

AHS Black History Science Fair Info Packet



The Abbeville High School Science Department is sponsoring a science fair to celebrate African – American scientists, inventors, and engineers and their contributions to the science technology engineering and math (STEM) fields.

Guidelines:

- 1) Students are to select an African-American scientist, inventor, or engineer who has made a significant contribution to one of the STEM fields.
- 2) Students research and document their subject's life and historical significance along with their scientific accomplishments.
- 3) Students design and implement an experiment that compliments the subject's experiment, research, or invention of note.
- 4) Students may enter individually or as a group (not to exceed 4 students).
- 5) Students will be judged in two separate age groups: Middle School (6th – 8th) and High School (9th – 12th).

Submission Schedule:

Friday, February 16, 2018: Project proposal due

Friday, March 2, 2018: Black History Science Fair

Presentation Guideline and Regulations:

- 1) **Students must first research an African American scientist or inventor and type a MLA style research paper** that includes background on the scientist, the reason for the experiment or invention, the process behind the experiment/invention, along with how significant that experiment/invention has been to American society.
 - a. **High school students must type a 4 page minimum research paper**, size 12 font, Times New Roman, double spaced, and all sources cited
 - b. **Middle school students must type a 2 page minimum research paper**, size 12 font, Times New Roman double spaced, and all sources cited
- 2) **Students must also create a 3D model of the invention, or re-create the actual experiment** done by their scientists.
- 3) **Students must present all their research on a tri-fold board** identifying the scientist, the invention/experiment, materials used, steps taken to re-create the invention/project, and overall significance. **Displays are not to exceed 30 inches deep, 48 inches wide, and 108 inches high.**
- 4) Students may have tablets, monitors, or projections as part of their display as long as they fall within the dimension guidelines (30x48x108).
- 5) All students will be provided with a table. Tablecloths will not be provided.
- 6) Power outlets will be made available only if requested on the submission form.
- 7) **Students should be prepared to give a brief oral presentation of their research.** Presentations should be at **least 2 minutes in length and may not exceed 5 minutes.** Students should also be prepared to answer any questions the judges may have following the presentation.

****I understand that it is my responsibility to turn in all parts of the science fair project, done correctly, and on time.**

Your signature _____ Date _____

****I have seen the science fair packet and timeline and understand it is my student's responsibility to turn in all parts of the project, done correctly, and on time.**

Parent Signature _____ Date _____

Science Fair Partner Contract

By signing the following contract I understand that:



- ✓ I must meet all of the deadlines for the science fair checkpoints with my teacher and in my period.
- ✓ All work must be turned in with our names, periods and teacher.
- ✓ Unless it is a Final Draft, of any stage of the project, I must turn in my own copy so that I can get feedback on my rough draft, even if we are in the same class.
- ✓ **I understand that because I am choosing to do a project with another person I am aware that I will be required to take my project further and more in depth to earn the same grade that I would on my own. Team projects must justify two people working together.**
- ✓ I understand that this is a timed project and I will be able to work in a cooperative manner with this person through the entire project.
- ✓ Any extra credit completed must be done on my own; if I choose to do it with my partner we will split the points!

Student One Name: _____

Responsibilities _____

Student Signature _____

Science Teacher _____ Period _____

Home phone _____ Email address _____

Parent Name _____ Parent Signature _____



Student Two Name: _____

Responsibilities _____

Student Signature _____

Science Teacher _____ Period _____

Home phone _____ Email address _____

Parent Name _____ Parent Signature _____

Teacher Signature: _____ Date _____

Student Planning Guide

Name: _____ Period: _____

List below 5 African-American scientists, inventors, and engineers you would be interested in choosing as your topic:

1. _____
2. _____
3. _____
4. _____
5. _____

Important information you must include within your research:

Scientist name	Date of birth / Date of death
Hometown	Education (college, include major if possible)
Scientific experiments (STEM related)	Inventions (STEM related)
How their experiment/invention benefited the science community.	Which field of science is this related to? (Life science, Physical science, Earth & Space science)

What kinds of science materials or equipment do I need to re-create the experiment or 3 –D model of the invention?

SUBMISSION FORM

Name: _____ Period: _____

Project Title: _____

African-American STEM related scientist:

Research:

Define Key Terms/Vocabulary

	:	
	:	
	:	
	:	

At least five sources: (Websites, Books, Interviews, etc.)

MATERIALS:

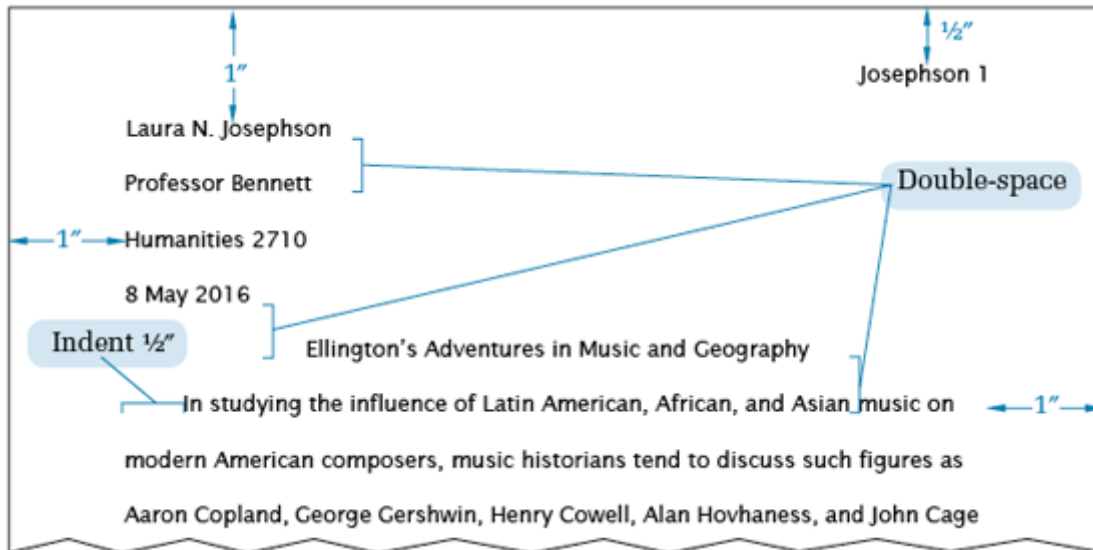
Include everything you need for your experiment/model, AND HOW MANY of each.

[illegible]

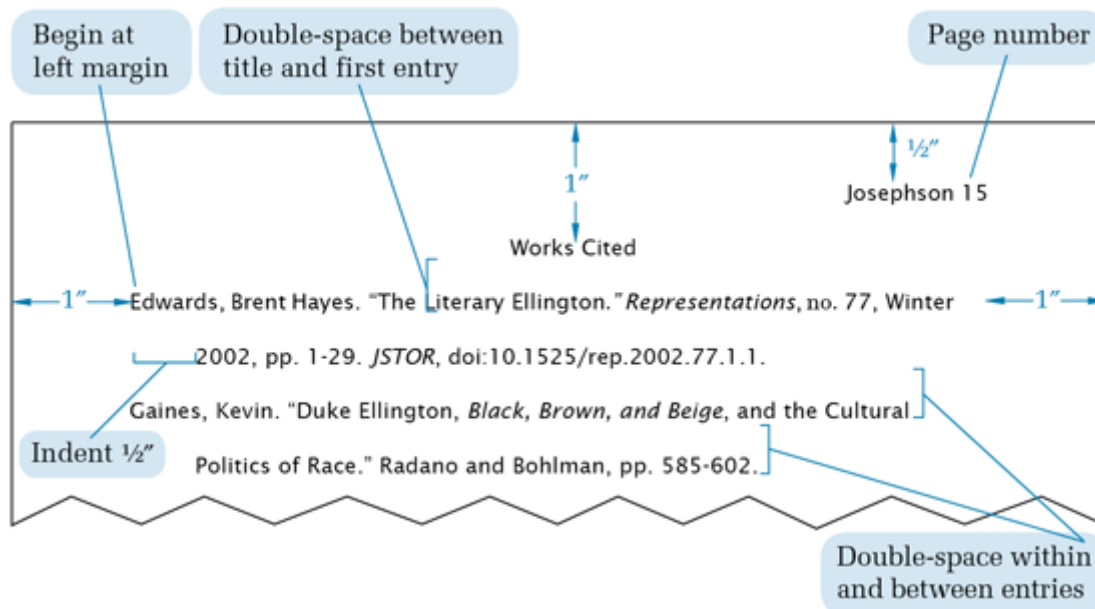
This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

MLA Style Format for Research Paper

- 1 inch margins
- Size 12 font
- Times New Roman style
- Double spaced
- Last name and page number included in Header
- Title for Paper
- Indent first line of each paragraph



- Alphabetized works cited (sources)



- Include charts, graphs, tables, and illustrations at the end of the paragraph in which they were described.
- Place tables and illustrations as close as possible to the parts of the text to which they relate. A table is usually labeled *Table*, given a number, and titled.

Table 1

Degrees in Modern Foreign Languages and Literatures Conferred by
Degree-Granting Institutions of Higher Education in the United States^a

Year	Bachelor's Degrees	Master's Degrees	Doctor's Degrees
1996-97	13,053	2,470	793
1997-98	13,618	2,367	819
1998-99	14,163	2,267	757
1999-2000	14,186	2,228	804
2000-01	14,292	2,244	818
2001-02	14,236	2,284	780
2002-03	14,854	2,256	749
2003-04	15,408	2,307	743
2004-05	16,008	2,517	762
2005-06	16,762	2,637	777

Source: table 297 in *Digest of Education Statistics*; 2007 ed., United States Dept. of Education, Institute of Education Sciences, National Center for Education Statistics, June 2007, nces.ed.gov/programs/digest/d07/tables/dt07_297.asp.

a. These figures include degrees conferred in a single language or a combination of modern foreign languages and exclude degrees in linguistics, Latin, classics, ancient and Middle and Near Eastern biblical and Semitic languages, ancient and classical Greek, Sanskrit and classical Indian languages, and sign language and sign language interpretation.

- Any other type of illustrative visual material—for example, a photograph, map, line drawing, graph, or chart—should be labeled *Figure* (usually abbreviated *Fig.*), assigned an number, and given a caption

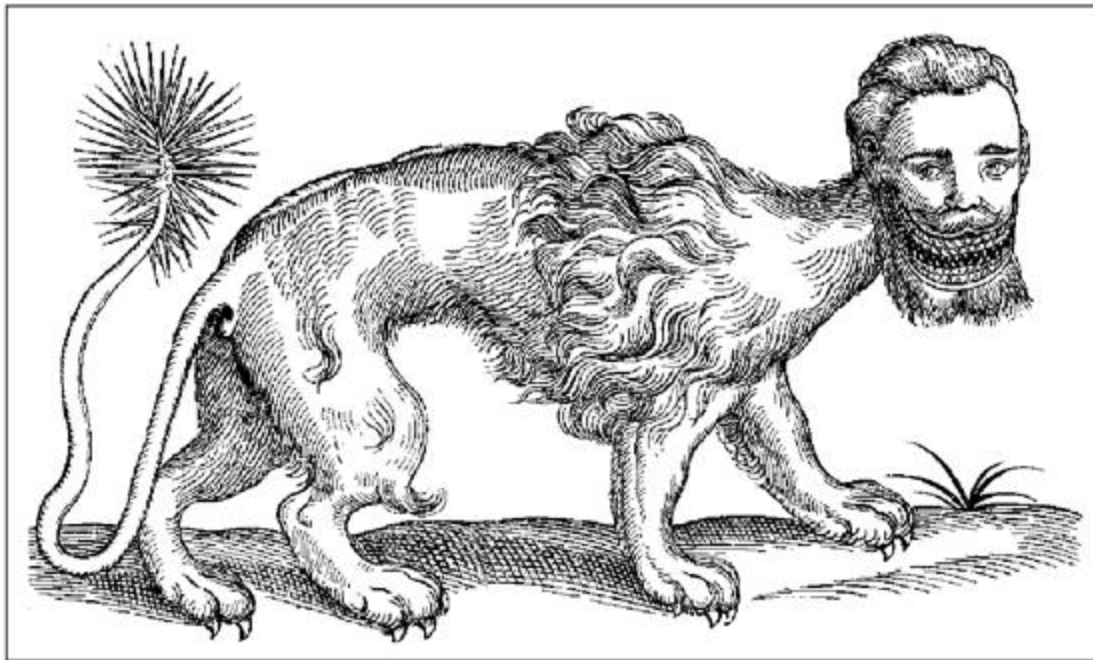


Fig. 1. Manticore, woodcut from Edward Topsell; *The History of Four-Footed Beasts and Serpents . . .*; London, 1658, p. 344; *Curious Woodcuts of Fanciful and Real Beasts*, by Konrad Gesner, Dover, 1971, p. 8.

MLA Format for Essays and Research Papers

Introduction

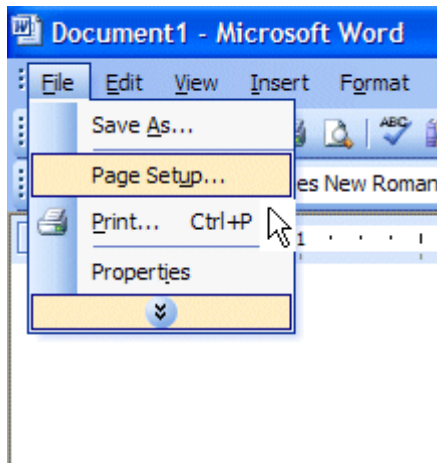
The Modern Language Association (MLA) specifies a standard format for essays and research papers written in an academic setting:

- One-inch page margins.
- Double-spaced paragraphs
- A header with author's last name and page number one-half inch from the top of each page.
- Name of author, name of professor, title of course, date of paper on the first page of the paper.
- A works cited page beginning on a separate page at the end of the paper.

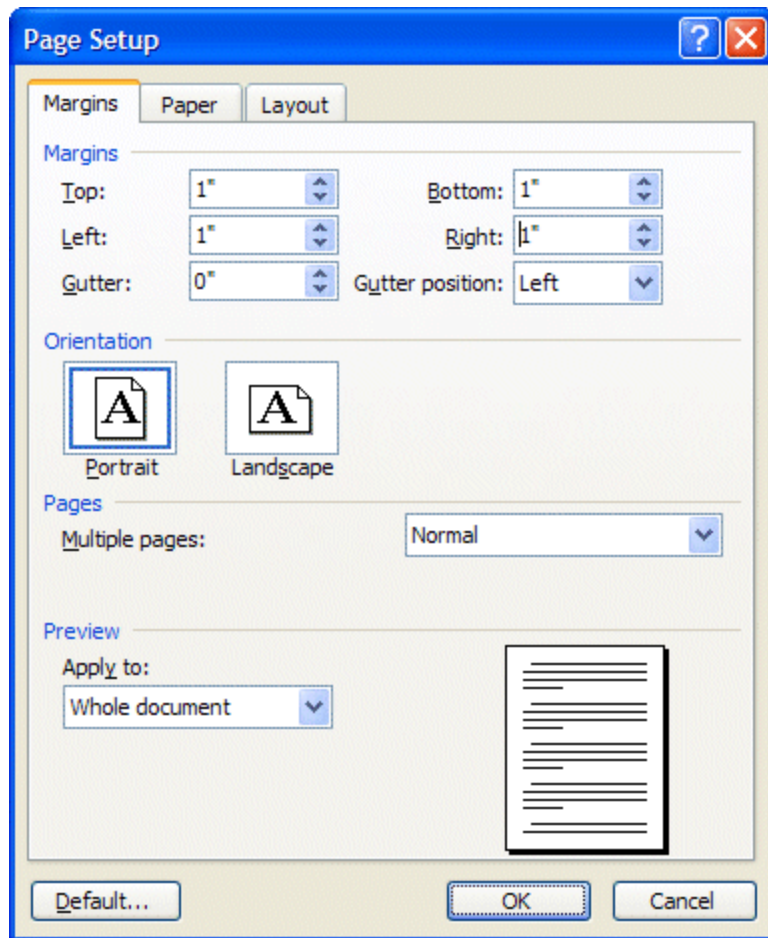
Follow the steps below to format your essay or research paper according to MLA whenever you use Microsoft Word. Before you begin, however, make sure that you can see the [Standard and Formatting toolbars](#) displayed on two rows on your screen.

1. Set the page margins to one inch.

1. To set the margins, select **File** and **Page Setup** from the Menu Bar:

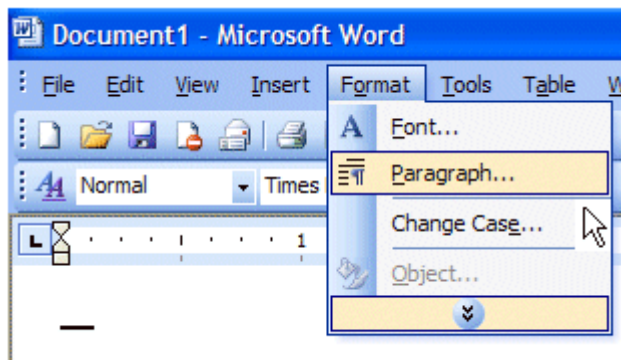


2. From the Page Format dialog box, set each margin at 1" inch by entering the number or using the up or down arrows beside each margin setting. Then click **OK, as shown below.**

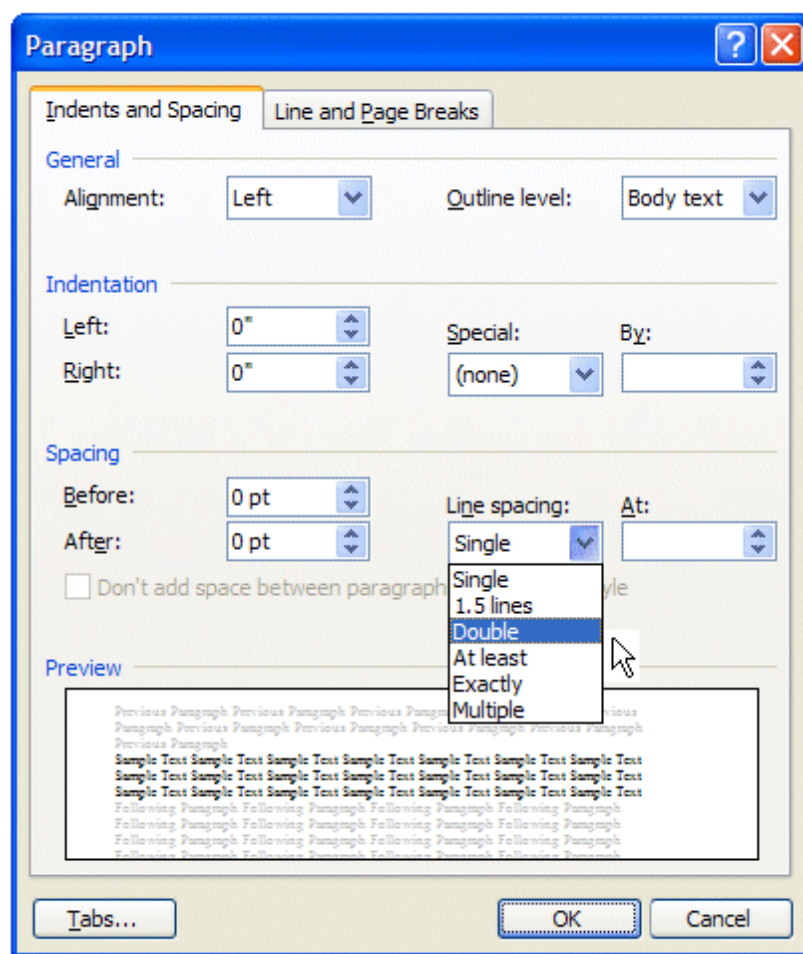


2. Set the line spacing to double spaced.

1. From the Menu Bar, select **Format** and **Paragraph**:

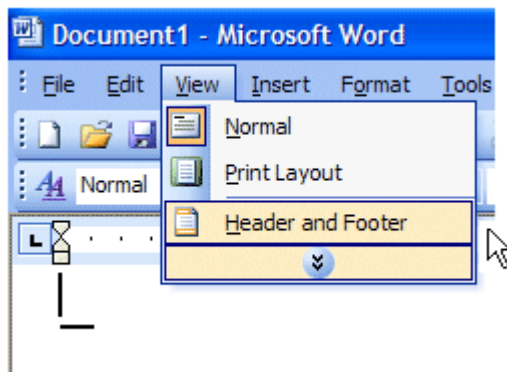


2. Make sure to select the **Indents and Spacing** tab, as shown below.
3. Under **Line Spacing**, select "**Double.**"
4. Click **OK.**

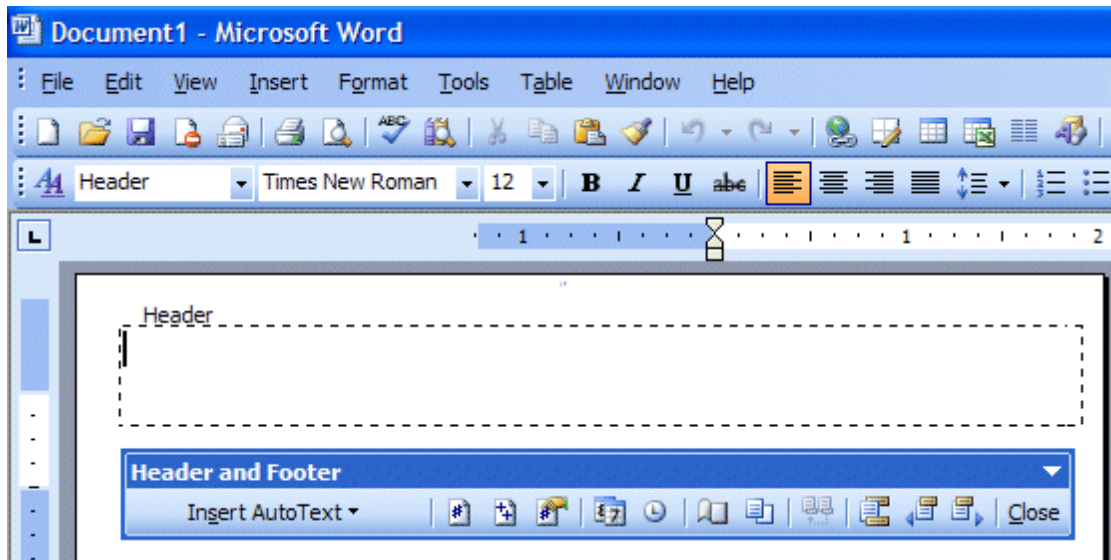


3. Create a header with your last name and automatic page numbering.

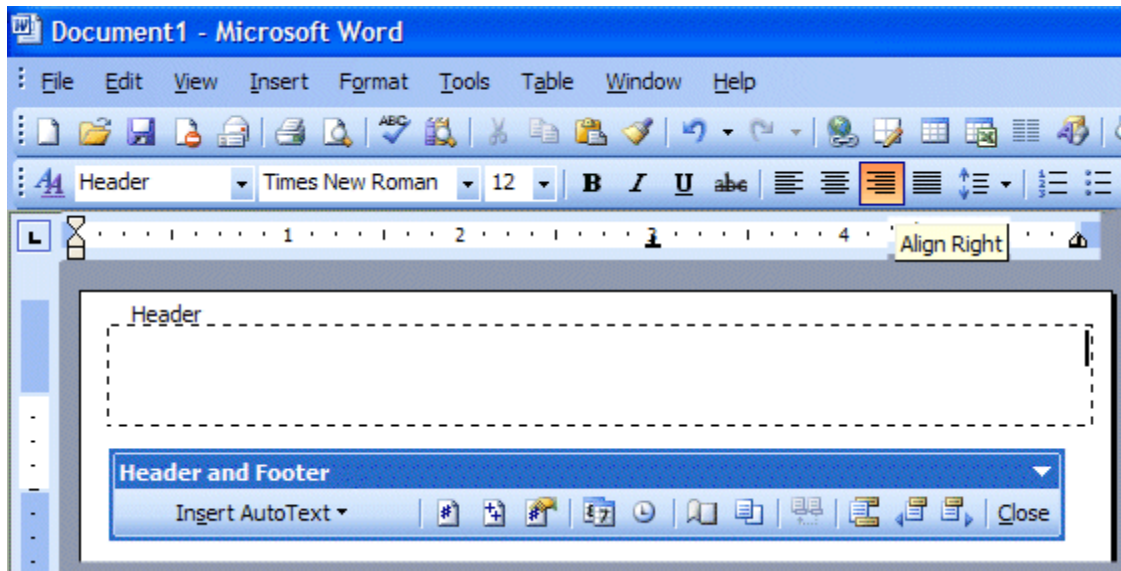
1. MLA format requires a header in the upper right-hand corner of each page set at 1/2" from the top of the page with the author's last name and a page number. To create the header and set automatic page numbering select **View** and then **Header and Footer** from the Menu Bar:



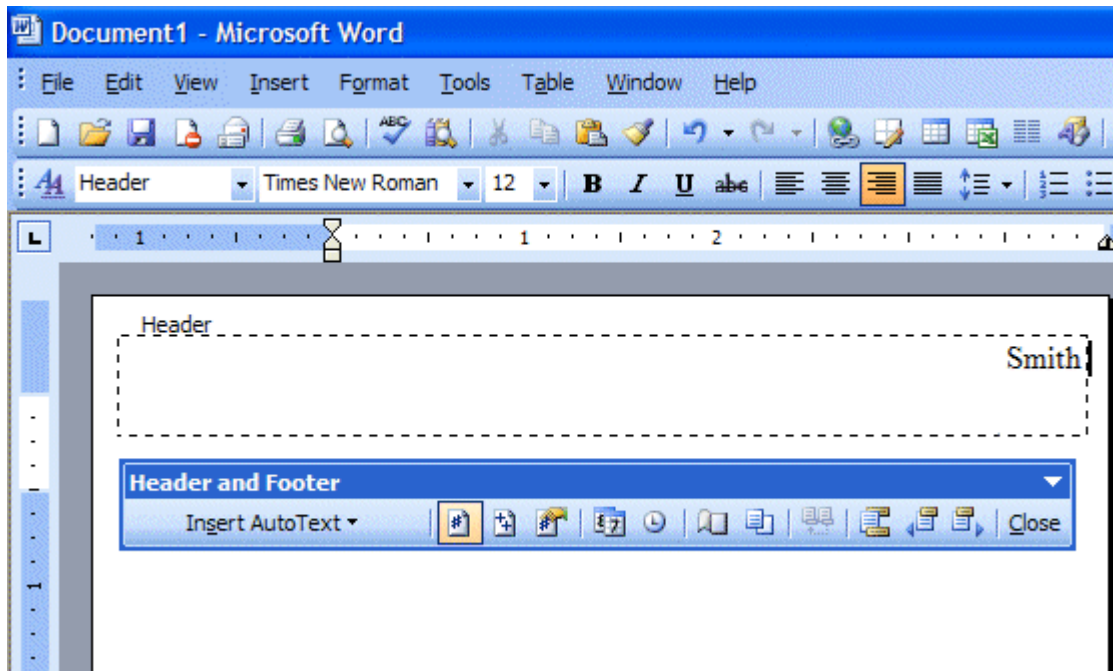
2. The header will appear at the top of your screen, ready for you to enter text and automatic page numbering:



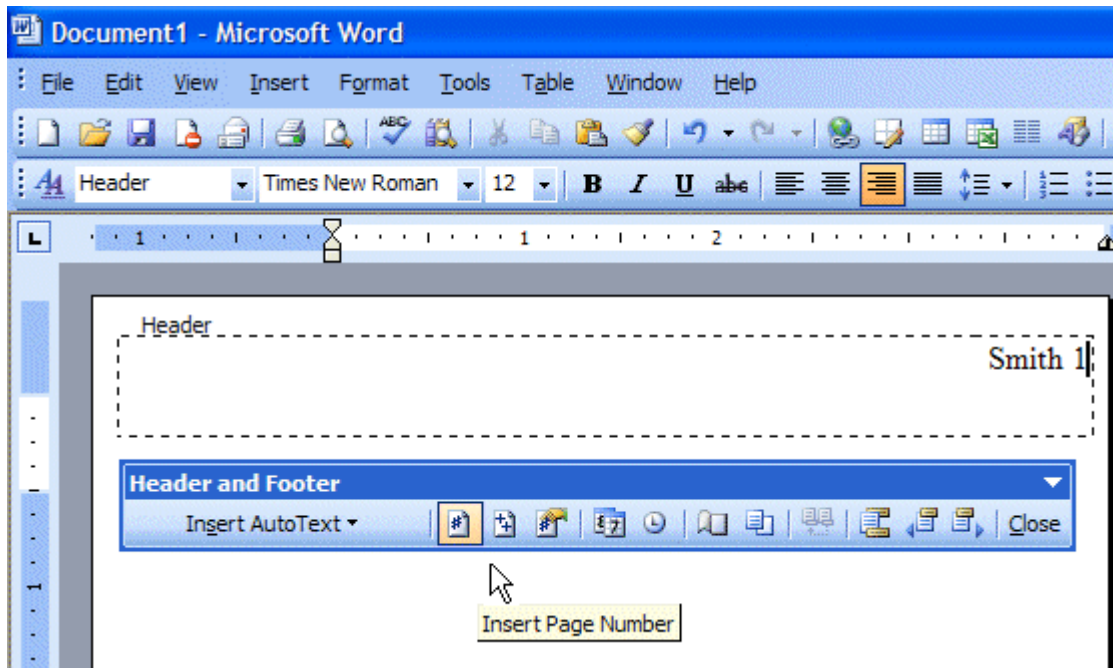
- Notice that the cursor is set on the left margin. Click the **Align Right** icon from formatting toolbar to align the text on the right margin. Notice that the cursor is shown at the right margin in the header section below:



- Type your last name in the header section. Then press the spacebar once to leave a single blank space after your last name, as shown below:



5. Click the pound sign (#) in the Header/Footer bar to insert the page number automatically in the header section on each page:

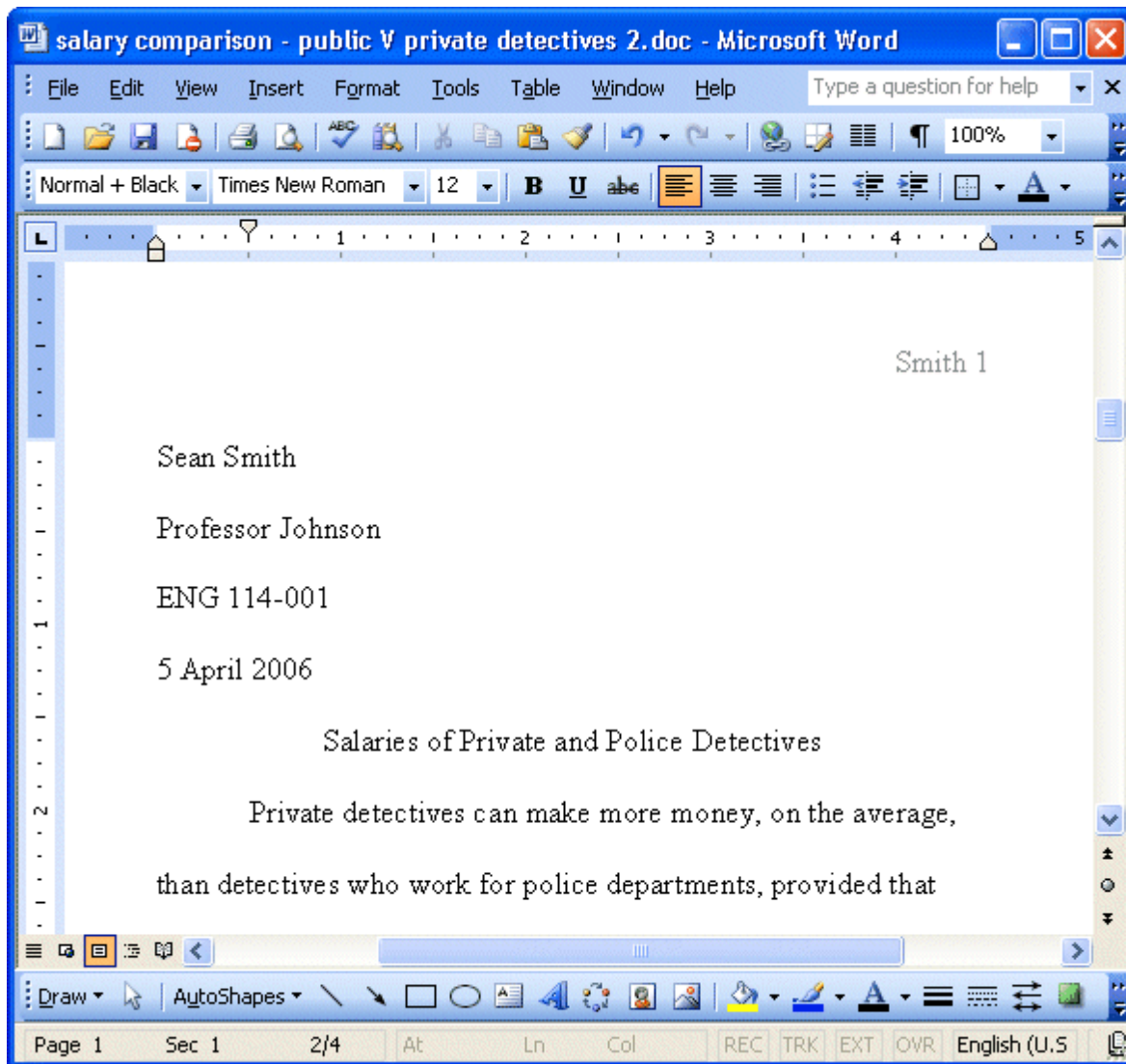


6. Click **Close** in the Header/Footer bar to close the header and return to the document.

4. Enter the first page information.

1. Type your name and then press the **Enter** key once.
2. Type your professor's name, and then **Enter**.
3. Type the course identification, and then **Enter**.
4. Type the date. Press the **Enter** key once.
5. Click on the **Align Center** icon on the formatting toolbar.

6. Type the title of your paper, capitalizing the first word and all major words and proper nouns. Do *not* use italics, boldfaced type, underlining, or all caps to format your title. Do *not* type a period at the end of the title. Press the **Enter** key once.
7. Click on the **Align Left** icon so that you will begin typing on the first line.
8. Depress the **Tab** key to indent 1/2 inch to begin your first paragraph and begin typing your document. Be sure to press the Enter key once only when you have completed a paragraph:

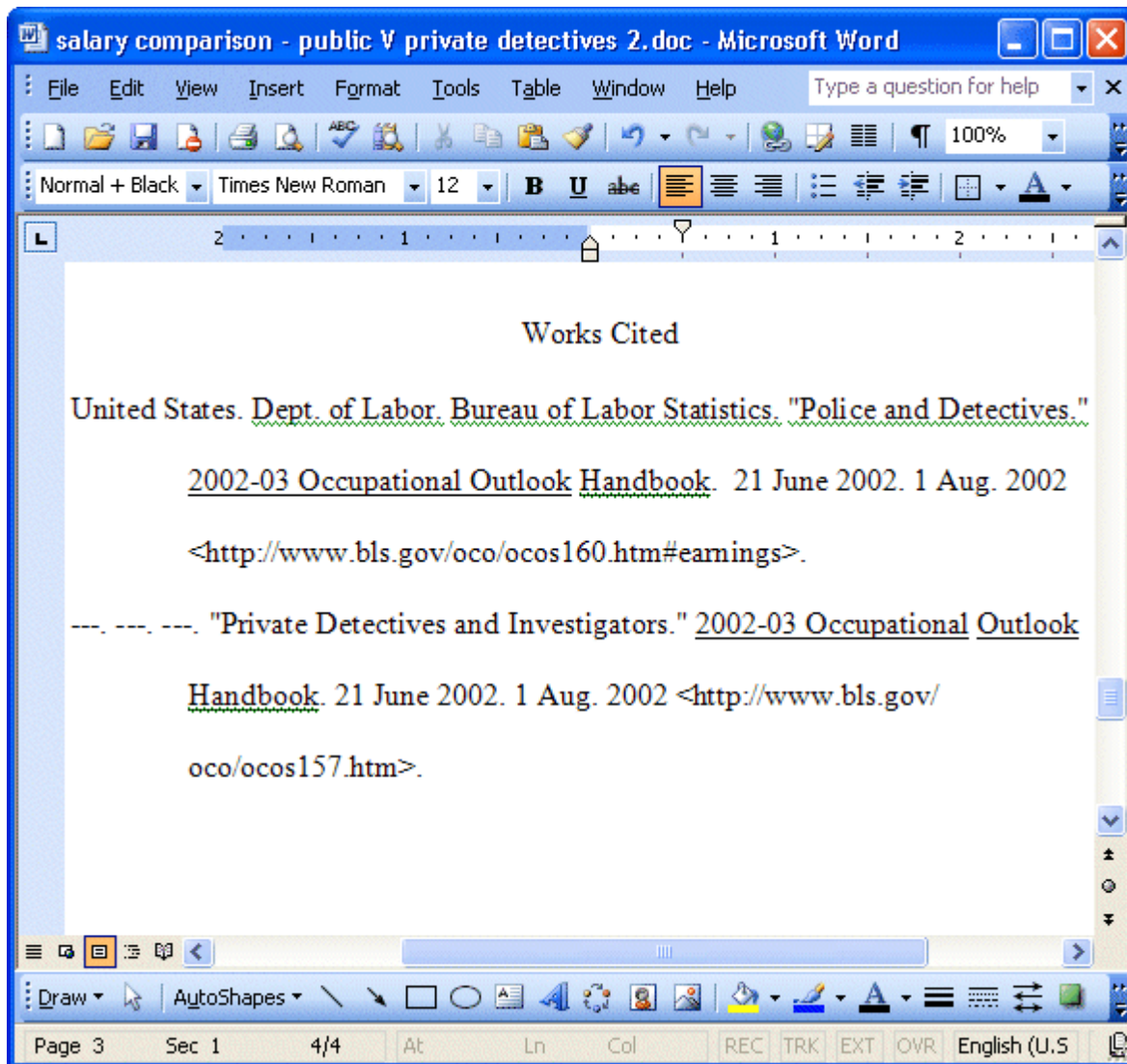


5. Type the works cited page.

Immediately after typing the final line of your paper, press the **CTRL** key and the **ENTER** key at the same time to begin a new page. Your header with your last name and automatic page numbering should appear at the top left of your paper if you are viewing your document in the "print layout" view option (from "View" on your menu bar).

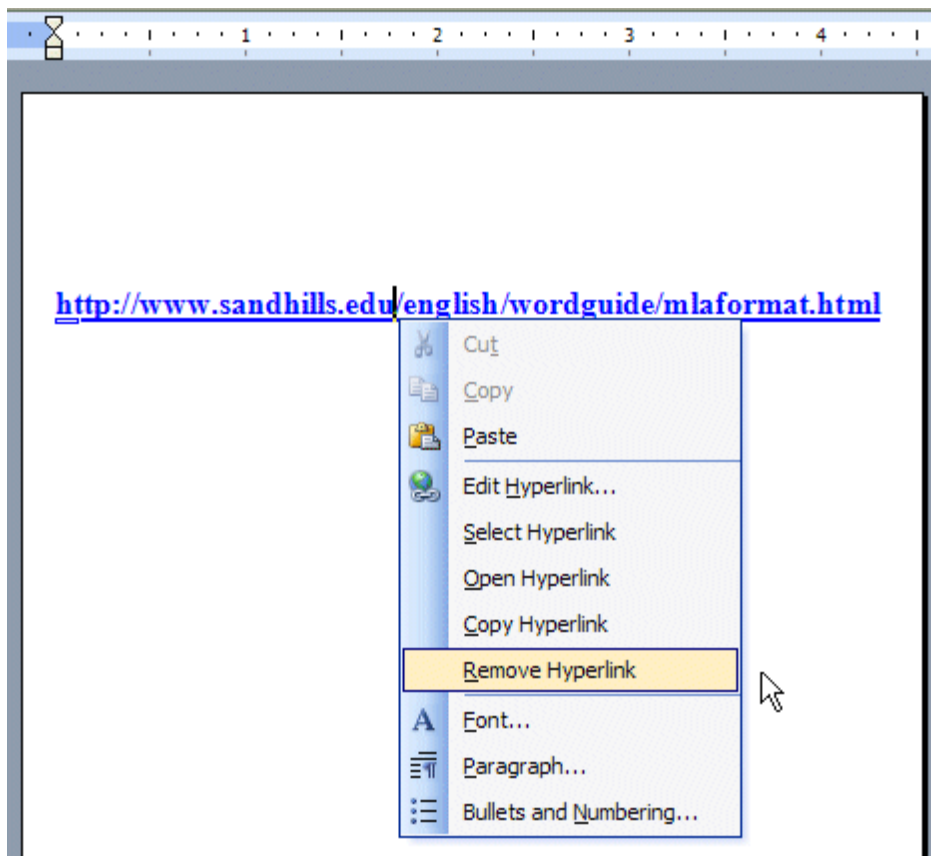
1. Click the **Align Center** icon so that your title will be centered. Before doing so, be sure to click "Format" and then "Paragraph" on the menu bar and check your paragraph format to make sure that the first line of the paragraph is not indented. If it is, change the first line indent to "none" and click "OK" in the Paragraph dialog box.
2. Type Works Cited (do *not* underline, boldface, italicize, or enclose the title in quotation marks).
3. Press the **Enter** key once to begin a new line (your line spacing is already set at double).
4. Click the **Align Left** icon or, from the menu bar, select **Format** and **Paragraph**, select the **Indents and Spacing** tab, and change **Alignment** to **left**.

5. Select **Format** from the menu bar and **Paragraph**. In the **Indents and Spacing** section, click **Special** and then click **Hanging**.
6. Type your first works cited entry in the MLA format.

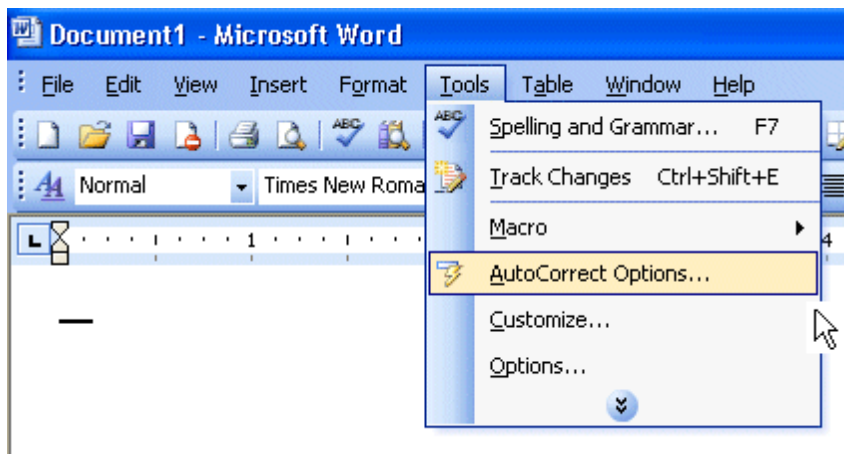


6. Remove the hypertext from the Internet address.

1. Please note that the Internet address is not underlined in the above example. However, if your MS Word AutoCorrect option is in the default setting, when you type an Internet address or paste an Internet address into your document and then press the spacebar, the address will become a hypertext link. This is useful if you are writing a document and want to send the file to someone as an email attachment. Then the person can open the document and read it on the computer screen and click the link to connect to the Internet address. When you insert an Internet address into a document in the MLA format, it should not be underlined and highlighted as hypertext is. You can click your right mouse button and then click "remove hyperlink," but the hypertext will appear again for the next listing.



2. To make sure that no hypertext links appear, click "Tools" and then "AutoCorrect Options" on the menu bar:



3. When the "AutoCorrect" dialog box appears, select the "AutoFormat As You Type" tab at the top of the dialog box and remove the check mark beside "Internet and network paths with hyperlinks." Then click "OK" at the bottom of the dialog box:

AutoCorrect 

AutoText AutoFormat Smart Tags

AutoCorrect AutoFormat As You Type

Replace as you type

- ☒ "Straight quotes" with "smart quotes"
- ☒ Ordinals (1st) with superscript
- ☒ Fractions (1/2) with fraction character (½)
- ☒ Hyphens (--) with dash (—)
- ☐ *Bold* and _italic_ with real formatting
- ☐ Internet and network paths with hyperlinks

Apply as you type

- ☒ Automatic bulleted lists
- ☒ Automatic numbered lists
- ☒ Border lines
- ☒ Tables
- ☐ Built-in Heading styles

Automatically as you type

- ☒ Format beginning of list item like the one before it
- ☒ Set left- and first-indent with tabs and backspaces
- ☐ Define styles based on your formatting

OK Cancel

DISPLAY BOARD

When you plan your science fair board, remember this is a case in which you CAN judge a book by its cover. If you do a really good job at completely your display, everyone will stop to look at your project. However, if you do a messy job, no one will take the time to discover all the fascinating research you have done or look at the results of your wonderful experiment or invention.

PLAN YOUR BOARD:

Make a small sketch of where everything will go. Lay it out before you glue anything down to make sure it looks good. Design what the "center" of your board will be. This is where everyone will look first. Will it be the title or pictures? Everything else should be place around this.

When you set up your board, put things together in the order that makes sense. Remember, we read from left to right so don't put stuff you did near the end (like the conclusion) on the right side of the board.

COMPONENTS OF YOUR BOARD:

You should have the following components on your board:

TITLE and SCIENTIST NAME - The title can be something related to the scientist in a "catchy" form.

Ex. Your scientist might be, *George Washington Carver* but your title might be *"It's Peanut Butter & Jelly Time!"*

RESEARCH - You might want to include a short paragraph that gives the background information on your scientist and your specific re-created experiment/invention

EXPERIMENT - This is the procedure (step by step details) you followed to do your experiment. It should follow the scientific method and include:

- Materials

- Procedure

- Constants and variables/Troubleshooting with invention

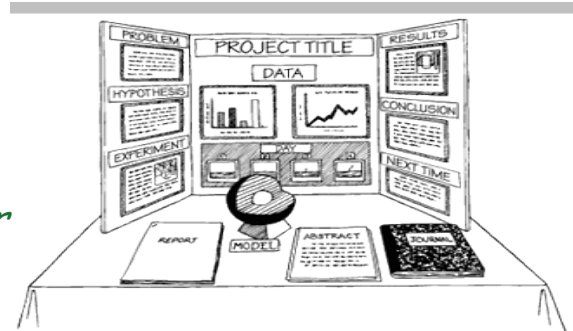


Figure 7.1 Example of a Good Display

DATA - These are your results displayed in a way that your audience can understand. It is usually displayed in a table, graph, or photographs. It is an "analysis" of what you have done.

CONCLUSION - This is a statement of whether your hypothesis was right or not; if it wasn't right, why you think it turned out the way it did, and what you do differently next time.

EXTRAS: You should at least one of the following:

ILLUSTRATIONS - These can be photographs that you took or online photos, that enhance your project. They can also be containers or labels of products you used in your project.

ACTUAL MODEL OR EXPERIMENT - This is the actual equipment you did at home or a model of your topic.

Ex. If your scientist was George Washington Carver you might make a model of the cotton gin or have the actual equipment you used to test this experiment.



COLORS AND TEXT:

1. You can use the labels that come with your board or create your own. Labels created on the computer can be very effective. Try using a different font or color for each of the labels.
2. Use colors that are appealing. They should contrast with your board color. If you have a white board, make your text a bright color(s). Try backing your text with colored paper to make your words alive.
3. Type your text. Use stencils or premade letters if you prefer. Make your lettering large enough for everyone to see. If you print it, use pencil first and draw guidelines to make sure your writing is neat. Go over your writing with permanent marker and make sure you erase your guidelines.



DISPLAY YOUR DATA:

You may display your data in a table or graph. Make sure your graph reflects the kind of data you have collected.

- A line graph demonstrates change over time.
- A bar/picture graph demonstrates a comparison between two or more things.
- A circle/pie graph compares parts to the whole.

Graphs and tables should be neatly done. Use computer generated graphs and tables or make them yourself. Use a ruler and colored pencils or markers to make them really eye appealing.



ILLUSTRATIONS:

Sometimes your results can be shown by photographs or pictures. Photographs and pictures also enhance a display, especially if you don't have the actual experiment because you used something that can't be displayed (i.e. pets, family members). You may also use computer generated graphics or photographs off the internet. Free Stock Photos.com and Net Vet are good sites for pictures of animals and other scientific topics. Check to see if you have permission to use them.

FINISHING TOUCHES:

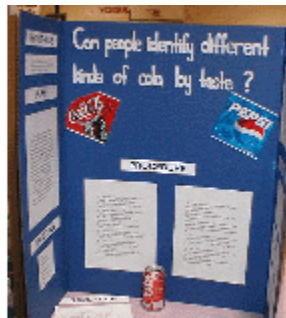


- Make sure you proofread all your written work.
- Use rulers.
- Don't use pencils. It looks unfinished.
- Erase all pencil guidelines.

SAMPLE LAYOUTS:

There is no one correct way to set up your board. It must, however, make sense and follow the steps of the scientific method. Remember:

- If you use a title, you still need the question (or problem).
- We read from left to right and from top to bottom. Groups topics that go together like question, research, and hypothesis; materials and procedures; analysis and conclusion.
- Put pictures and graphs where they fit best and make the most sense.
- Make sure you proofread any written work.



Below are different ways to organize your board. Try your own - just make sure it makes sense.

Try backing your words with a contrasting color.

