the science fair project

http://www.usc.edu/CSSF/Resources/Good_Project.html

Outlines characteristics of a good science fair project

<http://www.isd77.k12.mn.us/resources/cf/steps.html>

Gives steps to prepare for a science fair project, as well as sample projects and idea lists.

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

Gives lots of ideas with sample steps for completing experiments

Conduct your own online web searches for even more ideas!