

*A Student's Guide  
to Writing Research Papers*

A magnifying glass with a brown handle and a silver frame, positioned over the title text. The handle is on the right side, pointing downwards. The lens is centered over the words "to Writing Research Papers".

Compiled by  
Sean McGrath

# Introduction

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Dear Students,

In your hands is *The Student's Guide to Research Papers*. It represents the Language Arts teachers' desire to not only provide you an education par with public schools, but also a challenge to ourselves: to teach together in such a way that everyone benefits. By setting consistent and high standards we hope to prepare you for life outside of high school.

Research is one of the most difficult things you will do in high school as well as in college. It is not only a time-consuming process, it is a process with requires total honesty, total attention and total accuracy. Research is also one of the most rewarding experiences you can have – what you learn, the scholarship, is invaluable; moreso, when you are finished you will have a sense of having done something important. The effort is worth the end.

Over the next few weeks your teachers will be asking a lot from you. Please do as they say, as they want you to come away from this with valuable knowledge. This is part of your education. Be involved. Ask questions. Challenge yourself. Check the facts. Learn.

Good luck,

Your Teachers

*Thanks!*

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*Contributors*

Michelle DeLeonardis  
Marie Dickinson  
Erika Domatti-Thomas  
Elizabeth Fortney  
Cindy Hamilton  
Travis Imel

# *What's In this Guide*

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# The Research Paper Checklist

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Below are listed the steps you will have to follow in order to write a good research paper. Keep this paper handy. As you finish a step, show your work to your teacher and together you can check off what's done!

	COMPLETED
Step 1 Choose a Subject and a Topic	
Step 2 Write a Thesis Statement	
Step 3 Choose Reference Materials	
Step 4 Write a First Outline	
Step 5 Create Bibliography Cards	
Step 6 Take Notes	
Step 7 Write a Final Outline	
Step 8 Write a First Draft	
Step 9 Edit the First Draft	
Step 10 Prepare the Bibliography	
Step 11 Write the Final Draft	
Step 12 Add the Finishing Touches	

When you reach the bottom of this list, CONGRATULATIONS!! You've finished your research paper!

# Creating a Thesis Statement

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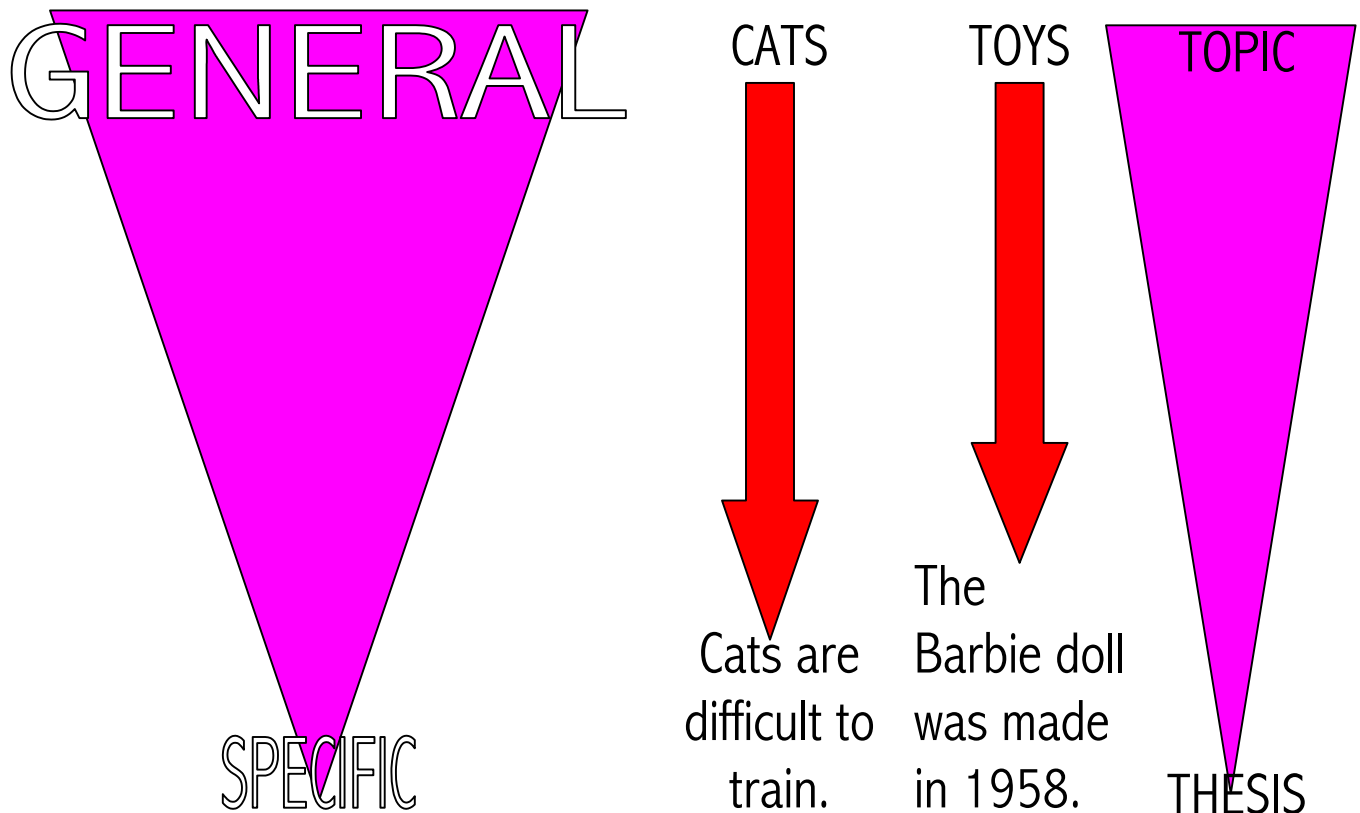
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## What is Your Paper About?

The easiest way to begin writing a paper is to write about something you enjoy. If you enjoy what you're writing about you will be more excited and interested to learn more about it. You may even already know where to find information about it! This is called the TOPIC of your paper – *the general idea you will write about*. Sometimes, however, you may not be able to pick your topic. Sometimes a teacher may assign you a topic that relates to what is happening in class.

Once you pick (or are assigned) a topic, you need to decide what you want to say about it. You need to be very specific about what you want to say or you may become quickly overwhelmed by information. The *specific statement of what you want to say* in a research paper is called the THESIS. A thesis helps you *focus* your paper.

For example...



Stating your thesis is very difficult. Don't become too frustrated, though. ASK FOR HELP! Teachers are there to help you.

A thesis statement can take many forms. Read the examples below to find out which one is appropriate for your paper.<sup>1</sup>

1. Your thesis statement may relate a history in chronological (time) order.

*Example:*

Gallaudet College has changed dramatically since it became Gallaudet University in 1986.

2. Your thesis may explain a process.

*Example:*

After using a microscope you must follow a five-step cleaning procedure.

3. Your thesis may explain the cause of an event.

*Example:*

Many Japanese people developed leukemia after atomic bombs destroyed Hiroshima and Nagasaki.

4. Your thesis may explain the result of an event.

*Example:*

There were riots in the streets of several large American cities after Martin Luther King, Jr. was shot.

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<sup>1</sup> Adapted from The Gallaudet University English Works! Online Writing & Reading Lab.

5. Your thesis may introduce a problem.

*Example:*

Many good teachers have left the education profession because they do not feel they earn enough.

6. Your thesis may provide a solution.

*Example:*

If a comet comes too close to Earth, rockets can be sent into space to destroy it.

7. Your thesis may be a comparison.

*Example:*

Deaf people raised with ASL seem to be more academically successful than those raised in oral programs.

8. Your thesis may be a contrast between things.

*Example:*

The American-made films of John Woo are stylistically different from his films made in China.

*Example:*

PC computers and Mac computers have many of the same kinds of hardware.

9. Your thesis may explain similarities.

10. Your thesis may explain a difference.

*Example:*

Lay's BBQ potato chips and Ruffles BBQ potato chips have vastly different flavors.

11. Your thesis may explain a relationship.

*Example:*

The Hobbit has influenced many generations of fantasy writers, especially Tad Williams.

12. Your thesis may be an analysis.

*Example:*

"Life, Liberty and the Pursuit of Happiness" mean a lot to high school students after 9/11.

13. Your thesis may support a particular issue ("pro").

*Example:*

Cochlear implantation is appropriate for children so they can learn how to speak .

14. Your thesis may not support a particular issue ("con").

*Example:*

Cochlear implantation is never appropriate in children.

15. Your thesis may explain advantages of a situation.

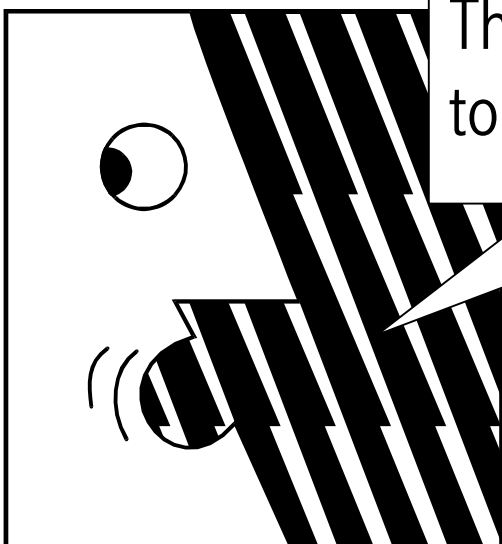
*Example:*

*Coming out* helps gay/lesbian/bisexual/transgendered people find support from people which they need early on.

*Example:*

Coming out may lead to gay/lesbian/bisexual/transgendered people being disowned by their families.

16. Your thesis may explain disadvantages of a situation.



There are so many ways to state a thesis!

**UNBELIEVABLE**

# Creating a Thesis Statement

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## Practice

**DIRECTIONS** – Look at the topics below and create TWO thesis statements for each. Remember: some of the topics might seem “simple” or uninteresting. It is your responsibility to “hook the reader” with an intriguing thesis statement – one that will entice the reader to continue reading.

1. TOPIC: READING

Thesis statements

A.

B.

2. TOPIC: EATING HEALTHY

Thesis statements

A.

B.

3. TOPIC: COMPUTER LITERACY

Thesis statements

A.

B.

4. TOPIC: EDUCATION

Thesis statements

A.

B.

5. TOPIC: TOYS

Thesis statements

A.

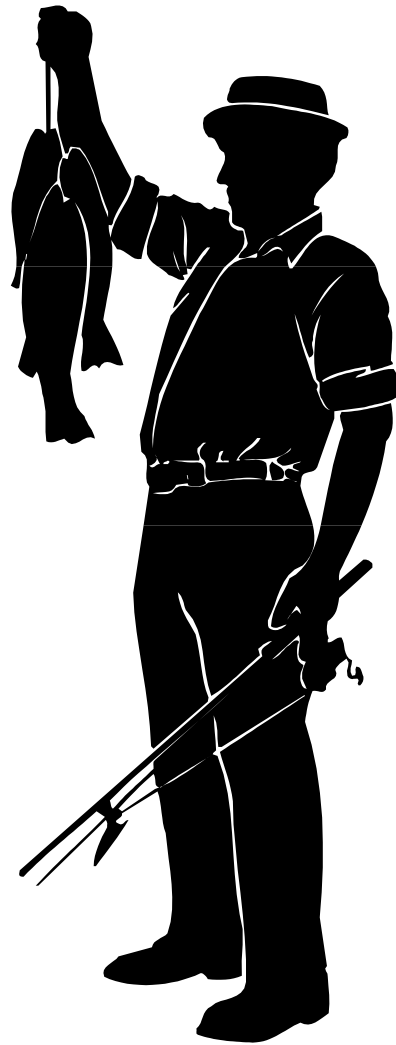
B.

6. TOPIC: FAVORITE ANIMAL

Thesis statements

A.

B.



*“Hooking” Your Audience...*

People can spot an average movie within the first few minutes of viewing. If those minutes are not engaging or new or exciting, more than likely the audience will not be interested in what happens next.

This is the power of a good opening – to enthrall or to bore.

Similarly, the opening lines of a paper can make readers want to continue reading or they can make audiences want to file down their foot calluses. Teachers have read hundreds of papers and if your paper is boring chances are it will be reflected in your grade. The opening of your paper should be exciting and interesting. It should grab the reader’s attention and demand they turn the page.

When you write your research paper, be sure to spend some time generating an interesting thesis, and following up with stimulating ideas.

Your teachers will thank you.

# Creating a Thesis Statement

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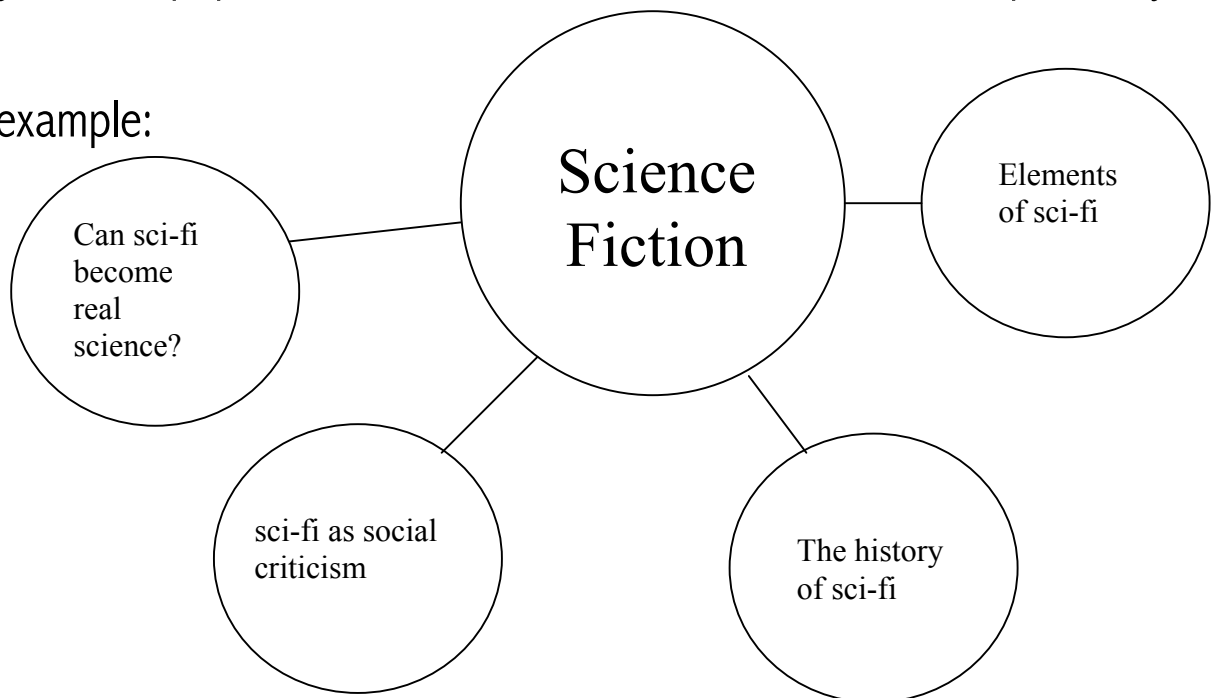
## For Example

Let's say that your teacher has asked you to do a research paper on Science Fiction. Now, there are literally thousands of articles, movies, books and dissertations about Science Fiction. How does one go about limiting that to just ONE idea?

First, if you have never read a science fiction story or watched a science fiction movie, you need to. Immediately. You cannot talk about something of which you know nothing. And given the amount of time that research takes, if you postpone your initial experiences with the topic, you will most likely miss your teacher's deadlines.

Once you have done some preliminary reading (or watching), think about what you have learned – has anything stuck in your head? Have any questions you want to explore? It doesn't matter if you think the ideas are silly or outlandish or simple, the idea here, BRAINSTORMING, is to get everything out on paper for consideration. These ideas will help form your thesis.

For example:



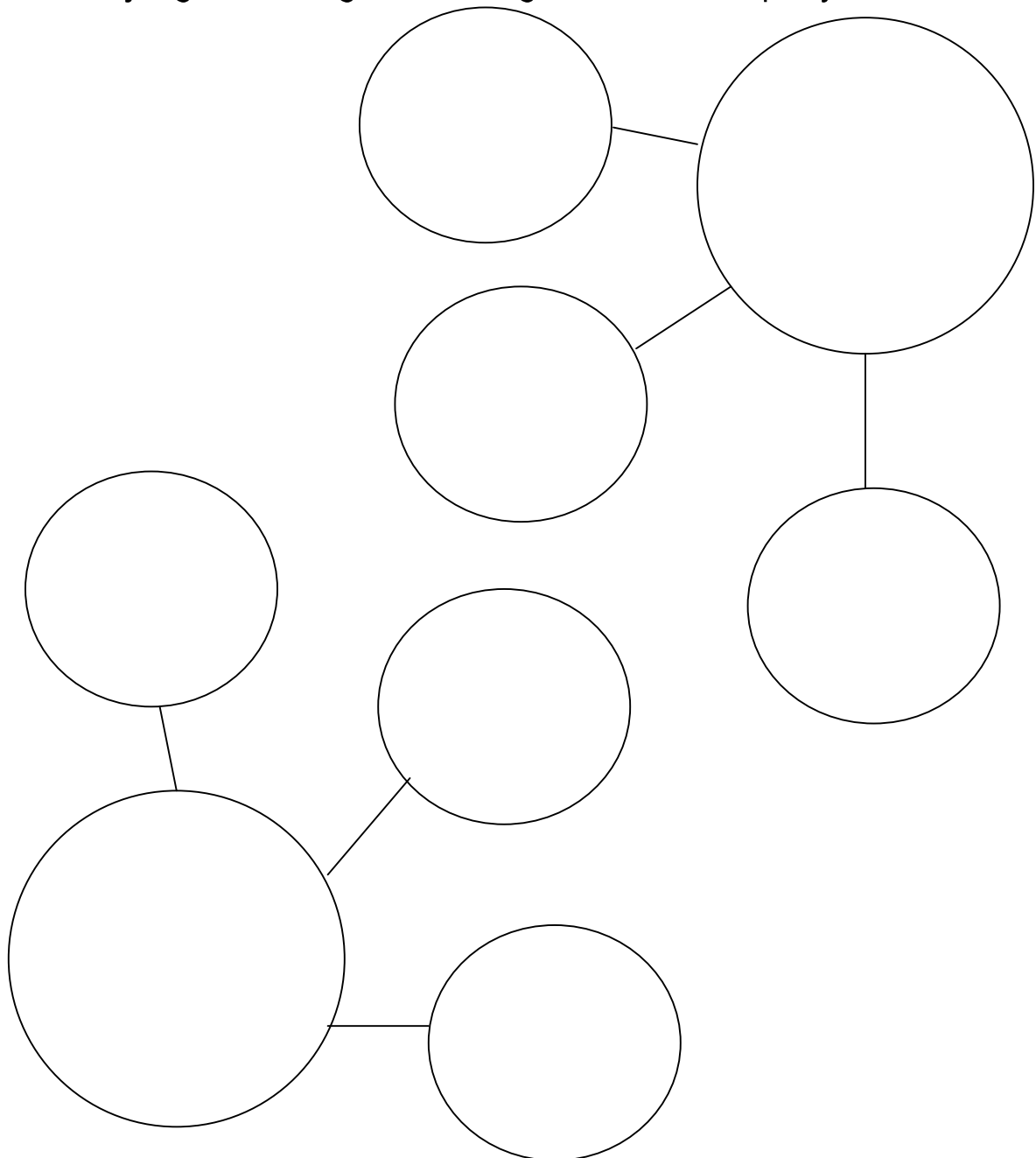
# Creating a Thesis Statement

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## Brainstorming

**Directions** - Fill in the maps below with topic ideas, then write down any ideas you have about the topic. Remember: it's more important to put down a thought than to judge it as "right or wrong". Ask for help if you need it.



# Creating a Thesis Statement

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## Thesis Format

A thesis, as we said, is a guide to how you will set up your paper – whether this is a research paper, a college or classroom essay or even a simple paragraph. A thesis conveys the *main theme* to which all subsequent statements will relate. A thesis should *also* convey the writer's *attitude* towards to subject, and his or her purpose in writing.

Your thesis should be developed within the confines of a THESIS STATEMENT.

The thesis statement serves two important functions and one optional one:

- 1.) It narrows the topic to a single idea that you want your readers to gain from your essay.
- 2.) It asserts something about the topic, conveying your purpose, your opinion and your attitude.
- 3.) It *may* provide a concise preview of how you will arrange your ideas in the body of the paper.

The thesis statement is the writer's expression of his or her ideas at an early stage of the writing process. It may eventually be revised or replaced entirely, but it should appear as the final sentence of the paper's introductory paragraph as a signal to readers as to what they are about to read.

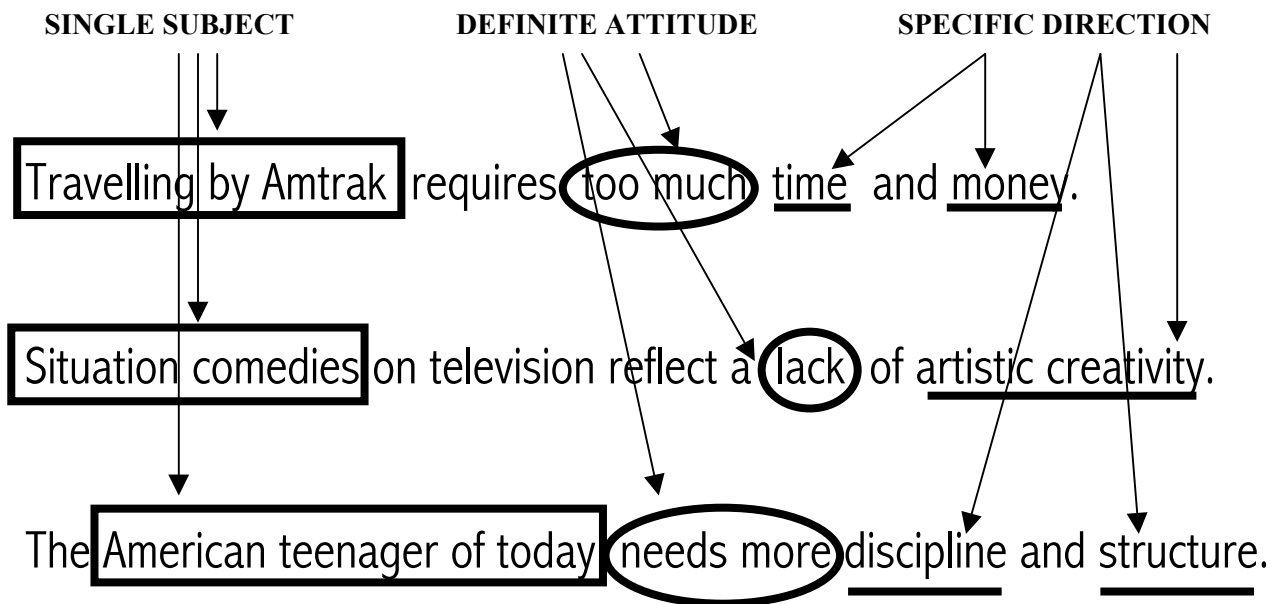
Thesis statements must have the following three elements:

- A single subject – ONE topic that is suitable for a paragraph, essay or paper.
- A specific direction – The writer must know what they want to say and in what order he or she wants to say it. In this

way the paragraph, essay or paper develops logically.

- A definite attitude – This is the opinion that the writer holds on the topic. Whereas a writer cannot come out and boldly say, “I think..” or “I feel..” the feelings or impressions he or she holds is still a part of the writing.

For example:

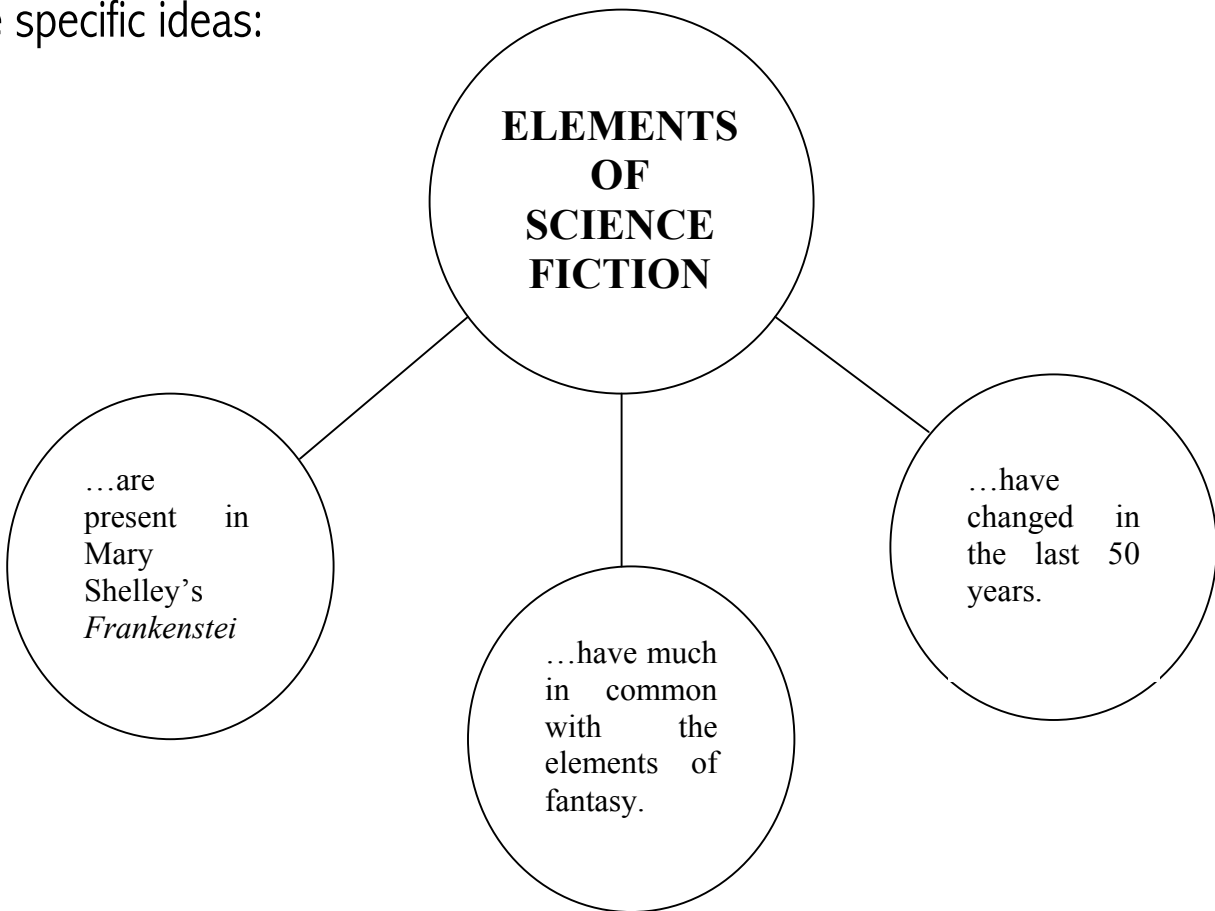


Suppose the topic is “Going to college”. One might brainstorm several ideas and decide on a single thesis later:

- Going to college is terribly expensive.
- Going to college helps one meet many new and various people.
- Going to college teaches students about responsibility.
- There are several factors involved in the “Freshman Fifteen”.
- There is more to learning in college than can be found in the classroom.

Remember our topic of Science Fiction? We had four ideas that we came up with based on our reading and viewing. Let’s pick “Elements of Science

Fiction.” We could pick any one really, but this one seems to be the “meatiest” and the one that has the most order built into it, and that’s what you should go for – a thesis idea that is specific, but not limited; interesting, but not fantastical; structured but not stodgy. Even so, this is not a statement – it is a phrase. So, let’s make it into a statement by brainstorming some more specific ideas:



Now we have a few specific statements to work with. The first is a thesis of analysis, the second is a thesis of comparison, the third is a thesis of difference (remember all those from pages 7 – 9?). There are many more possibilities, but these will be enough for now. The last task is to pick one, so, let’s go with “The elements of Science Fiction are present in Mary Shelley’s *Frankenstein*.”

Now this is an OK thesis, but it doesn’t really give a picture of our attitude towards *Frankenstein* and its relationship to the elements of science fiction.

We need to “spice up” our thesis and make it interesting. More than that, we need to make it ours. So, considering how long ago the book was written and how far science has come since then, we may even wonder if *Frankenstein* is science fiction at all.

There’s only one way to find out: research, which is what we are here to do.

Therefore, our new and improved (with attitude) thesis is:

“Despite its age, all the modern Elements of Science Fiction are present in Mary Shelley’s *Frankenstein*.”

**GOT IT?**

**GREAT!**

**NOW IT’S YOUR TURN!**

# Creating a Thesis Statement

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## Writing Your Thesis

**DIRECTIONS** - Write your thesis below. Show it to your teacher for approval. Use this page to take notes your teacher may give you on either revising your thesis or ideas for supporting your thesis. **REMEMBER:** Your thesis should be written as a complete sentence!

Thesis: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

My single topic is:

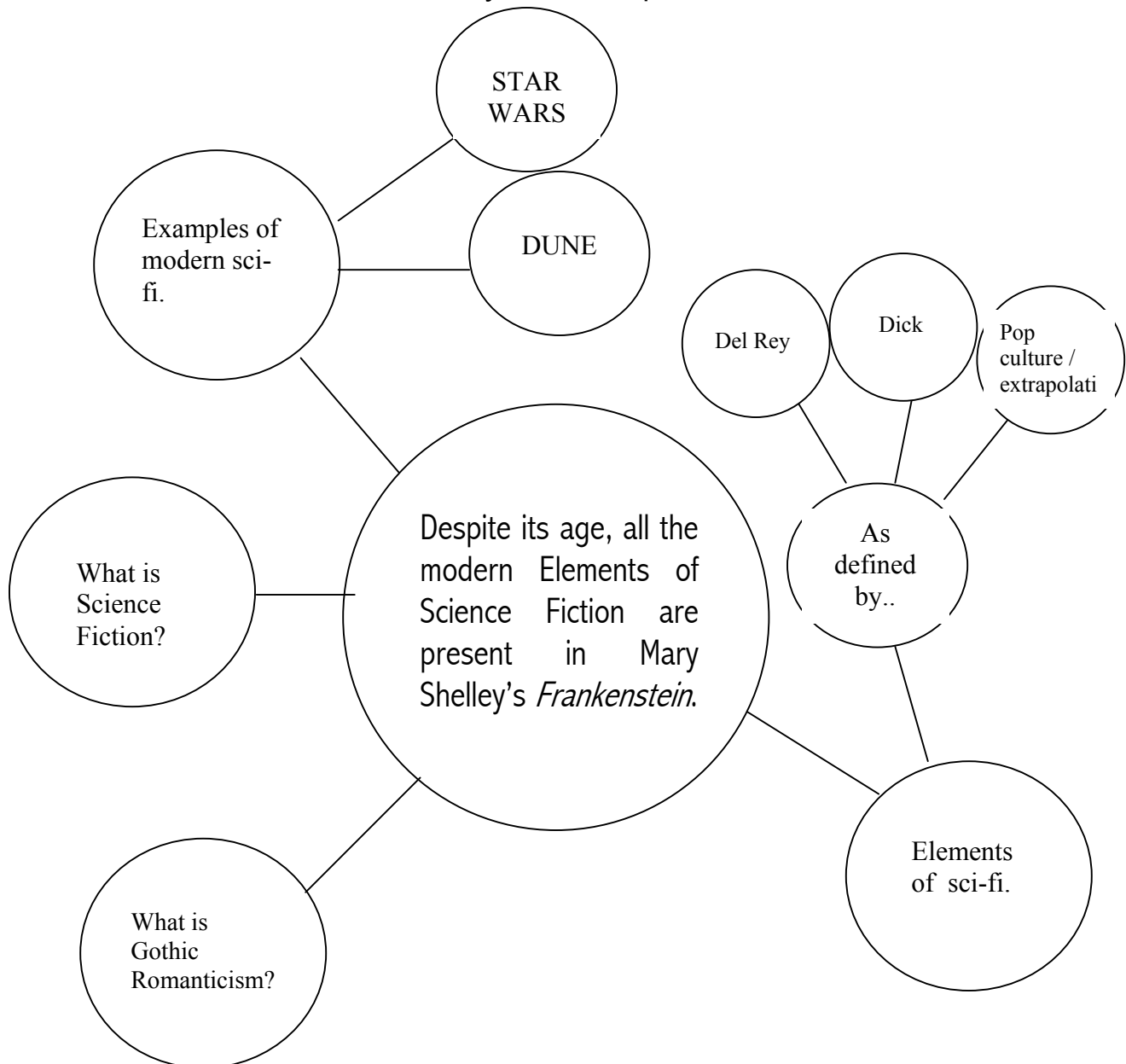
My definite attitude is:

My specific direction is:

# Creating a Thesis Statement

## Supporting Your Thesis

Now that we have created a thesis, we must figure out how we intend to prove or explain it. Again, we should have some familiarity with our thesis from our initial research and study of our topic, so we brainstorm ideas:



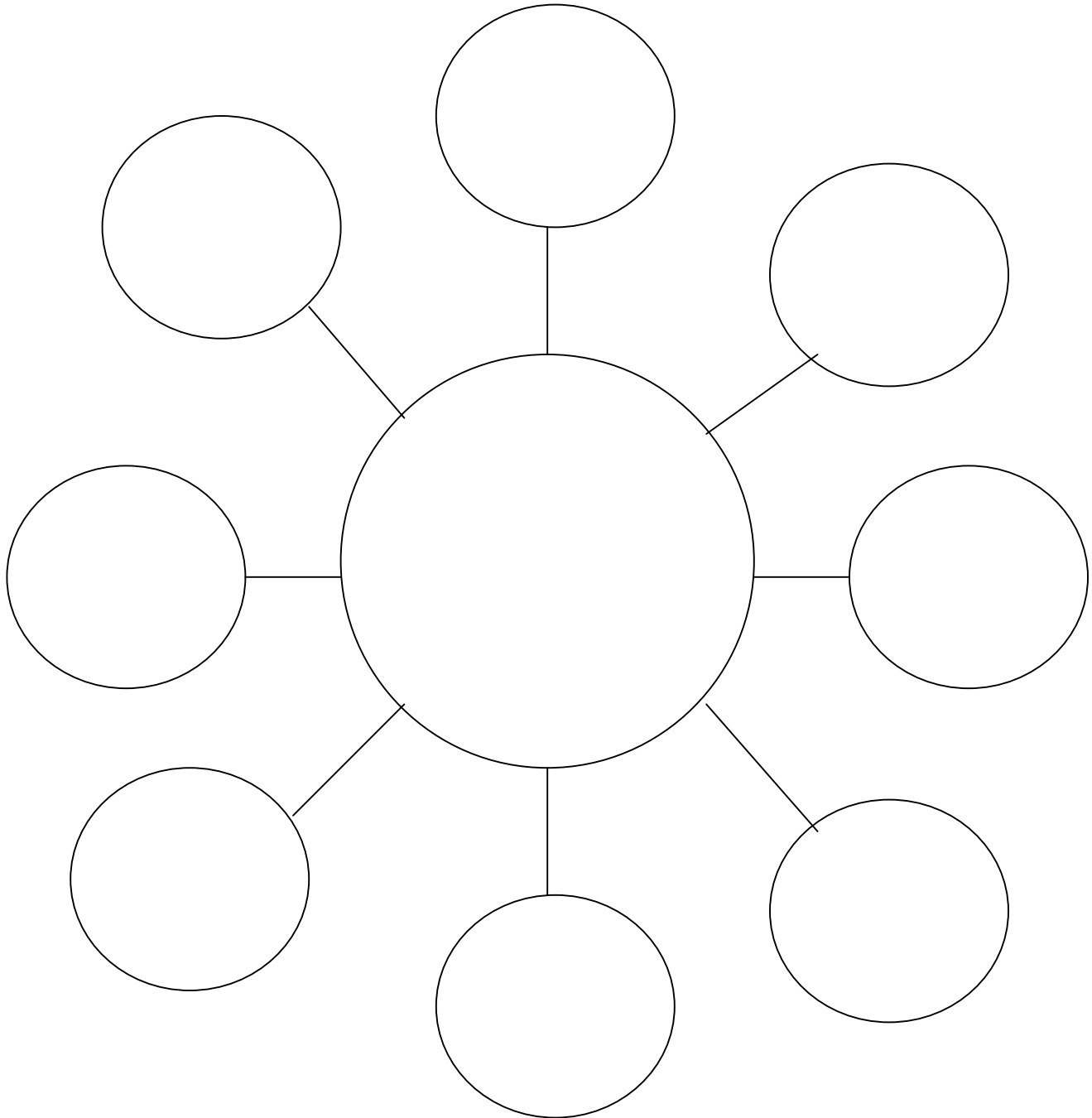
# Creating a Thesis Statement

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## Practice

**Directions** – Write your thesis in the central circle, then write down ideas as to how you will support this idea.



# *Finding Your Way*

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## *Outlines*

An outline is a way to organize your paper, your thoughts and your information. Now that we have narrowed our topic to a thesis, located and reviewed your research materials, we need to make a list of the points you wish to cover. This *list* is an outline. And, really, since we've already brainstormed ideas about supporting our thesis, all we have to do now is put them into a logical order. See how a little bit of initial effort pays off in saved time later?

An outline can be changed. If during the writing of your paper you find there is information you wish to add, or a point that needs to be changed a bit (but *without* diverting from your thesis), do so. Do not feel that an outline is written in stone. It's written on paper, and paper is easily modified.

There are three parts to an outline:

- a main topic, the major point you wish to discuss in your research paper. It is always preceded by a Roman numeral (I, II, III, IV, V, X, etc.). The first main topic on your outline will be your thesis.
- a subtopic, which explains something about the main topic. It is always preceded by an upper case letter (A, B, C, etc.). When using subtopics there should always be at least two.
- a detail, which explains even more about the subtopic.

For example:

- I. Main topic
  - A. subtopic
  - B. subtopic
  - C. THESIS

- II. Main topic
  - A. Subtopic
  - B. subtopic
    - 1. *detail*
    - 2. *detail*

- III. Main topic
  - A. Subtopic
    - 1. *detail*
    - 2. *detail*
  - B. subtopic
    - 1. *detail*
    - 2. *detail*
  - C. subtopic
  - D. subtopic

Etc.

- I. Introduction
  - A. Origin of Frankenstein
  - B. Origin of Science Fiction
  - C. THESIS

- II. The Elements of Science Fiction
  - A. Definition
  - B. Ideas by Authors
    - 1. *Lester del Rey*
    - 2. *Phillip K. Dick*

- III. Element One: "A Different Time"
  - A. Past
    - 1. *Frankenstein as a story of the "past"*
    - 2. *Alternate pasts in Harry Turtledove's books*
  - B. Present
    - 1. *Frankenstein as "present"*
    - 2. *Frankenstein as a "classic"*
  - C. Future
  - D. Timelessness

Etc.

MAKE SENSE?

OKAY!

NOW IT'S YOUR TURN!

# Finding Your Way

## Practice

**DIRECTIONS** — Using your topic, create a complete outline for your ideas. Refer back to your brainstorming paper if you forget what you wanted to talk about.

TOPIC: \_\_\_\_\_

- I. Topic Sentence
    - A. Support #1
    - B. Support #2
    - C. Support #3
  - II. (A.) Topic Sentence
    - A. Subtopic
      - 1. detail
      - 2. detail
    - B. Subtopic
      - 1. detail
      - 2. detail
    - C. Subtopic
      - 1. detail
      - 2. detail
  - III. (B.) Topic Sentence
    - A. Subtopic
      - 1. detail
      - 2. detail
    - B. Subtopic
      - 1. detail
      - 2. detail
    - C. Subtopic
      - 1. detail
      - 2. detail
  - IV. (C.) Topic Sentence
    - A. Subtopic
      - 1. detail
      - 2. detail
    - B. Subtopic
      - 1. detail
      - 2. detail
    - C. Subtopic
      - 1. detail
      - 2. detail
  - V. Concluding Sentence
    - A.
    - B.
    - C.
    - D. Final statement — “The Clincher”
- THESIS
- SUPPORT #1
- SUPPORT #2
- SUPPORT #3

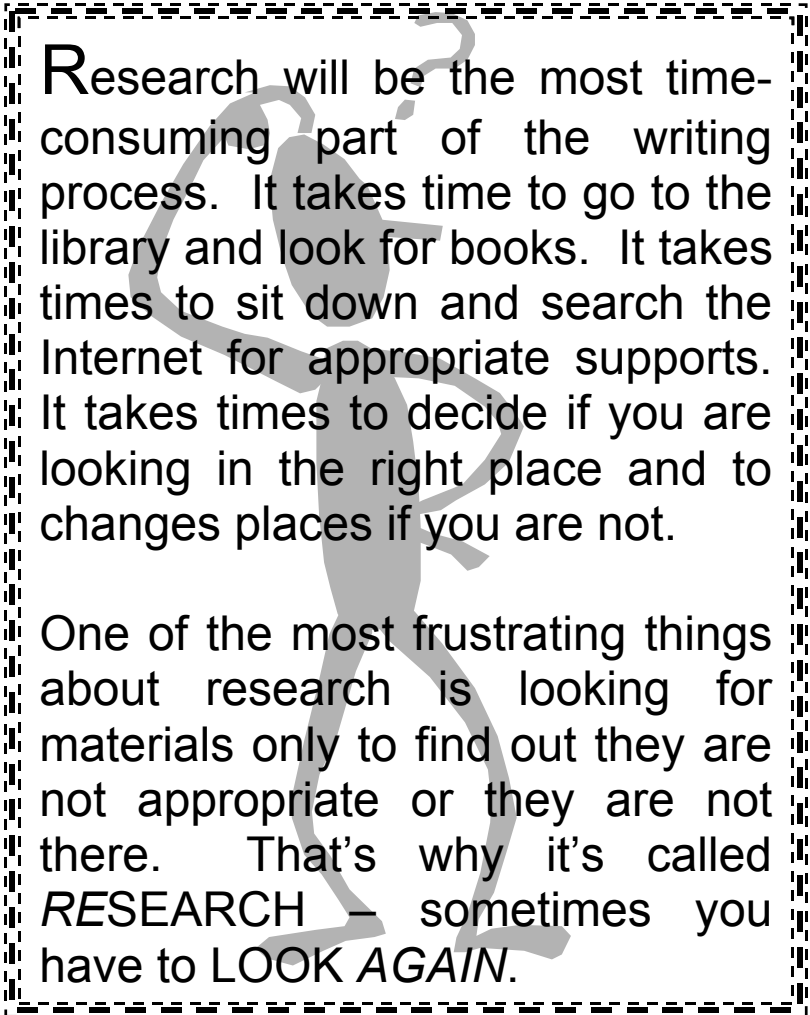
# Finding Your Way

## Research: Where do I find it?

Once you have your thesis and some ideas to support it, you need to find support for your ideas. Writing any paper really is about information supporting many ideas that support a single thought. The process of *looking for* information is called *research*. There are many places you can look for this information. Take advantage of all of them.

Here are some places you can look for information:

- The Library
  - books
  - encyclopedias
  - magazines
  - newspapers
  - journals
- Experts
  - Interviews
  - email
  - requests for help
- The Internet
  - Home pages
  - AskERIC
  - Databases
  - The A+ Locator
  - FTPs



Research will be the most time-consuming part of the writing process. It takes time to go to the library and look for books. It takes times to sit down and search the Internet for appropriate supports. It takes times to decide if you are looking in the right place and to changes places if you are not.

One of the most frustrating things about research is looking for materials only to find out they are not appropriate or they are not there. That's why it's called **RESEARCH** – sometimes you have to **LOOK AGAIN**.

There are two kinds of source materials available for research – primary and secondary sources.

Primary sources are original materials from people who witnessed an historical event, artifacts, original creative material, etc.

Secondary sources are documents that interpret or analyze an event or primary source. The author has nothing to do with the original event or primary source.

Twenty years ago, the Internet was called “books”. And there are many books – new and old – which have information that cannot be found on the Internet. As old-fashioned as it may seem, books are still going to be an important part of the research process.

Suppose I went to the library today to get some information about Science Fiction, and not just science fiction stories, but books by people who have studied and reported on science fiction as a genre (“kind”) of literature. See your local

librarian for guidelines on searching for books. Mine was very helpful!

Because our thesis mentions the elements of science fiction, we should start by finding out what those are – what qualities a science fiction piece has that makes it different from say fantasy or drama or biography or horror fiction. For this we could go to either a primary or secondary source for a list and explanation of said elements. We also need to have a familiarity with the book *Frankenstein* if we want to sound like we know what we’re talking about.

Generally speaking for every page of text you have, you should have one source of information. Therefore, a five-page paper would require five different sources.

Should we go to a primary source or secondary source for this? Obviously, we should use *Frankenstein* itself, which is a primary source. There are available many secondary sources for literature nowadays – Cliffs Notes, Sparknotes.com, etc. – but when writing a research paper quotes are necessary to support ideas. Secondary sources such as these will not have the specific text that we need to make our point. They are great for summaries and for trying to trick your teacher into thinking you did your homework, but they are useless for research papers. Avoid them, please.

## The Internet and Research

No one doubts that the Internet can be a great source for information. One only has to sit down and suddenly data from all over the world comes flooding into one's computer. What could be easier?

The down side to the ease and convenience of searching is that really anyone with a computer, a phone and a pet obsession can create a web page and offer “information”.

So, how does one know if a source is credible (“believable”)? Some good indicators are that the page is dated (and it should be a date within the last two years); the author offers his or her email; AND there is a balance between text and pictures (if a site is mostly pictures, it probably is run by a fanboy).



# Finding Your Way

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## Taking notes

Note taking is an important skill in high school because you will use it in college almost daily. Practice now!

In writing a research paper, it is important to take notes for two reasons:

- 1.) So you can remember what was said later when you type your paper;
- 2.) So you can give credit to the people whose information you are using (see *Putting it Together: References Page* for more on this).

The question now may be, what do I take notes on? Where do I begin? Easy! Remember when you made an outline of your ideas to support your thesis? That's where you start!

Here's what you do:

Get a stack of 3" x 5" index cards. For every ROMAN numeral you have on your outline, make a pile of AT LEAST five index cards. Across the top of each card, write the roman numeral and your main topic there. Now, while you do your research, if you find something related to your topic you just pull out the appropriate index card and record your information. That's all! This way when you sit down later to organize your information you won't look at a quote and think "Where does this belong?", you'll already know.

Easy, right? Of course, right!

The other function index cards perform is recording book (or internet or encyclopedia or periodical) information for your bibliography and citations. We will talk about those soon, but just understand now that they are important parts of the paper. Without these, it is unlikely a teacher would accept a paper no matter how well written.

Below are examples of note structures for the most common sources of information. They relate to our thesis of “Despite its age, all the modern Elements of Science Fiction are present in Mary Shelley’s *Frankenstein*” AND our outline

## a book

➤ Outline Heading

IA – The Origin of Frankenstein

➤ “Quote...”

Shelley’s fascination with the power of science to give life was no doubt linked to his belief in the omnipotence of man and the superfluosness of God. Mrs. Shelley, on the other hand, had quite a different reaction. The terror in her dream comes from the “supremely frightful... effect of any human endeavor to mock the stupendous mechanism of the Creator of the world.”

- Book title
- Author
- Publication date
- Publication company/city
- Page where you found the information

Mary Shelley’s Monster  
 Martin Tropp  
 1976  
 Houghton Mifflin Company  
 Boston  
 p.54

## a magazine or newspaper

IV. Element II: Science/Technology

To some, cloning human embryos and removing their stem cells for research represents hope, perhaps their best chance to overcome debilitating diseases and disabilities.

To others, it evokes death and sadness, the killing of embryos and the threat of cloned human beings.

Charlotte Observer  
 Lawmakers Confront Moral Issues in Preparation for Cloning Vote  
 Jodi Enda  
 February 26, 2003  
 p. 2-A

➤ Outline Heading

➤ “Quote...”

- Magazine/newspaper title
- Article title
- Author
- Publication date (full)
- Volume number (magazines)
- Page where you found the information

# the internet

## IIA What is Science Fiction? – Definition

The general measure used here (and often by others) is that a Sci-Fi story must have some aspects that are at least surreal or unreal. The events, circumstances, people, creatures, places, and technology may all be sources of some "other than normal daily life" reality.

What is Science Fiction?

Todd Albrecht

02-01-2003

<http://www.geocities.com/tarexstation/surreal.htm>

➤ Outline Heading

➤ "Quote..."

➤ Web page title

➤ Web page author

➤ Date you got the quote

➤ URL

# an encyclopedia

➤ Outline Heading

➤ "Quote..."

➤ Encyclopedia title

➤ Article title

➤ Editor

➤ Volume #

➤ Publication date

➤ Publication company: city, state

➤ Page where you found the information

## IIB. The Origin of Science Fiction

Hugo Gernsback (1884 – 1967) has written one science fiction novel, *Ralph 124C41+* (1925), and several short stories. In 1926 he founded *Amazing Stories*, the first magazine devoted solely to science fiction. This magazine, more than anything else, helped the growth of science fiction.

### The New Book of Knowledge

Science Fiction

no editor given

volume 17

1996

Grolier Incorporated: Danbury, Connecticut

p. 84

# Putting it Together

## Writing a First Draft

Now that you have your outline finished, you can start to flesh out your paper into longer, more productive sentences. This is where you get to show off your best writing skills, but if you make a mistake, DON'T WORRY! The nature of a first draft is that your teacher expects you to make mistakes. You can always correct them later (that's called *editing*)!

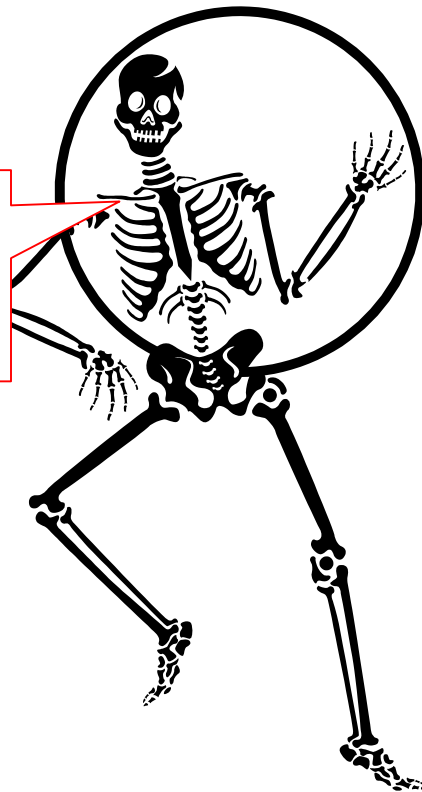
Still, you should approach your first draft trying to remember all the formatting rules outlined here. If you are lazy for the first draft it will only make the next draft more difficult.

Let's get started!

By now you should be very familiar with your topic. You should also have a good idea of what you want to say and in what order you want to say it. That's what outlines are for. Still there are parts to a research paper you should be familiar with: The Introduction, The Body and The Conclusion.

If you think of the outline as a skeleton – bare bones – then your first draft is your chance to “flesh out” ideas, to give details, quotes, support, etc. Your words then are the muscles, organs, brains, blood and skin of your paper.

Brrrr... it's cold without any skin to keep me warm.



# Putting it Together

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## Your Introduction

When you meet someone for the first time, good manners dictates you say, “Hi! Nice to meet you. My name is...” This is called an *introduction*. In the same way, your paper should tell the reader what its name is – that is, what they can expect to read in the body of the paper.



The Introduction will be the first paragraph of your paper. It tells the reader what you plan to say in your paper and draws them in with interesting and dynamic writing. How many times have you read the first page of a novel and thought, “This is boring,” only to never continue reading? Teachers have the same problem. They have a lot of papers to read in a very short amount of time, and if they read paper after paper with uninspired or uninteresting introductions they get frustrated and bored. Teachers are only human. Make sure your introduction says something important about your paper, but at the same time says it in an engaging and novel way. More than likely if you do this, your teacher will grade you more generously (hint, hint).

Remember that your thesis is the LAST sentence in the introductory paragraph, not the first.

For example:

At a time when the romantic ideals of Nature seemed to be giving way to the early industrialization and expansion of urban centers, Mary Wollstonecraft Shelley created a masterpiece of horror and gothic romance that has spanned the ages. Frankenstein, since its publication in 1818, has managed to remain fresh even to the 21<sup>st</sup> Century, due, in part, to the elements that mark it as the “grandmother” of all subsequent stories that fall into the genre “science fiction”. Though Frankenstein embraces the elements of the gothic romance – a main character at odds with Nature, old castles, a declining family, ambiguous morality (among other elements) – it steps beyond these and creates new elements, new particles to explore and write about. From Frankenstein, we can see the genesis of the modern science fiction novel. In the nearly 200 years that have intervened then to now, it takes only a bit of effort and attention to see how modern writers have deeply explored and expanded the same basic elements Mary Shelley used in writing her masterpiece. **Despite its age, all the modern Elements of Science Fiction are present in Mary Shelley’s Frankenstein.**

## REMEMBER

- Do not use “I” or “you” or “we” or “us” in your paper!
- Do not use “this paper will show” or “in this paper” or the like!

The sentence “*In this paper I will show you how bright lights can make people dizzy.*” is inappropriate. Instead, it should read “*Research has proven how bright lights can make people dizzy.*”

# Putting it Together

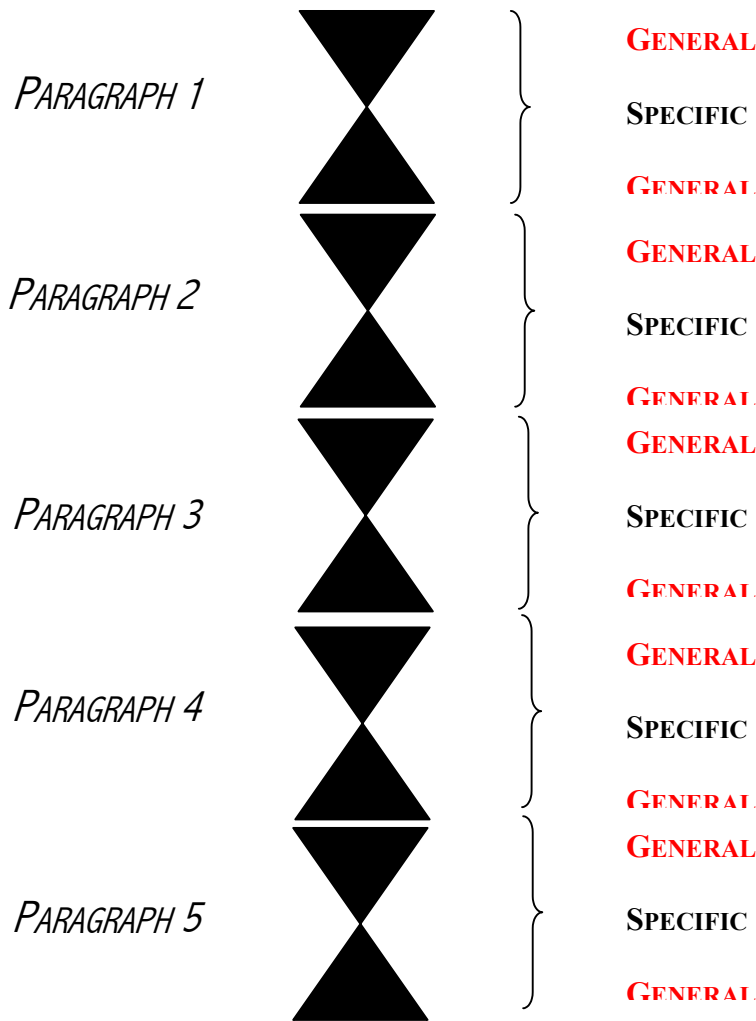
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## Your Body

The body of your paper is where you will explore your topic thoroughly. This is your time to present your findings in a logical and well-explained manner. Use your notes and your outline to write a paper that will make your points clearly.

After you have developed your thesis, done some research and taken some notes you will have to link all your ideas together with sentences and paragraphs. Paragraphs start general, get specific then become general again. A research paper then, looks like a stack of hour glasses



Also, while you're writing, it will be necessary to do more than just tell the information. The idea of a research paper is to gather (expert) evidence to support your ideas. In order to make sure that your audience can follow your thinking, you will have to explain yourself and the sources you use; summarize information that is too long to reasonably quote; analyze the information you gather to use it to its best support; and evaluate the appropriateness of the sources you use (i.e., what your sources say should match what you're saying). Notice how the sample paragraph above is more than just a quote from some author. Your work should also be "more".

# Putting it Together

## Reference Formats

When writing a research paper, you *MUST* say where your information came from. So, after you quote (use someone else's words exactly as they wrote or said them) or paraphrase (give the general idea of what someone said using your own words) information, there has to be a CITATION immediately afterwards. This is why you took notes on note cards. Everything you need to write in a citation is there.

Look at your outline often. This is your "map" to your paper. If you ever feel you are "lost" (i.e., "getting off the point") or "almost home" (i.e., "almost done"), check your outline and make sure you are saying everything you should be saying.

Again, When you "borrow" information from other authors, you must give credit where credit is due; otherwise it is called "plagiarizing" or "stealing". Teachers don't like this.

When you borrow information you must say immediately afterwards where the information came from. This is called citing your sources. The entry itself is called a citation.

In APA Style, citations happen directly AFTER the borrowed material. These are called *parenthetical citations*. They are set apart from the quote by a ... can you guess? Yep! A parenthetical! The parenthetical citation follows the basic order of (author, year, page), but there are some variations to this to know.

Here's a concrete example. Suppose we are reviewing our note cards and come across this quote:

IIA The Origin of Frankenstein

“For every thousand people familiar with the tale of Frankenstein creating his monster from various cadaver spares and electrifying them into new life, only one will have read the novel. The cinema has helped enormously to disseminate the myth while destroying its significance.”

Trillion Year Spree  
Brian W. Aldiss  
1986  
Atheneum  
New York  
45

There are two ways in which you can put this information into your paper – paraphrasing and direct quotation.

- Paraphrasing – in which you change the author's words to your own, but keep his or her ideas.

One way we can do this AND include our citation is:

It has been suggested that while the movies of Frankenstein are better known, they do nothing to convey the message of the novel (Aldiss, 1986).

OR we can do this:

Aldiss suggests that while the movies of Frankenstein are better known, they do nothing to convey the message of the novel (1986).

OR this:

In his 1986 book, Aldiss suggests that while the movies of Frankenstein are better known, they do nothing to convey the message of the novel.

Notice that paraphrasing does not require a page number. Still, *no matter what*, in a paraphrased citation, the author-date information is still there, just in different places depending on how you write the sentence.

Periods (or other punctuation marks) go AFTER the citation.

➤ Direct quotation – in which you use the author’s exact words in your writing.

This may seem pretty straightforward...

Aldiss suggests “[f]or every thousand people familiar with the tale of Frankenstein ... only one will have read the novel. The cinema has helped enormously to disseminate the myth while destroying its significance” (1986, p. 45).

...except for three things:

- 1.) the author’s name must proceed the quote;
- 2.) quotation marks must be used; AND
- 3.) page number must be used.

Now, suppose we use the entire quote from the book. That’s 43 words. If a quote is over 40 words it must be indented a further inch on all sides and single-spaced. Also, quotes over 40 words don’t need quotation marks. So, the full quotation would look like this:

Aldiss suggests that

[f]or every thousand people familiar with the tale of Frankenstein creating his monster from various cadaver spares and electrifying them into new life, only one will have read the novel. The cinema has helped enormously to disseminate the myth while destroying its significance (1986, p. 45).

OR:

In his 1986 book, Trillion Year Spree, Aldiss suggests that

[f]or every thousand people familiar with the tale of Frankenstein creating his monster from various cadaver spares and electrifying them into new life, only one will have read the novel. The cinema has helped enormously to disseminate the myth while destroying its significance (p. 45).

It may seem difficult at first, but it gets easier over time. Just remember that direct quote citations, like paraphrased citations, *must* have the author-date-page information there someplace.

Some quick words about punctuation within quotes:

- ✓ The first letter of the quote above looks like “[f]”. The reason for this is that in the book the “f” was originally capitalized: “F”. Anytime you make a change within a quote – punctuation, grammar, capitals, summaries, etc. – you have to bracket the changes.
- ✓ Reproduce a *quote* exactly. If there are *errors*, introduce the word *sic* underlined and bracketed, for example, [sic] immediately after the error. For example, “He is a freek [sic].”
- ✓ Use *three dots* (ellipsis points) when omitting material, four if the omitted material includes the end of a sentence. Do not use dots at the beginning or end of a quotation unless it is important to indicate the quotation begins or ends in midsentence.
- ✓ The page number citation falls outside of the quotation marks, as does any period. If the quote ends in an exclamation or question mark, place them inside the quotation mark, but leave the page number citation out.

### SPECIAL CITATIONS

- If a source is an email or a letter between you and an expert, the parenthetical citation is: (author’s first initial. author’s last name, personal communication, date). These do not appear on the Bibliography page (see page 43).
- If a source is written by several authors, include ALL of the authors’ last names in the first citation. In subsequent citations, use the first author’s last name followed by “et al.” And the page number For example, a first

citation would look like (Strucker, Strucker & Strucker, 1989, p. 114); subsequent citations looks like (Strucker, et al., p. 92)

- A quote from a web page is usually cited by the paragraph (“para.”) or section (“sec.”) the information appears in. If you know the author of the web page, the citation is (Albrecht, para. 5). If you don’t know the author, use the title instead: (“What is Science Fiction?”, para. 5).

# Putting it Together

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## Your Conclusion

The conclusion is almost the reflection of your introduction. In the conclusion, you will summarize everything you have said in the body of your paper and reiterate (“say again”) your thesis. In some cases, it is also appropriate to explain why this research is significant (“important”) and how other researchers may be able to use your paper.

Do NOT bring up new ideas in your conclusion. You are wrapping up, not starting again!

The conclusion should follow standard paragraph format.

For example:

In conclusion, it has been shown that no matter how “old” the ideas of Mary Shelley may be, they are neither “dated” nor “obsolete”. Many conventions of science fiction, whether in literature or through more visual mediums, still hold to ideas whose genesis was almost 200 years ago. A possible lesson here is that as long as talented and creative people exercise their craft, even “classic” ideas can, like Frankenstein’s creation, have new, fresh life. Unlike his creation, one hopes these ideas are enjoyed by all.

### The Clincher

It sounds like the title of a 1950s horror movie, but The Clincher is the *final sentence of your paper*. It should be dramatic and interesting; something the reader will remember after they have finished reading; something they will think about for themselves.

In a way, The Clincher is the most “unprofessional” part of a paper, since it tends to be dramatic and sometimes surprising. Here’s a very strong HINT: teachers like interesting papers. If yours can end well, it may be worth a few more points on your final grade, and everyone can always use a few more points, right?

### The Clincher

GUESS WHAT??

YOUR DRAFT IS  
DONE!

A FEW MORE STEPS  
AND YOU CAN  
TURN IT IN TO YOUR  
TEACHER!

# Putting it Together

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## Your References Page

The last page of your paper is your *references* page (sometimes called the *bibliography*). On this page you will place your source information. Remember on the note cards that you had to write down book and magazine titles, authors' names, publishers' name and address, etc.? Here is where you will use that information.

The word "References" (or "Bibliography", depending on your teacher's preference) should be centered and bolded at the top of this page. Each type of source (magazine, book, internet article, etc.) has a different format for setting up information. The most-used sources are listed below. If you have a source not described below, please see your teacher OR buy yourself the APA Style guide.

Sources on your Bibliography are listed alphabetically but the author's last name or by title (if there is no author).

*One element all sources on your references page will have in common is this: the first line of each source should be indented five spaces. If it goes over to the next line, do not indent again. A reference should be single-spaced.*

Now, remember our note cards? We will need them again, because all the information we need to make our Bibliography is printed there. When we made our notes we included publication information at the bottom of each card. Doing *that* step so long ago will make *this* step now so much easier.

We start with books. They follow the pattern:

AUTHOR'S LASTNAME, AUTHOR'S FIRSTINITIAL. (DATE). TITLE. PUBLISHING CITY: PUBLISHER.

IIA The Origin of Frankenstein

“For every thousand people familiar with the tale of Frankenstein creating his monster from various cadaver spares and electrifying them into new life, only one will have read the novel. The cinema has helped enormously to disseminate the myth while destroying its significance.”

Trillion Year Spree

Brian W. Aldiss

1986

Atheneum

New York

45

Aldiss, B. (1986). Trillion year spree. Athenium: New York.

Then, magazines or newspapers:

Notice titles only have the *first* word capitalized.

AUTHOR'S LASTNAME, AUTHOR'S FIRSTINITIAL. (YEAR, MONTH DAY). ARTICLE TITLE  
MAGAZINE/NEWSPAPER TITLE, PAGE.

IV. Element II: Science/Technology

To some, cloning human embryos and removing their stem cells for research represents hope, perhaps their best chance to overcome debilitating diseases and disabilities.

To others, it evokes death and sadness, the killing of embryos and the threat of cloned human beings.

Charlotte Observer

Lawmakers Confront Moral Issues in Preparation for Cloning Vote

Jodi Enda

February 26, 2003

p. 2-A

Enda, J. (2003, February 26). Lawmakers confront moral issues in preparation for cloning vote. Charlotte Observer, p. 2-A.

Next, encyclopedias:

Article title. (date). In Title of Encyclopedia (volume #, page #).  
Publishing City: Publishing company.

IIB. The Origin of Science Fiction

Hugo Gernsback (1884 – 1967) has written one science fiction novel, *Ralph 124C41+* (1925), and several short stories. In 1926 he founded *Amazing Stories*, the first magazine devoted solely to science fiction. This magazine, more than anything else, helped the growth of science fiction.

The New Book of Knowledge

Science Fiction

no editor given

volume 17

1996

Grolier Incorporated: Danbury, Connecticut

p. 84

Science fiction. (1996). In *The New Book of Knowledge* (Vol. 17, p. 84). Danbury, CT.: Grolier Incorporated.

And finally, web pages:

Author's lastname, Author's firstinitial. (date retrieved) "Webpage title."  
[WWW document]. URL.

IIA What is Science Fiction? – Definition

The general measure used here (and often by others) is that a Sci-Fi story must have some aspects that are at least surreal or unreal. The events, circumstances, people, creatures, places, and technology may all be sources of some "other than normal daily life" reality.

What is Science Fiction?

Todd Albrecht

02-01-2003

<http://www.geocities.com/tarexstation/surreal.htm>

Albrecht, T. (February 1, 2003) "What is science fiction?" [WWW document].  
<http://www.geocities.com/tarexstation/surreal.htm>

In the end, our References page would look something like this:

### References

Albrecht, T. (February 1, 2003) "What is science fiction?" [WWW document].  
<http://www.geocities.com/tarexstation/surreal.htm>

Aldiss, B. (1986). Trillion year spree. Athenium: New York.

Enda, J. (2003, February 26). Lawmakers confront moral issues in preparation for cloning vote. Charlotte Observer, p. 2-A.

Science fiction. (1996). In The New Book of Knowledge (Vol. 17, p. 84). Danbury, CT.: Grolier Incorporated.

There are still more books that we will use to write our paper, but this is a good starting place. A References page, like an outline, can be changed as the writer modifies his or her ideas. The only time it is too late to change something is *after* the paper is due.

Make your own References page now! If you use a source that does not fall into one of these categories, see your teacher for help or look in an APA style manual.

# Putting it Together

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## *Your Title Page*

The way you approach your title page will depend on your instructor. While this guide will provide the professional way of setting up a title page, your instructor may allow for a more creative design.

**Title**  
by  
Your Name  
Class  
Period

Instructor  
Due Date

# STOP

Before you hand in your first draft, make sure you have followed these formatting rules:

- ✓ Margins are 1" on all sides
- ✓ Font is Times New Roman
- ✓ Font size is 12 point
- ✓ Double-spaced
- ✓ Don't say, "In this paper, it will be shown..."
- ✓ Don't use first- or second-person ("I" or "you", "me", "us" or "we")

# What Next?

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## Editing Your First Draft

When you are done writing your first draft, your teacher will do one of two things to make your paper better:

- ◆ sit down with you to review your work for grammar, punctuation and spelling errors
- ◆ partner you with another person to catch each other's mistakes.

These will assure that your paper is free from errors. Other people are better judges in cases such as this because they are seeing the paper for the first time and will notice errors we ourselves cannot.

If your paper needs to be corrected (and chances are it will), go ahead and change your draft, then resubmit it to your teacher. Again, you will either work with your teacher or with another student to make sure this version has no mistakes.

**DON'T BE DISCOURAGED BY ERRORS!** Everyone makes errors the first time they write something. In some situations, like writing a letter home to your Mom, an error or three isn't a big deal. In a research paper, however, errors need to be taken care of.

There is a story that Thomas Harris, author of Silence of the Lambs, handed his latest novel, Hannibal, into his publisher, saying no one was to edit it. Well, there are SEVERAL problems with the novel that may have been easily corrected if an editor was allowed to look at it before it printed. Sadly, Harris now has to live with the reputation of being a bad speller *and* an egomaniac. Don't let this happen to you.

On the follow page you will find common editing marks:

## Editing Your Writing

Instruction	Mark in Margin	Mark in Type	Corrected Type
Delete	<i>e</i>	the <del>good</del> word	the word
Insert indicated material	<i>→</i>	the word <i>good</i>	the good word
Leave it in	<i>stet</i>	the <del>good</del> word <i>stet</i>	the good word
Make capital	<i>=</i>	the <del>w</del> ord <i>=</i>	the Word
No capital	<i> </i>	This is <del>The</del> word.	This is the word.
Transpose	<i>~</i>	the (word/good)	the good word
Close up space	<i>o</i>	the wo rd	the word
Spell out	<i>so</i>	2 words	two words
Insert: Space	<i>//</i>	the word	the word
Period	<i>^</i>	This is the word <sup>^</sup>	This is the word.
Comma	<i>^</i>	words <sup>^</sup> , words, words	words, words, words
Hyphen	<i>^</i>	word <sup>^</sup> for word test	word-for-word test
Colon	<i>^</i>	The following words <sup>^</sup>	The following words:
Semicolon	<i>^</i>	Scan the words <sup>^</sup> ; skim the words.	Scan the words; skim the words
Apostrophe	<i>v</i>	John's words	John's words
Quotation marks	<i>" "</i>	the word" word"	the word "word"
Parentheses	<i>( )</i>	The word (word) is in parentheses.	The word (word) is in parentheses.
Start paragraph	<i>#</i>	"Where is it?" <sup>#</sup> "It's on the shelf."	"Where is it?" "It's on the shelf."
Spelling error	<i>sp</i>	the <del>principa</del> l of the school <i>sp</i>	the principal of the school
Wrong word	<i>ww</i>	the <del>principle</del> of the school <i>ww</i>	the principal of the school
Unclear—I'm not sure what you mean or are referring to, OR I can't read your writing			?
Wow! Fun, interesting, surprising.			!
You seem to be making a valid point, but your statement cannot stand alone without more explanation.			<i>explain</i>
You have jumped to a new idea or focus without providing adequate connections or transitions.			<i>jump</i>
Off track; you're getting away from your thesis or main point.			<i>OT</i>
Repetitious or redundant.			<i>Rep</i>
Needs transition. Connect the preceding paragraph to the following one.			<i>Trans</i>
I don't know what you are referring to. you need a name, a noun, or an explanation in here.			<i>What?</i>
Statement is not self-explanatory. I'm not necessarily arguing against your point, but you need to provide more information.			<i>How?</i>

# What Next?

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## *Revising Your Ideas*

Sometimes when we look at our work, it is difficult to see it as anything other than “perfect”. We see how it flows, we see how we made connections between paragraphs, transitions between ideas, etc. We must remember though, that we DO NOT write for ourselves; we write for others. If others cannot understand what we have written; or they cannot follow our thoughts; or they feel they are being bounced around from place to place; or they want to nap instead of read, then we have failed as writers.

How then do we know that our writing is good enough for others?

Easily: we have people read it while it is still a draft. Beyond grammar and punctuation and paragraph structure, there is still the need to write a good, interesting paper. If all our “t”s are crossed and all our “i”s are dotted, but our writing is awkward and dull, then no one will read our work. And what a waste of our time that would be.

So, we ask a friend to read our draft and to give us feedback. Your teacher can suggest some activities to get the entire class helping each other through the revising process. Here are some questions they should answer:

- What about the paper works?
- Is the point of the paper clear or muddy?
- Is the paper logical or does it skip around?
- Are any points underdeveloped?
- Are any parts confusing?
- Are any parts unnecessary?

- Does the paper read smoothly?
- Are the word choices interesting or common?

When our paper comes back to us there should be notes attached (some teachers like students to use sticky notes instead of writing directly on the paper), with clear suggestions on how we can improve our paper. Take these suggestions to heart. Remember, papers are meant to be read! If your paper cannot be read then it has no purpose, and will not earn you the grade you deserve (if you put a bit more effort forward).

**If you (and your teacher) are satisfied, then begin your final draft!**

# What Next?

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## Final Touches

Here are a few things to keep in mind before you turn in your final draft:

- ❖ Teachers like neatness. Make sure your paper is neat – no crinkles, wrinkles or folds.
- ❖ One of those 5-cent plastic slipcovers will probably boost your grade a few points.
- ❖ Print your paper the night before it is due and put it in your bag. This way you won't have to rush in the morning or (worse) forget it.
- ❖ If you are permitted to do a creative cover, DO ONE! This will probably boost your grade by a few points.
- ❖ If you have the time and energy, you may want to include an extra "About the Author" page, where you can tell a bit about yourself, thank people who helped you or dedicate the paper to someone.

That's all! We hope you have learned something through this process. It was a long and difficult period of learning for all of us, but we think it was worth all the time, energy and (in some cases) tears. The research process is one you will use again and again, so keep this guide. You'll probably use it in the future.

The research thesis that was developed throughout this guide - "Despite its age, all the modern Elements of Science Fiction are present in Mary Shelley's *Frankenstein*." – is presented hereafter as a full-blown paper.

Good luck!

***The Modern Prometheus in the Modern Age***

By  
Sean McGrath  
Literature IV  
Period 3

Mr. McGrath  
February 28, 2003

At a time when the romantic ideals of nature seemed to be giving way to the early industrialization and expansion of urban centers, Mary Wollstonecraft Shelley created a masterpiece of horror and gothic romance that has spanned the ages. Frankenstein, since its publication in 1818, has managed to remain fresh even to the 21<sup>st</sup> Century, due, in part, to the elements that mark it as the “grandmother” of all subsequent stories that fall into the genre “science fiction”. Though Frankenstein embraces the elements of the gothic romance – a main character at odds with Nature, old castles, a declining family, ambiguous morality (among other elements) – and those of horror, it steps beyond these and creates new elements, new particles to explore and write about. From Frankenstein, we can see the genesis of the modern science fiction story. In the nearly 200 years that have intervened then to now, it takes only a bit of effort and attention to see how modern writers have deeply explored and expanded the same basic elements Mary Shelley used in writing her masterpiece. Despite its age, all the modern Elements of Science Fiction are present in Mary Shelley’s Frankenstein.

If one tells a class of high school seniors that they will be reading Frankenstein during the term, the most likely response would be, “I already know that story!” Most people are indeed familiar with this archetypal story of a mad scientist and his deformed assistant who bring to life an atavistic patchwork of human flesh on a lightning-bedecked night to show man’s dominion of nature and his ability to dole out life and death on a whim. The problem is that almost none of these elements exist in the book. In his 1986 book, Trillion Year Spree, Aldiss suggests that

[f]or every thousand people familiar with the tale of Frankenstein creating his monster from various cadaver spares and electrifying them into new life, only one will have read the novel. The cinema has helped enormously to disseminate the myth while destroying its significance (p. 45).

“Knowing” the story as a creation of Hollywood – as an early monster movie, forerunner to the modern horror movie – is not the same as knowing the soul-wrenching conflict inside Victor Frankenstein, knowing his mistakes and knowing their cost. More than that, it means not knowing how the impact of a two hundred year-old book resonates in the modern science fiction genre.

What science fiction is has been debated and discussed since Hugo Gernsback coined the term “scientifiction” in 1925. Like any literary genre, however, science fiction can be defined by the unique elements – tiny building blocks that make larger structures – that build it up. Damon Knight has suggested there are six elements to consider: “[s]cience, [t]echnology and invention; [t]he future and the remote past, including all time travel stories; [e]xtrapolation, [s]cientific method, [o]ther places--planets, dimensions, etc., including visitors from the above; [and] [c]atastrophes, natural or manmade” (Taormina, para. 2).

In some ways it begs the question to discuss the science of science fiction. It is also hard to separate the element of time from that of science. Every story must take place somewhere and somewhen. The level of available technology and science is determined by the time in which the stores are set. Yet in Frankenstein there are several sciences present in the story that we ourselves do not possess though the story takes place in the past. As of this writing no one has patched a human being together from disparate body part and instilled life therein. Still, Mary Shelley present the science in such a way that is does not seem anachronistic. Victor Frankenstein’s science is firmly rooted in both the modern discovery of galvanism (Shelley, p. 34) and the ancient arts of alchemy (p. 33-35). Within this framework it becomes possible to reanimate the dead. Philip K. Dick, best known his short stories such as *Do Androids Dream of Electric Sheep?*, however, defined science fiction

by saying what science fiction is not. It cannot be defined as 'a story set in the future,' [nor does it require] ultra-advanced technology. It must have a fictitious world, a society that does not in fact exist, but is predicated on our known society... This world must be different from the given one in at least one way, and this one way must be sufficient to give rise to events that could not occur in our society. (1999, p. xviii-xiv).

In such a case, it is not necessary to look forward to a changed world, but to see today or even the past as having the possibility to diverge away from the time and technology we know to something else – different but recognizable. Technology in the past, as long as it passes the readers willing suspension of disbelief,

Frankenstein itself does not take place in the future, but in the 16<sup>th</sup> century; a 16<sup>th</sup> century that has birth a person capable of bestowing reanimation upon a lifeless corpse. Even in the 21<sup>st</sup> century, in these years that have seen the cloning of a sheep and rumors of the cloning of a human, has no one who has been able to break the barrier between life and death. Mary Shelley set her story at least 20 years before she wrote it. She retrofitted time to include the history of Victor Frankenstein when no such person existed, yet his life, his family, his home, his education all seem plausible. Harry Turtledove rewrites history in much the same manner when he takes on The Civil War in How Few Remain (1998). Without the use of time machines and alien intervention, Turtledove changes history and asks the question which forms the basis for all science fiction, “What if...?”, much in the same way that Shelley did. From one man’s decisions a whole different world is born. It is a world we recognize and can feel a connection to, but it is not ours. As Dick indicated, this “dysrecognition” (ibid.) of the world is in fact an element of modern science fiction, though we see it clearly in Frankenstein. Clearly while most think of science fiction in terms of “future perfect” – utopias such as Gene Roddenberry’s *Star Trek* legacy – or “future imperfect” – dystopias such as Burgess’ *A Clockwork Orange* or even

Dick's recently adapted-for-the-screen *Minority Report*– it is not all relegated to only “what could be.” Science fiction is also strongly rooted in “what could have been.” This deriving of new histories from logical “jumping off” times is called “extrapolation” which according to Jack Williamson

... probes alternative possible futures by means of reasoned extrapolations in much the same way that good historical fiction reconstructs the probable past. Even far-out fantasy can present a significant test of human values exposed to a new environment. Deriving its most cogent ideas from the tension between permanence and change, science fiction combines the diversions of novelty with its pertinent kind of realism (Gökçe, sec. 45).

In other words, history must flow with what is known about history. Perhaps the most expansive of these histories is Frank Herbert's *Dune* chronicles. Twenty thousand years of human history punctuated by snippets of books that never were give veracity to his writings. Though arguably dense, Herbert nevertheless makes sure that not a moment of those 20,000 years is unaccounted for, even moments that are not covered by the main plot of the book. In this way, readers can feel a connection to the characters and situations even though they are many millennia removed from each other.

Related to the idea of science is the scientific method. The scientific method is used to keep veracity within the reporting and reproduction of experiments. It has four parts – observation, hypothesis, prediction, and performance. In all science, it is necessary to be able to reproduce results. If results cannot be duplicated by others, then the method was faulty or not reported correctly, therefore there was no true result, therefore no experiment. In writing science fiction it is also necessary to follow not only methodology, but also what is known about the Universe at large. A story about bird people from the center of Mercury who come to Earth to mate with our women may have passed at the turn of the 20<sup>th</sup> century, but no longer. It has

become science fantasy, as it does not scientifically follow what we know about the planet Mercury. On this, Robert A. Heinlein says science fiction is

realistic speculation about possible future events, based solidly on adequate knowledge of the real world, past and present, and on a thorough understanding of the nature and significance of the scientific method. To make this definition cover all science fiction (instead of "almost all") it is necessary only to strike out the word "future" (Gökçe, sec. 31).

Shelley did not branch out into fantasy, but based her story on the science of the time, both natural philosophy and the disciplines of biology and chemistry.

There is, of course, Victor's methodology in making his creature (though concealed so others will not attempt to repeat his mistake) and though he tries to destroy the memory of this work, avoiding his former occupation and even becoming physically ill at the sight of scientific apparatus (Shelley, p. 52-53), Frankenstein nevertheless is drawn into repeating his experiment when his creature, his Adam, demands "a creature of another sex, but as hideous as [him]self..." then he promises to live far away from the habitations of man (p. 104-105). To a void further violence, Victor relents and spends time in England constructing an Eve for his Adam. On the verge of his second "success", however, Victor has a change of heart and destroys the female before he can bring her to life. Throughout the text, Victor indicates that he is confident in being able to create this second creature; his procedure is sound and his results reproducible (no pun intended) (p. 116 – 118). This is good scientific methodology, though the ethics of the decision are shaky at best.

In modern science fiction, reproducible science is the basis for many future societies. Without these technologies and people's faith in them, society would collapse. Whereas in Frankenstein the science can be duplicated (though ultimately it is not), the movie *Gattaca* (1997), much like Huxley's Brave New World, uses genetic engineering to determine the

personal destinies of society's members, casting people in either an upper or a lower echelon of opportunities and choices. The proliferation of these technologies, again, while following appropriate scientific methods, leave much to be discussed in lines of their ethical application.

The next element, *Other Places*, was expanded by Damon Knight to include "visitors from the above" (Taormina, para. 2). And while most of the places described within the covers of Frankenstein are indeed foreign to most American readers, it is the foreign being, the alien, which should be considered above all. Frankenstein's Adam is an alien in even the "little green men from mars" sense. He is not of this Earth – yes, he was born here, but not as he is seen throughout the book; rather he was assembled from disparate corpses and forced into life. He is outside the realms of most characters' experiences, and inspires fear in them though he is indeed an intelligent and somewhat sympathetic creature. All this adds up to an "otherness" that casts the creature in the role of the alien.

Modern science fiction is stuffed full of advanced cultures, extraterrestrial technology, planets that lie thousands of light years away and, yes, aliens. From *Star Wars* to the *Fifth Element* to *Dune*, and even the American Icon Superman, science fiction bombards readers with enough otherness to make it almost (ironically) commonplace.

The final element of science fiction is catastrophe. In terms of Frankenstein, there is no need to belabor the point of how Victor destroyed his life and family in order to make himself a god. Movie or book, there has yet to be a "happy ending" to this story, and rightfully so. Victor dared to take from God what is His domain – to grant and take life. As the subtitle of the book says, he was as Prometheus giving fire to humans who had no idea how to receive or understand the gift. This hubris, as required by the tragic structure laid out by Aristotle, is followed by

nemesis, divine retribution – the end of everything. The idea of catastrophe is that of caution – in essence: push the boundaries, but know your place.

Just as common in science fiction literature, catastrophe is a chance to start again. After everything falls apart, there is the chance to build again, to show courage, determination and strength. Sometimes the catastrophe is the central conflict of the story, for example, *Armageddon* or the other Hale-Bopp inspired movie, *Sudden Impact*. In these cases, though catastrophe was not total, it was sufficient to alter life on Earth. Even the *Star Trek* saga hints at the horrors of pre-warp civilization, but the saga itself records the growth of a “better” world.

In conclusion, it has been shown that no matter how “old” the ideas of Mary Shelley may be, they are neither “dated” nor “obsolete”. Many conventions of science fiction, whether in literature or through more visual mediums, still hold to ideas whose genesis was almost 200 years ago. Lester del Rey, also a forerunner in the worlds of science fiction, said that “Science fiction is an attempt to deal rationally with alternate possibilities in a manner which will be entertaining” (1980, p. 5). A possible lesson here is that as long as talented and creative people exercise their craft, even “classic” ideas can, like Frankenstein’s creation, have new, fresh life. Unlike his creation, one hopes these ideas can be enjoyed by all.

## REFERENCES

- Albrecht, T. (February 1, 2003) "What is science fiction?" [WWW document].  
<http://www.geocities.com/tarexstation/surreal.htm>
- Aldiss, B. (1986). Trillion year spree. Athenium: New York.
- del Rey, L. (1980). The world of science fiction, 1926-1976: the history of a subculture. Garland: New York.
- Dick, P. K. (1999). The collected stories of Philip K. Dick. Carol Publishing: Cleveland, OH.
- Gökçe, N. C. (May 8, 1996). "Definitions of science fiction." [WWW document].  
[http://www.panix.com/~gokce/sf\\_defn.html](http://www.panix.com/~gokce/sf_defn.html)
- Shelley, M. W. (1987). Frankenstein. Running Press: Philadelphia, PA.
- Taormina, A. (July 1, 2002) "SciFi Guide". [WWW document].  
<http://www.nvcc.edu/home/ataormina/scifi/define/elements.htm>