Charles M. Weber Institute of Applied Sciences and Technology

WEBER PORTFOLIO GUIDEBOOK



2018-2019 Stockton Unified School District

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Why a Weber Portfolio?

During your time at the Weber Institute, you will have developed skills and abilities that are in demand in college and in the workplace. You will need to demonstrate your capabilities to future employers, schools, and the community. You will need to demonstrate to the faculty and staff of the Weber Institute that you have met the graduation standards. When you compile your Weber Portfolio, you are gathering together documents that indicate your level of readiness to receive a diploma from the Charles M. Weber Institute of Applied Sciences and Technology.

In order to graduate from the Charles M. Weber Institute of Applied Sciences and Technology, you must complete the Weber Portfolio. This guidebook was designed to help you through the process. Your academy teachers will work closely with you in planning and building your portfolio.

What is the Weber Portfolio?

The Weber Portfolio is the culmination of your learning at the Weber Institute. It contains samples of work representing the best of your skills and abilities, including class work, projects, and community involvement. Specifically, the Weber Portfolio is divided into eight sections, each containing evidence of specific skills and abilities you have developed:

- Choosing Topics for Project and Paper
- Physical Project
- · Research Paper
- Pre-Employment

- Writing Samples
- Career Exploration
- 21st Century Competencies
- Community Service

A ninth task that does not need a section in your portfolio is the Weber Project Presentation. This presentation is a graduation requirement. You will not be scheduled for a Weber Project Presentation until your portfolio is complete and approved by your academy teachers. In the following pages of this guidebook, you will learn about what each of the portfolio sections must contain. On page 52, there is a portfolio checklist.

Frequently Asked Questions

Can I graduate without doing a Weber Portfolio?

No. Completing a portfolio is a graduation requirement of the Weber Institute.

When is the deadline for completing the portfolio?

The portfolio should be completed and handed in during the fourth quarter, before your oral presentation. You will get a specific deadline at the start of the school year.

Will my portfolio be graded?

No, but the entire portfolio will be judged by your academy teachers as either complete or incomplete — it is either pass or fail. Your teachers will work with you to help you produce a complete portfolio. Note: several of the individual pieces of the portfolio may be graded if they are parts of class assignments.

Frequently Asked Questions, continued

What if I am missing parts of my portfolio? Can I still graduate?

No. You must complete all the parts of the portfolio in order to graduate from the Weber Institute.

How much help will I have in preparing the portfolio?

Academy teachers will provide help and guidance to students as they work on the different parts of the portfolio.

What happens if I lose some of my portfolio work?

You are responsible for turning in a complete portfolio, so you will have to redo any work you lose. In addition to keeping hard copies of all your work in a safe place, your should back up all work electronically, either on flash drives or in a Google drive.

Can I take my portfolio with me after I graduate?

Yes. Your Weber Portfolio belongs to you.



Weber Portfolio Document



- Your portfolio **must** include:
 - ✓ Letter of Intent
 - ✓ Parent Consent Form
 - ✓ Physical Project Log
 - ✓ Project Documentation
 - ✓ Project Self-Evaluation Form
 - ✓ Research Paper Outline
 - ✓ Research Paper
 - ✓ Resume

- ✓ Business Letters
- ✓ Letters of Recommendation
- ✓ Autobiography
- ✓ Two Formal Essays
- ✓ Career Exploration Documents
- ✓ Transcripts and Certifications
- ✓ 21st Century Rubrics
- ✓ Community Service Contract
- ✓ Community Service Paper
- All papers and reports in your portfolio **must be** typed.
- Your portfolio should include other relevant material, especially items that document your work. You should also include a cover page, table of contents, dividers, photographs, and appropriate decoration.
- Your portfolio must be presented professionally in a binder.
- A complete checklist of portfolio documents appears on page 52.

Physical Project Rubric

	Minimum expectations — to score higher than 1, all of the following standards must be met.
	All verification items are turned in: Parent Consent, Project Log, and Physical Project Self-Evaluation. Project follows through on Letter of Intent.
	Documentation (photos, receipts, etc.) shows process of work completed by student.
	in Excellent project will have most of the following characteristics: is of exceptional quality overall and demonstrates excellent creativity and attention to detail.
	goes far beyond the minimum time requirement and demonstrates consistent, efficient, and thoughtful use of time.
	makes a clear learning stretch, which may be emotional, physical, intellectual, or a combination. shows obvious depth and complexity of understanding of subject.
	involves good analysis of problems and persistence in dealing with them. includes excellent use of teamwork and/or mentor(s).
3 — <i>a</i>	is of good quality overall and demonstrates good creativity and attention to detail. goes beyond the minimum time requirement and demonstrates time management skills.
	makes a clear learning stretch. shows a good application of general knowledge.
	involves some analysis of problems and some persistence in dealing with them. includes good use of teamwork and/or mentor(s).
	is of average quality overall and demonstrates limited creativity and attention to detail. meets the minimum time requirement. makes a limited learning stretch. uses knowledge superficially. involves limited problem-solving ability; student may give up too easily.
	includes minimal use of teamwork and/or mentor(s).
	is of poor quality overall with a lack of creativity or detail. falls short of the minimum time requirement and/or shows poor use of time management.
	lacks a stretch in effort. shows a very limited understanding, or even a misunderstanding, of the material. shows little ability or willingness to work through difficulties or to work with others.
	includes little or no use of teamwork and/or mentor(s).
Stude	nt's nameScore
Comr	nents
——Evalıı	ated by

Research Paper Rubric

	Minimum expectations: to earn portfolio approval, a paper must:
	be typed in a standard font, 12-point, double-spaced, with one-inch margins all around.
	be at least 5 full pages (not including outline or Works Cited page).
	 □ include at least 10 citations from at least five sources, all of which are listed on the Works Cited page. □ include a Works Cited page that contains bibliographic information about sources actually used.
	score a 2.0 or better on this rubric.
L	
	an Excellent paper meets minimum expectations and has most of the following characteristics:
	IDEAS: Highly engaging introduction with a clear and focused thesis; strong sense of closure IDEAS: Paragraphs with appropriate and accurate detail thoroughly supporting the thesis
	IDEAS: Author demonstrates in-depth understanding and insight
	IDEAS: Evidence of sound, thorough research from a variety of sources
	ORGANIZATION: Logical organization throughout with smooth transitions
	VOICE: Distinctive, lively, authoritative voice maintains a formal, third-person style
	WORD CHOICE: Mature vocabulary; sophisticated writing; specialized vocabulary clarified
	SENTENCE STRUCTURE: Thoughtfully constructed sentences vary in length and structure; fluid style
	SENTENCE STRUCTURE: Writer's words smoothly integrated with quoted material; effective paraphrasing CONVENTIONS: Nearly flawless conventions: capitalization, grammar, punctuation, and spelling
	CONVENTIONS: Nearly hawless conventions: capitalization, grammar, punctuation, and spening CONVENTIONS: Proper MLA citations and Works Cited
_	CONVENTIONS. Froper WILA citations and works Cited
	a Proficient paper meets minimum expectations and has most of the following characteristics:
	IDEAS: Generally strong introduction with a clear and focused thesis; adequate sense of closure
	IDEAS: Paragraphs with appropriate and accurate detail sufficiently supporting the thesis
	IDEAS: Author demonstrates sufficient understanding and insight
	IDEAS: Evidence of sound research; some gaps may be noticeable ORGANIZATION: Generally strong organization with less polished transitions
	VOICE: Sufficiently clear writing voice maintains a formal, third-person style
	WORD CHOICE: Appropriate vocabulary; proficient writing; specialized vocabulary largely clarified
ā	SENTENCE STRUCTURE: Sufficient variety in length and structure of sentences; largely fluid style
	SENTENCE STRUCTURE: Writer's words sufficiently integrated with quoted material; sufficient paraphrasing
	CONVENTIONS: Strong conventions: minor errors in capitalization, grammar, punctuation, and spelling
	CONVENTIONS: Proper MLA citations and Works Cited with minor errors
2 —	a Competent paper meets minimum expectations and has most of the following characteristics:
	IDEAS: Adequate introduction and thesis; some sense of closure
	IDEAS: Paragraphs with limited accuracy, limited supporting detail, or limited connection to thesis
	IDEAS: Author shows limited understanding or insight
	IDEAS: Evidence of adequate research; sources are not as broad, current, or thorough as appropriate
	ORGANIZATION: Adequate organization lacking effective transitions
	VOICE: Limited writing writing voice generally maintains a formal, third-person style
	WORD CHOICE: Limited vocabulary; largely simplistic writing; specialized vocabulary lacks clarification SENTENCE STRUCTURE: Limited variety in length and structure of sentences; writing lacks fluidity
	SENTENCE STRUCTURE: Awkward integration of writer's words and quoted material; awkward paraphrasing
_	CONVENTIONS: Fair to good capitalization, grammar, punctuation, and spelling, with occasional distracting errors
	CONVENTIONS: Frequent mistakes in MLA citations or Works Cited
	a LESS-THAN-COMPETENT paper will have <u>at least one</u> of the following characteristics: IDEAS: An unfocused and/or poorly developed introduction and thesis; lacks closure
	IDEAS: Paragraphs lacking focus, accuracy, support, development, or connection to thesis
ū	IDEAS: Author lacks understanding or insight
_	IDEAS: Insufficient or poor use of research
	ORGANIZATION: Poor, confusing, or absent organization
	VOICE: Immature, inappropriate, or absent writing writing voice
	WORD CHOICE: Insufficient or overly simplistic vocabulary; failure to understand specialized vocabulary
	SENTENCE STRUCTURE: Choppy writing style; sentences often start the same; frequent fragments or run-ons
	SENTENCE STRUCTURE: Major problems with integration of researched material CONVENTIONS: Poor conventions that often confuse or distract the reader
	CONVENTIONS: Poor conventions that often confuse or distract the reader CONVENTIONS: Major omissions or errors in MLA citations or Works Cited
_	231. 21.1201.01.17agot elimentene el errore in 1712/1 elimitone el morke elleu
S	udent's name Score
E	valuated by

Weber Presentation Rubric

☐ Student is of Dress is app	propriate. Presentation	e, the following requirements least 7 minutes and no longer includes a visual aid utilizing ents a complete, professional	than 10 minutes. Enter s g multimedia skills. the ave	core in each category. Compute erage to calculate total score. A of 2.0 is required to pass.
	Beginning – 1	Developing – 2	Accomplished – 3	Exemplary – 4
Explanation of Ideas and Information	 Information, ideas, or findings are unclear or illogical; audience cannot follow the line of reasoning Development of ideas and presentation style inappropriate to the purpose, task, or audience 	 Information, findings, and/ or supporting evidence not always clear or logical; line of reasoning sometimes hard to follow Development of ideas and presentation style largely appropriate to the purpose, task, and audience but does not fully succeed 	Information, findings, arguments, and supporting evidence are largely clear, concise, and logical; audience can follow the line of reasoning Development of ideas and presentation style are appropriate to the purpose, task, and audience	Information, findings, arguments, and supporting evidence are presented unmistakably, concisely, and logically; audience can effortlessly follow the line of reasoning Development of ideas and presentation style are well-suited to the purpose, task, and audience
Organization	 Fails to meet requirement of presenting physical project and research paper findings Lacks an introduction and/ or conclusion Uses time poorly 	 Mostly meets requirement of presenting physical project and research paper findings Introduction and/or conclusion unclear or undeveloped Generally times components of presentation well 	Meets requirement of presenting physical project and research paper findings Clear, interesting introduction and conclusion Organizes time well	Exceeds requirement of presenting physical project and research paper findings Strong, thought-provoking introduction and conclusion Organizes time well
Delivery	Mumbles; speaks too quickly or slowly; or speaks too softly Frequently uses filler words (um, uh, so, and, like, etc.) Fails to make eye contact with audience; reads notes or slides Does not use movements or gestures Lacks poise and confidence (fidgets, slouches, appears nervous	Speaks clearly, loudly enough most of the time Occasionally uses filler words Makes infrequent eye contact with audience; relies too heavily on notes or slides Uses some movements or gestures Shows some poise and confidence (only a little fidgeting or nervous movement)	Speaks clearly, loudly enough; changes tone and pace to maintain interest Rarely uses filler words Largely maintains eye contact with audience; only glances at notes or slides Uses natural movements or gestures Looks poised and confident	Speaks smoothly, clearly, loudly enough; changes tone and pace to maintain high level of interest Does not use filler words Maintains eye contact with audience throughout presentation; only glances at notes or slides Uses natural movements or gestures Has poise and confidence; natural rapport with audience
Presentation Aids	 Does not use audio/visual aids or media Audio/visual aids or media used distract from presentation 	 Audio/visual aids or media used may distract from or not add to presentation Audio/visual aids or media used not smoothly integrated into presentation 	Well-produced audio/visual aids or media enhance presentation; add interest Audio/visual aids or media used are suitably integrated into presentation	Uses excellent audio/visual aids or media to enhance presentation and engage audience Audio/visual aids or media used are smoothly integrated into presentation
Response to Questions	Does not address question; goes off topic or misunderstands without seeking clarification	Answers questions, but not always clearly or completely	Answers questions clearly; seeks clarification when necessary; admits "I don't know"; explains how answer might be found	Answers questions clearly and completely without effort; seeks clarification when necessary; admits "I don't know"; explains how answer might be found
Student's Na	ame		Evaluated by	

Weber Portfolio Rubric

	Physical Project Score	
	Research Paper Score	
	Presentation Score	
	Overall Score	
omments		

CHOOSING YOUR PROJECT & PAPER TOPIC

Tips for Choosing a Project and a
Topic for your Paper
Paper and Project Examples
Letter of Intent

Tips for Choosing a Physical Project and a Topic for your Paper

When deciding on a project, make sure you can describe it using a verb.

What do you want to *build*, *create*, *design*, *learn*, *teach*? It is too general to say that your project is on child development. A better project would to *create* an educational video on important stages of early childhood development.

Your paper and your project must be related.

If you know that you want to paint a car for your project, then your paper topic will also be on auto body work. But be careful — the paper cannot simply be a how-to version of the work you do in your project. You must research some aspect of auto body work for the paper. An example would be to write a research paper that examines the chemicals used in auto body repair.

Make sure to choose something you can learn about and something you can do.

So you want to research the development of railroads in America for your paper, but what will you do for your project? Or you decide to produce a video on the Weber Institute for your project, but what will you do your research on? With any topic you want to be sure to avoid one of two common traps: 1) having something great to research but nothing to do for a project; or 2) having a great project idea but nothing to research.

Turn your research paper topic into a specific question.

OK, now that you know your project will be to custom design a home using architectural software, you know that your paper will be somehow related to this topic. Now you need to narrow down this topic by turning it into a specific question about something you want to know. For example: How did architects go from designing buildings on paper to designing them on computers? The answer to this question is what you hope to discover in your research, and it may well become your paper's thesis statement.

Make arrangements as early as possible for your physical project.

Do you wish to volunteer somewhere? Do you plan on taking lessons? Does your project include taking a night class at Delta? With cases like these you will rarely be able to take care of the necessary details in a day. Such arrangements usually take many weeks or even months. Making your plans well ahead of time is crucial to your success.

Ask someone (a former student, a mentor) about what you may be getting into.

Can you really build a model of the human skeletal form? Do you have the time and patience to build a working computer? Do you have the money necessary to buy materials to repaint your car? Be realistic about what you can accomplish for your project, and if you're not sure about it, ask. If you ask good questions early and find that a project is just not suited for you, then you can make the change.

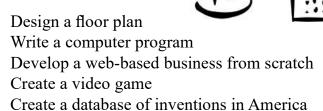
Paper and Project Examples

Note: The sample paper topics below are general — the theses will need to be much more specific. Also, these are samples only. You are encouraged to come up with whatever idea suits you.

Technology Academy

Paper Project

Architectural software
The importance of computer literacy
The Internet economy
Violence in video games
African-American inventors



Health Academy



<u>Paper</u>

Effects of methodone treatment Careers in sports medicine Alzheimer's disease

Effects of child abuse

Causes of heart disease

Project

Create a plan for drug abuse treatment
Plan and execute a career fair
Develop activities for convalescent
home patients
Create a booth at the mall for Child
Abuse Prevention Month
Produce heart disease prevention pam-

phlets for a doctor's office

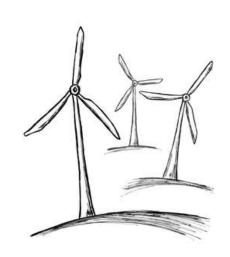
Automotive Academy

Paper

Improving gas efficiency
History of the electric motor
History of biodiesel fuel
Environmental regulations of
refrigerants
Vehicle pollution

Project

Rebuild an engine
Install an electric motor
Create biodiesel fuel
Install air conditioning in
a vehicle
Perform California smog
tests; diagnose and
repair problems



Letter of Intent

The Letter of Intent is an important early step in the process. Students should not assume that just anything will be approved. It is likely that the project will be either approved altogether or tentatively approved with modifications. Approval is based on the relationship of the project to the student's academy theme, the quality of the student's class work, the student's level of self-motivation, and the quality of the Letter of Intent itself. The Project/Paper Evaluation Form that academy teachers use is on page 48.

Format

The Letter of Intent must be typed and it must follow the following four-paragraph structure:

- 1st paragraph: Introduction: purpose of the letter; description of your overall idea; reasons
- 2nd paragraph: Detailed description of your physical project: process and steps to be taken, expected end product; anticipated problems and possible solutions; resources you will use; time estimate; cost estimate
- 3rd paragraph: Detailed description of your research paper: topics you will cover; research questions; research resources you will use
- 4th paragraph: Pledge not to plagiarize

There is a sample Letter of Intent on the next page. Follow the same structure, but do NOT use the same wording. It is especially distressing when students plagiarize the fourth paragraph, which is the promise not to plagiarize!

Approval

Once the paper and project are approved, keep the Project/Paper Evaluation Form and your Letter of Intent for your portfolio. If you need to make any changes to your paper or project topic after this point, notify your mentor teacher. Small changes may be necessary and won't require a new Letter of Intent. But if the change is dramatic, a new Letter of Intent must be written.

CHOOSING A TOPIC

Sample Letter of Intent

1 inch from top of paper



Business style calls for your home address

123 Sunshine Drive Stockton, CA 95207 Phone number and/or email address

15 August 2016

Business style requires you to skip 4-6 lines — after the date

Weber Institute 302 West Weber Avenue Stockton, CA 95203

Paragraph 1 states the letter's purpose and uses general terms to identify the project and paper topic.

Dear Weber Project Evaluators:

I am writing this letter to request approval for my senior project, which is to remove the head of an old, non-running engine, get it machined, and reinstall it to make the engine function once again. I am also asking for approval of my research topic on engine performance. I have always enjoyed taking things apart and putting them back together. It is amazing how you can bring a car back to life without buying a new one. I know I will learn a lot from working on this project.

Paragraph 2 explains the physical project in detail. The writer shows that he has thought about the demands of the project and problems he may encounter, and he identifies resources he will use as well as time and cost estimates.

For my physical project, I will be working on my 1995 Honda Civic. The problem with the engine is that the head gasket got burned. I will take the engine head off and get it machined. Then I will clean the engine block and reassemble the engine with the goal of getting it running again. I will also change and replace other parts that may be worn out. All these steps will take a lot of time because it will be my first time doing this work, so I want to take my time and do it correctly. The biggest obstacle I may encounter is reconnecting all the hoses and wires correctly, so I plan on taking pictures when I disassemble the engine to keep track of everything. I will also consult with Mr. Yonan to keep myself on track. This project will take more than the fifteen hours required. I believe this project will help me understand how engines work and give me a better sense of how all machines work. I anticipate this project will cost at least one hundred dollars. I am currently working at a tire shop which will help me pay for any expenses.

Paragraph 3 explains the topic of the research paper. It is detailed and includes questions the writer hopes to answer as well as plans for where to research information.

Since my project involves hands-on engine work, for my research paper I would like to conduct research on engine performance and what you can put into a car to increase its horsepower. There are many parts that can be added to a car's engine in order to make it run more powerfully. Can a different shape of pistons help improve horsepower? Can installing headers and an intake affect the engine in the long run? I will research different bolt-on systems such as superchargers and turbochargers. How do they compare? What are their advantages and disadvantages? Are there simple, low-cost steps that can produce more power too? I plan on getting some of my information by talking with mechanics. People with a lot of experience know a lot about car engines and can help answer my questions. In addition to asking mechanics, I will also use books and the Internet for my research.

In paragraph 4, use your own words to pledge that you will not plagiarize.

Plagiarizing is something that students end up doing when they get behind and don't have time to finish their work. I don't consider plagiarizing an option because I believe that cheating comes back at you and it's not worth doing. I like learning and experimenting, and plagiarizing will take that away from me.

Sincerely,

Don't forget to sign your name.

sign here

type your full name

PHYSICAL PROJECT

Project Standards and Policies Physical Project Log Physical Project Documentation Physical Project Self-Evaluation

Project Standards and Policies

		3	
	_	he project until you have completed ee page 47) and your Letter of Intent	
	The project may be started a sary or desired.	as early in your senior year as neces-	
	You should work at least 15 ect.	hours overall on your physical proj-	
	ceptable for students to do s	ning stretch. This means it is not ac- something they already know. Topics ed to school activities will be rejected.	
	The project cannot simply b others.	e job shadowing. Students must be mo	re active than merely to observe
	The project cannot be part of	f a student's paid job.	
	A faculty mentor is required	l.	
	Project checks will take place	ce during third quarter, or whenever ap	propriate.
	Projects must maintain high	standards: no obscenity; sexually expl	icit content; etc.
	300355	☐ Project documentation must include work. Other examples of documentation sheets and receipts for purchases.	
☐ A project log is required as documentation of your work.			
5		☐ Project documentation is expected giarism is wrong at any stage of the patheir project work jeopardize their grades.	roject, and students who lie about
1		☐ Your project must score a 2 or bett	ter to pass. You must pass the

What former seniors have said:

"If I could do the Weber project all over, I would choose a more personal topic.... Be careful about choose a more personal topic.... Be careful about choose to do because after October it is what you choose to do because after October it is what you choose to do because after October it is what you change your mind."

Tirst thing:

"I believe that if you have an interest in your topic, you will put the time and effort into developing a good project."

"First thing's first. Deciding on your subject matter is the most critical part of the whole project. Choosing your project is your way to be creative."

physical project to meet graduation requirements! See the grading rubric

on page 5. Your teachers will evaluate your project.

Physical Project Log

Expectations

u	The log should describe what you do at one time in specific detail. You should not wait until the end of the week to write several entries or for too many activities into one long entry. Instead, write your entries each time you do work on your project.
	The log must include contacts you make with mentors or other people who help you along the way.
	The log should report successes, disappointments, surprises, problems, and changes you make.
	The log should be written clearly — but it can be informal. It does not require the serious tone that a research paper does.
	The number of hours and minutes spent on that day's activity should be reported at the end of the entry in parentheses.
	There should be an adequate number of entries suitable to the project you are doing. For example, four entries is not enough for someone who sets out to rebuild an engine.
	Write your entries in a Google doc to print out at the end.
	The teacher will not evaluate your log or give you credit until your Parent Consent form is turned in.

Sample entries

Thursday, Jan. 30

From my Chilton's Volkswagen book, I found out what type of front suspension my 1974 type 1 uses. It's a trailing arm suspension and it gets its name from the four trailing arms that are connected to the axle. There's one trailing arm per axle beam and my front end uses two. (30 minutes)

Friday, Feb. 7

Now I know what kind of front suspension I have, but I still don't know how it works. So I went downtown to the library to find out. There wasn't much, but according to "The Small Wonder" it works with torsion bars that are housed within the axle beams. It says the principle of the torsion bars are that when the tire goes up or down the springing action caused by the bars causes a force in the opposite direction.

To find out how to lower the front end I went to Bob's German and talked to a mechanic named Chad. He explained to me how to do it. He said I would have to pull the torsion bars out in order to get more than a one-inch drop. If I only want to go down about an inch I can use lowering shocks.

Determining the distance my car will drop is the amount of torsion bars I'll take out. I forgot to ask Chad how many bars to pull, so I called him when I got home. He said to pull three but if that wasn't enough pull two out of the bottom beam. (2 hours and 20 minutes)

Saturday, Feb. 8

The first step was to jack up the car and pull off the front wheels. Next I loosened the screws on the axle beam. Those screws are what keep the bars tight when they're under pressure. Since I'm only taking the bars out of the top beam I only needed to loosen the first set of screws. I got stuck when it came to taking off the trailing arm. (1 hour)

Note how this student documents the time spent researching his project.

It's a good idea to talk to people who have expertise and who can explain steps to you.

More than just a series of steps, a good project log includes setbacks and difficulties.

Sample Log entries, continued

Monday, Feb. 10

Since there's no school today I knew I could get a lot done. I called Don's Buggy Shop about the trailing arm. I found out I had to remove not just the top trailing arm but also the top of the spindle where it connects to the arm.

To take the trailing arm off I had to loosen a set screw which I forgot about earlier. I had to run a screwdriver along the arms to remove all the road debris that was hiding the screws. After I loosened the screw the arm could have been slid off if the spindle wasn't stopping it.

Getting the spindle off was the hardest obstacle I've encountered. There are two screws with bolt type heads that interlock with the king pin that are called link pins. They're old and rusty, so it was very frustrating. It took a long time to get them off.

It seemed like after I took the link pins out of the spindle it would fall right off but I guess all the rust and all the pressure it was under kind of held it together. I had to pound with a hammer to bust it loose.

Now with everything out of the way and the axle exposed, the bars were ready to be taken out. I could see the bars through a hollow square in the spindle, and I used a hammer and screw driver to push three bars out the other end. Then I was able to grab the bars with a pair of vice grips and pull them all the way out. Reassambly was the opposite of assembly. (3 hours)

This student wrote several more entries, with his time totalling more than the 15 hours required. In his additional entries, he explains what he did and refers to several people he spoke with for help on completing the project.

It is evident from this entry that the student is putting in quality time. The specific details are necessary. You can tell that he did not wait until much later to write his entries.

Remember to write the time you spent working at the end of each entry. It is important that the content of the entry supports the time you write. Writing just one paragraph for 3 hours of work isn't adequate.

Physical Project Documentation

The Project Log is one way to document, or prove, the work you do for the physical project. But it is important that you include in your portfolio other pieces of evidence that you completed your project. Examples of documentation include the following:

Photographs of the project as you work on it. Any project can be documented with photos.
Receipts of purchases.
Drawings/sketches/plans/drafts of work leading to the final product.
Photocopies of sign-in sheets (if you are doing your project in a workplace)
Video of the work on progress.

Physical Project Self-Evaluation

The Physical Project Self-Evaluation is a two-page form which asks you to reflect on your experience working on your project. This evaluation is due upon completion of your Physical Project. It must be turned in before your project will be evaluated. When you get it back, place it in your portfolio. The form is on page 49 and an electronic version can be found on our school's web page.

RESEARCH PAPER

Paper Standards and Policies
MLA Guide
How to Write the Paper
Sample Outline
Sample Paper

Research Paper Standards and Policies

- Paper must be preceded by an approved Letter of Intent. Topics may be rejected because they are sensitive or too close to what a student already does, especially as part of a school program.



- Paper must go through the writing process including drafts, revisions, and editing. Major deadlines, determined by your academy teachers, must be met.
- Paper must be at least 5 full pages, typed, double-spaced, with 1-inch margins all around. Font size is 12 point. Select an easy-to-read font such as Arial or Times New Roman. (This page is typed in Times New Roman 12 point.) Do **not** type in all capitals or in a decorative or italic font. There is a sample in this guidebook of what a research paper should look like (see pages 31-41).
- Within the text of the paper, there must be at least 10 citations indicating the sources from which information was taken. These parenthetical citations will be taught in class.
- A Paper must be the student's **original work**. Students suspected of plagiarism will be asked to produce their sources. Students unable to produce proper sources will be asked to rewrite their paper. It will be considered a late paper and the grade will drop as a result.
- A Paper's final draft must be turned in by the announced deadline to be eligible for full credit. Students who fail to turn in papers will not meet their graduation requirements.
- Papers that do not pass may be rewritten and resubmitted for a score. Students who receive scores of 1 will be urged to see a tutor. They must rewrite the paper to the same standards as before.
- A Papers must be a 2 or better on the rubric in order to be passing (see the rubric on page 6). Students must pass the research paper in order to meet graduation requirements.

MLA Guide for Research Papers

What is research?

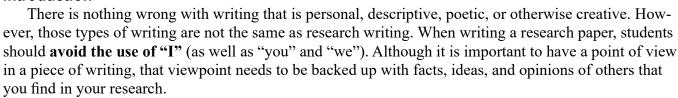
It is:

- ✓ the work of bringing together the facts, ideas, and opinions of others; and
- ✓ giving credit to the sources from which the information came.

It is not: simply ideas of information your others preopinion sented as own life

your own





Research is more than just a report. It involves taking many sources — for the Senior Research Paper, there must be at least 5 — and bringing together the various pieces of information. Students must avoid word-for-word repetition of someone else's words unless those words are quoted. Most of the time, a research paper is made up of paraphrasings from your sources. Whether you quote or paraphrase information, you must provide the source in the paper (this is called citing). When one does not give credit to a source, or when one tries to pass off someone else's words as their own, that is **plagiarism**.

Like most good writing, a research paper depends on a **thesis statement**. The goal in a research paper is to develop a statement that makes the reader think and that forces the writer to prove it. The writer proves the thesis statement with all the research he or she has done. A thesis that is simply a fact is not good enough. Consider these examples:

ADEQUATE: Despite the huge costs involved, space travel should be continued because of the many benefits it brings to mankind.

INADEQUATE: Neil Armstrong was the first man to walk on the moon.

The first statement is adequate because it shows that the writer intends to use research to prove that space travel brings many benefits to mankind. A thesis can't simply be what the writer thinks, feels, or likes.

Research involves discussion, planning, reading, Internet surfing, outlining, topic refinement, thesis revisions, and, above all, getting a great deal of information. The format developed by the Modern Language Association, or MLA, is one way to document information. It is commonly used in schools and universities, and it is explained on the following pages.

"Do I have to cite everything?"

Students often ask this question. (Remember: "to cite" means to credit information to a source.) The answer is no, but you must still cite a lot in your research paper. The main exception is when information can be considered *common knowledge*. The fact that AIDS emerged in the 1980s and the commonly shared opinion that Jackie Robinson was one of the most important athletes of all time do not need citations because the statements are commonly accepted as true. However, opinions and facts that are obscure or not commonly known must be cited. Consider these examples:

DOES NOT NEED CITATION: AIDS emerged in the 1980s.

NEEDS CITATION: AIDS research has not received the attention or funding it deserves.

The second statement is not common knowledge, so the source needs to be credited.

MLA Guide, continued

About Plagiarism

All students need to understand plagiarism. Using someone else's ideas or words and representing or rewording them as one's own, either on purpose or carelessly, is a serious offense known as plagiarism. "Ideas or words" includes written and spoken material — from entire papers and paragraphs to sentences and even phrases or statistics. "Someone else" can be a book, magazine, encyclopedia, web page, another student, or a paper-writing service which sells papers.

In the Letter of Intent students pledge that they will not plagiarize. This is not simply a promise not to cheat (that is, *intentionally* plagiarize); it is also a promise to work hard to avoid *unintentional* plagiarism. Unintentional plagiarism happens in two ways: one, when a writer paraphrases information but changes too few of the words; and two, when a writer paraphrases information but does not cite the source. That is plagiarism because it is someone else's ideas, even if the words are different.

ORIGINAL WORDING: Students at Hoover College who plagiarize may be expelled after the first offense. PLAGIARIZED: At Hoover College students who plagiarize may be expelled after their first offense. PROPERLY PARAPHRASED AND CITED: Plagiarism is dealt with severely at Hoover College. Students caught plagiarizing may face expulsion ("Conduct Code" 5).

Gathering Materials

Once a topic is approved, students begin to gather information from sources, including books, online sources, encyclopedias, magazines, and interviews with people. Librarians are happy to show students how to use various research tools and may suggest other sources of information. Internet browsing and searching will also help narrow a topic and locate information; but be sure the web sites you find are reliable.

It is important to realize that certain topics call for certain sources. For example, learning about the impact on aviation made by the Wright brothers requires book research, whereas following a hot topic of the day would require looking in recent newspapers, magazines, and on the Internet.

As you search for information, you will take notes on notecards and record bibliography information as well. Taking good notes as you research, and writing down the bibliography information, will make the task of writing your paper much easier.

Citations in the text

Any information taken from another source, whether the information is quoted or paraphrased, must be followed by a citation that points the reader clearly to a place on the Works Cited page where that source is listed in full. A few notes about parenthetical citations:

- ✓ A citation usually includes the last name of the author of the source and a page number, if there is one.
- ✓ If you include the name of the author in the sentence in which you use the information to be cited, the only the page number is needed in the citation.
- ✓ A citation can apply to all the preceding sentences in that paragraph back to the previous citation. A paragraph could have and often does many citations.
- ✓ Every paragraph in a research paper (other than the introduction or conclusion) should have at least one and maybe many citations. It is common to find a citation after every paragraph in the body of a paper.

Examples:

Kennedy could have been one of the greatest U.S. presidents (Jones 77). Alfred Jones argues that Kennedy could have been one of the greatest U.S. presidents (77).

MLA Guide, continued

Working with quotations

Quotations that come to fewer than four lines in the paper should be set off inside quotation marks ("...") and integrated within the normal flow of the text. For quoted material that is more than four lines, the quotation marks are omitted and the quoted language is indented one inch from the left margin. Quotations so long that they need to be indented should be avoided; too many long quotes suggests that the paper is being "padded" to meet to minimum page requirement.

Bibliography cards

- ✓ Keep bibliography cards from the beginning of your research!
- ✓ Take care of the little details: italicize titles, punctuate correctly, indent all lines after the first.
- ✓ Put only one source on each card. Later, you can alphabetize all your cards to prepare your Works Cited page.

Wilson, Frank R. <i>The Hand: How its Use</i>
Shapes the Brain, Language, and
Human Culture. Pantheon Books,
1998.

Basic Order of Bibliography Information

- 1. Author.
- 2. Title of source.
- 3. Title of container, (if the source is in a larger work such as a book, website, or magazine)
- 4. Other contributors,

- 5. Version,
- 6. Number,
- 7. Publisher,
- 8. Publication date,
- 9. Location. (page numbers or Internet URL)

Note Cards

- ✓ Keep note cards from the beginning of your research!
- \checkmark 4x6 cards are good for note cards.
- ✓ Use quotation marks for exact quotes.
- ✓ Include citations so you know which source each notecard refers to!
- ✓ Write a topic at the top of the card so you can sort your cards later.

Population projections
"By the year 2020 the human population
is projected to be over 8 billion, 3,000 million
more than now" (Edey 97).
Each year, the world's population grows by
over 5 percent (Edey 98).

MLA Guide: Bibliography Formatting for Common Source Types

Basic Order of Bibliography Information

- 1. Author.
- 2. Title of source.
- 3. Title of container, (if the source is in a larger work such as a book, website, or magazine)
- 4. Other contributors,

- 5. Version,
- 6. Number,
- 7. Publisher,
- 8. Publication date,
- 9. Location. (page numbers or Internet URL)

Lacey, Robert. Ford: The Men and the Machine. Little,
Brown and Company,
1986.

BOOK BY ONE AUTHOR

Author last name, first name. *Title italicized*. Publisher, year of publication.

Note: The first word of a title, last word, and all key words in between are capitalized.

Eggins, Suzanne, and Diane Slade. *Analyzing Casual Conversation*. Cassell Books, 1997.

BOOK BY TWO OR THREE AUTHORS

Author last name, first name, and first and last name of second (and, if needed, third) author. *Title italicized*. Publisher, year of publication.

Note: When listing more than one author, go by the order they are listed on the book, which is not always alphabetical.

Gilman, Sander, et al.

Hysteria Beyond Freud.

University of California
Press, 1993.

BOOK BY MORE THAN THREE AUTHORS

Author last name, first name, et al. *Title italicized*. Publisher, year of publication.

Note: "Et al" is a Latin abbreviation that means "and others."

Dillard, Annie. "Living Like Weasels." *Literature and Language Arts Fifth Course*, program authors Kylene Beers et al, Holt, Rinehart, and Winston, 2009, pp. 210-213.

ESSAY OR ARTICLE IN A LARGER BOOK OR COLLECTION

Author last name, first name. "Title of essay in quotation marks." *Title of book italicized*, Other contributors such as editors, Publisher, year of publication, pages of essay.

Note: If you find version or edition numbers, include them before listing the publisher.

MLA Guide: Bibliography Formatting for Common Source Types

Hollmichel, Stephanie. "The Reading Brain: Differences between Digital and Print." So Many Books, 25 Apr. 2013, www.somanybooksblog. com/2013/04/25/the-readingbrain. Accessed 3 Aug. 2016.

ARTICLE OR POSTING FOUND ON THE INTERNET

Author last name, first name. "Title of Article in Quotation Marks." Website name italicized, Version or edition numbers, Publisher or sponsor of website, Publication date, Internet location. Date accessed.

Note: Web sites may not always contain all the information shown here. Use the information you can find. For example, if the article has no author, begin with the title of the article.

"History of Computers: A Brief Timeline." *Live Science*, Live Science LLC, 8 Sept. 2015, www.livescience.com/history/ computer-timeline/. Accessed 31 July 2017.

"Engine Performance and Diagnostics." *YouTube*, uploaded by Larry Johnson, 9 Nov. 2014, www.youtube.com/watch?v=WR3-v7QXXw.

ONLINE VIDEOS

"Title of video in quotation marks." Website name italicized, Name of director/producer/person who uploaded the video, Publication date, Internet location.

Belton, John. "Painting by the Numbers: The Digital Intermediate." *Film Quarterly*, vol. 61, no. 3, May 2008, pp. 58-65.

ARTICLES FROM MAGAZINES, JOURNALS, OR NEWSPAPERS

Author last name, first name. "Title of article in quotation marks." *Title of magazine italicized*, Version or publication numbers, Date of publication, page numbers.

Liu, Catherine. Marine biologist. 3 Sept. 2014, interview conducted by email.

PERSONAL INTERVIEWS

Last name of person interviewed, first name. Description of person, usually a job title. Date, description of interaction.

How to Write the Paper

The Introduction

STANDARDS

- ✓ An introduction should provide a clear focus for the paper.
- ✓ An introduction should include the paper's thesis statement, one to two sentences that describe the paper's main point or purpose.

TRY TO

- ✓ lead gradually toward a thesis statement since many readers expect a thesis at the end of the first paragraph and generally don't like the slap-in-the-face effect of having it stated right away.
- ✓ get the reader's attention from the first words without using gimmicks.

Avoid

- ✓ stating your thesis in the first or first few sentences.
- ✓ phrases such as "In this report I will..." or "My senior project is..."
- ✓ a very short introduction since a reader may think you didn't put much effort into it.

POSSIBLE APPROACHES FOR STARTING THE PAPER

- ✓ provide history/background
- ✓ define a term or concept
- ✓ describe an actual scenario relating to your topic
- ✓ develop an image or analogy
- ✓ explain the importance of something
- ✓ reflect on a thoughtful quote
- ✓ discuss a generality
- ✓ expose a misconception ("Many people believe... but, in fact...")
- ✓ create suspense
- ✓ ask questions

Make sure not to choose an approach for your introduction that conflicts with the body of the paper. For example, if the paper is about the history of something, the introduction shouldn't be the history — the body should. Instead, use the introduction to introduce the reader to the topic.

CHARACTERISTICS OF A THESIS STATEMENT

- ✓ It should be 1-2 sentences. You need to be general enough that you can say something meaningful about your entire topic in those few words.
- ✓ It should be broad enough to cover all of the smaller subjects found in the body paragraphs.
- ✓ It is the major point of your entire paper.
- ✓ It should be something your research can support. Although it may be an opinion that can be defended, it should not be a personal judgment or a matter of taste.
- ✓ It may be a general statement or it may include certain reasons within it. Examples:

 GENERAL: Taking a good picture is more difficult than it may first appear.

 W/REASONS: Taking a good picture requires planning, understanding photocomposition, and technical ability.

SAMPLE THESIS STATEMENTS

- ✓ Much more than a smooth voice is needed for radio. The radio producer plays an important role behind the scenes. (From this statement, we know that the body of the paper will be spent explaining the responsibilities and importance of radio production.)
- ✓ Young people join gangs for several reasons. Most are related to the desire to feel accepted. (The body will attempt to prove this.)
- ✓ From the first year it appeared on the scene, the Ford Mustang was a trendsetting automobile.

Examples of Introductions

EXEMPLARY EXAMPLE OF AN INTRODUCTION

Every living thing must eat in order to survive. But of all the diets known, whether it be for plants, animals, or humans, it seems that humans have the most unbalanced nutrition. It is especially true for people between the ages of 13 and 19, otherwise known as teenagers (Smith 2-3). Some teenagers have become vegetarians in the hopes of improving their eating lifestyles; what they don't realize is that by eating just vegetables they are being deprived of meats, making their diets unbalanced. Teenagers are constantly worrying about the way they look and seem to think that eating fast food moderately during lunch time every day won't hurt. In reality it does, because the fast food served at restaurants does not provide a well-balanced meal (Smith 19). All teenagers must realize that healthy foods and a balanced diet as well as exercise are essential in obtaining a healthy lifestyle.

ANALYSIS: The beginning is a general statement that is followed by sentences that gradually become more specific. Note how the first three sentences move from living things to humans to teenagers. The writer has support from research even though it isn't necessary in the introductory paragraph. The writer's use of realistic detail ("Teenagers. . . eating fast food moderately during lunch time") makes this a believable piece from the beginning. The thesis statement — the last sentence in the paragraph — is one that takes a stand and yet can clearly be supported by research. The reader can expect that the body of the paper will attempt to prove, using research, how healthy eating, a balanced diet, and exercise contribute to good health.

ADEQUATE EXAMPLE OF AN INTRODUCTION

Imagine yourself living in a village somewhere in a third world country, where you have a meager standard of living. If you want water, you have to go and get it yourself and if you want to cook your food, you have to venture out far from your home to get it. This is the reality that my people, the Cambodians, have to face every day in order to survive. Now imagine that one of these days your journey is to go out and do these chores and suddenly, you step on a device that you probably have no clue about. The next minute you find your legs blown offor other parts of (continued on next page)

(continued from previous page)

of your body or perhaps you are even dead. It's bad enough that you have to go out and get your own water and cooking supplies but to get paralyzed or even get killed in the process of doing so; that's a very scary thought. This is not fiction, there are the facts about the lives of my people. I am talking about the land mines in Cambodia. Millions of them are still active in my homeland.

ANALYSIS: This sample does many things well but it could easily be made stronger. Its greatest strength is that it is descriptive and interesting. It would likely draw in readers who know about this atrocity as well as those who do not. More than just a scenario ("Imagine..."), it is also a description of the way life really is in this country. But in two important ways, it could be a better introduction. For one thing, the first-person reference should be removed. A formal research paper should avoid "I" and "my." In the most formal of writings, even "you" shouldn't be used. In this case, for a dramatic effect, "you" can be changed to a mother, or a little boy, or whatever will have the greatest impact. The other important change necessary is to strengthen the thesis. In fact, the way it is written, there isn't really a thesis, or main point. This paragraph is actually set up so that a thesis could easily be added to the end. It could read something like: "A land mine is a terribly destructive weapon that has long-lasting effects on innocent people. Removing land mines is dangerous and expensive but very necessary."

POOR EXAMPLE OF AN INTRODUCTION

I first saw a tattoo while watching television when I was about six or seven years old.

I was so intrigued by the designs, but it wasn't until I was older that I really appreciated them.

To me the tattoo is one of the most beautiful tart forms in the world. They are found all over the world, from the small tribes in the jungle to the major cities like New York, Los Angeles, etc.

ANALYSIS: This sample, like the previous one, has potential. However, a great deal of change is necessary. The writer's enthusiasm needs to come out in other ways, and not through sentences like the first three. The final sentence, if you omit "etc.," could easily become a suspenseful first sentence for the paragraph which may draw readers in to find out more. Also, there is nothing close to a strong thesis here. What is the writer's main point which he or she will spend much of the paper on? The answer to that question needs to be fashioned into a thesis statement.

In revising this paragraph,the writer should take the approach of "show, don't tell," which would mean avoiding phrases like "most beautiful." Instead, the writer should try to show the reader, by describing tattoos, their beauty.

Body Paragraphs

STANDARDS

- ✓ The points made in the various body paragraphs should be consistent with the points made in the outline.
- ✓ Each body paragraph should have a particular focus which supports the paper's overall thesis.
- ✓ The focus of each paragraph is often communicated by the topic sentence, which is generally the first sentence of a paragraph. It is like a mini-thesis statement that applies to that paragraph only.
- ✓ Unlike introductions, most body paragraphs require citations. Your body paragraphs should contain at least 10 citations.

TRY TO

- ✓ have many different sources, in any given paragraph or from paragraph to paragraph.
- ✓ use mostly your own words, occasionally quoting phrases from your sources.
- ✓ blend quotes into your own writing quotes should not be stand-alone sentences.

Avoid

- ✓ using the same source repeatedly.
- ✓ quoting long passages, because this indicates failure to understand the concepts of your research as well as failure to produce original writing.
- ✓ leaving specialized information without citations, because the reader may be left with the implication that you plagiarized.
- ✓ very short paragraphs.

Examples of Body Paragraphs

EXEMPLARY EXAMPLE OF A BODY PARAGRAPH

Aside from preventing heart disease, aerobic exercise can also guard against other ailments, physical and mental. A study conducted by the University of South Carolina found that, for tension headaches, a fifteen-minute walk brought more relief than a mild tranquilizer. Aerobic exercise has also been shown effective in reducing allergy and asthma. It is believed that the improved circulatory system, from exercise, helps relieve the congestion that stuffs up the respiratory system (Cooper 180). Exercise not only helps physically but mentally too. Recent evidence shows that physical activities, including aerobic exercise, give us a better mental outlook about everything we do (Lyttle 6). Cooper agrees and is very supportive of this theory. He states that he "can assure you that there is an interrelation between the body and the mind" (Cooper 174). A study at the California Human Performance Laboratory confirmed the connection between physical health and mental well being (Cooper 175). Doctors have been unable to say exactly why but there are several theories.

(continued on next page)

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ANALYSIS: The positive effects of aerobic exercise are discussed in some detail in this paragraph. The topic sentence (the first sentence in the paragraph) is effective because it acts like a mini-thesis statement, indicating the main purpose of the entire paragraph. Two sources are used extensively. There is a great deal of paraphrasing and one example of an exact quote where the words are blended in well with the writer's. Note also the appearance of transitions at the beginning and end of this paragraph. The previous paragraph must have gone into some detail about ailments since the opening sentence refers to *other* ailments. And the paragraph after this one will likely look at some of the doctors' theories. Sentence style is sophisticated; the writer alternates long and short sentences and begins them with different words/phrases.

ADEQUATE EXAMPLE OF A BODY PARAGRAPH

Engineering in the ancent civilizations included the construction of canals, bridges, tunnels, drainage systems, water supplies, harbors, and docks. Early civil engineers and architects built some of the best known manmade structures, the Great Pyramids in Egypt. The ancient egyptian engineers used simple mechanical principles and devices to construct numerous temples and pyramids. The Great Pyramid at Giza and the temple of Aman Ra and Karnak are still standing due to good designs and craftsmanship. The Great Pyramids stands at 481 feet high and is made of 2.25 million stone blocks, with the average weight of 1.5 tons. Large numbers of men were used in the construction of these structures. The men used cutting tools of hard bronze. They also used tools like levers, inclined planes, rollers, and sledges which were also used by the egyptians. The romans were considered the outstanding ancent engineers. They built bridges roads and aqueducts. When the roman engineers built a bridge they did not use much math or physics so they relied on experience and instinct (Branigan762).

ANALYSIS: This paragraph has good potential. It gets off to a good start with a promising topic sentence, and it is filled with detail. But there are problems as well. The topic sentence makes us think that the writer will cover many more areas of detail than he actually did. In reality, the paragraph focused largely on one civilization and its pyramids. The shift of emphasis from Egyptians to Romans is a little awkward. Especially confusing is the sentence beginning "They also used..." and ending "...which were also used by the Egyptians." Who is being referred to at the beginning of the sentence with the word "they"? Another problem with this paragraphis that it has only one source of information, listed at the end. Even though it is possible to get all this information from one page of one source, a reader would appreciate greater research, more sources. Finally, there are a number of mechanical errors in the paragraph, such as capitalizing "Roman" and "Egyptian" only part of the time and misspelling "ancient."

POOR EXAMPLE OF A BODY PARAGRAPH

Most experienced Motocross racers buy specific, proven bike parts and provide their assembling. Bike frames weigh anywhere from 4 to 6 1/2 pounds (Thawley 56). The frames are made to be sturdy but very tight. Frames made in the United States are generally heavier but a lot stronger than frames made in other countries. (Thawley 58) Some frames, even the top of the line one's tend to crack. After riders race they should check their frames for any cracks or strange marks that can turn into cracks. My brother rides a "Cannondale" which is on of the most expensive frames you can purshase. He also has another frame called a "Rocket".

ANALYSIS: This is a rather short paragraph but that is not its only flaw. The first sentence gets off to a good start as a topic sentence, but "provide their assembling" does not make sense. Also, the topic sentence should indicate that the focus of the paragraph will be bike frames. What follows in the paragraph are good details and the citations are mostly correct, but the last two sentences veer off topic. They deal with the writer's brother and not with research, so they should not be included. Finally, there are several errors in mechanics in this paragraph.

Conclusions

STANDARDS

- ✓ A conclusion should wrap up the paper, often reminding readers of the thesis.
- ✓ A conclusion should not bring up new (unproven) information or in any way contradict the thesis of the paper.

TRY TO

- ✓ somehow echo the beginning of the paper; for example, an opening image could be repeated at the end of the paper.
- ✓ use different words than the intro. An "echo" should sound familiar but not the same.
- ✓ leave the reader with something to really think about. This can be done in many ways. One way is to look toward the future, based on what you have already said about the past.

Avoid

- ✓ repeating exact phrases from your introduction.
- ✓ citations, unless they serve a purpose in wrapping up the paper.

Sarah Student

Ms. Teacher Name

English 7-8

5 November 2010

Aerosol

I. Introduction

- A. Aerosol sprays have existed since the 1800s and have had many beneficial uses in many occasions from the jungles of WWII to the luxury of your own home, even leading to the invention of many spray paints for all sorts of products.
- B. What is aerosol? A system of compressed particles dispersed in a gas, smoke or fog.
- C. Aerosol's achievements
 - 1. History in WWII
 - 2. Technology improved by various inventors
 - 3. Aerosol products hit the market
- D. Aerosol's environmental problems
- E. Thesis: Aerosol and aerosol products have come a long way since the 1800s, and while they have revolutionized the way we use different kinds of tools, they have caused problems with the environment that have led to restrictions on their production and use.

II. Aerosol Concept

- A. 1790s in France: pressurized carbonated beverages were introduced
- B. Norwegian engineer Erik Rotheim
 - 1. November 23, 1927: "Patented the first aerosol can and valve that could hold and dispense products and propellant systems."
 - 2. 1988: Norway's celebrated the invention of the spray can by issuing a postage stamp.

III. 1940s - 1950s

A. WWII

1. Soldiers having problems with insects

2. American scientists further improve aerosol technology; create portable insect repellant using aerosol containers for soldiers with insect problems

B. 1950s

- 1. Aerosol technology further improved when inventor Robert H. Abplanalp invents clog-free spray valve
- 2. The clog-free spray valve led to the introduction of all sorts of aerosol products in the market

IV. Environmental Problems

- A. In 1974 Nobel Prize winner scientist Dr. F. Sherwood Rowland theorizes that CFCs, or chlorofluorocarbon chemicals, in aerosol products were destroying the ozone layer.
- B. U.S. Environmental Protection Agency and the aerosol industry
 - 1. EPA banned use of CFCs in aerosol products
 - 2. Aerosol industry tries to discover new, safer chemicals to use as propellants
- C. Nitrous dioxide and carbon dioxide
 - 1. Nitrous and carbon dioxide replace CFCs in aerosol products as the new propellants
 - 2. The overwhelming majority of aerosol technology is now completely CFC-free and environmentally friendly

V. Spray Guns and Paint

A. Edward Seymour

- 1. Invented spray gun and spray paint; he demonstrated an aluminum paint he created in 1949
- 2. Spray gun demonstration proved to be very popular
- 3. Seymour borrowed a few thousand dollars from the bank to develop this revolutionary idea

B. Seymour Company

- 1. After many modifications, the company perfected its paint.
- 2. The company's spray paint products include:
 - a) Automotive
 - b) Industrial
 - c) Hardware
 - d) Specialty
 - e) Marine
- C. Seymour Companies Paint Quality
 - 1. Environmentally friendly
 - 2. Finest raw materials
 - 3. Superior quality
- VI. Chemistry of Automotive Paint
 - A. Automotive paint consist of three, sometimes four components
 - 1. Pigment
 - 2. Binder
 - 3. Solvent
 - 4. Additives
 - B. Pigment
 - 1. Component in paint that reflects a color
 - a) Example: A red pigment absorbs all of the lights except red. That is why the red is reflected off the pigment.
 - b) White pigment reflects all colors. Black pigment absorbs all colors
 - C. Binder
 - 1. Uniqueness of binder
 - a) Holds pigment in liquid form

- b) Makes pigment flexible
- c) Makes pigment stick to surface

2. Main purpose

a) The binder has oils and components that allow the paint to dry firmly

D. Solvent

- 1. Properties affected by solvent in paint:
 - a) Odor
 - b) Flow
 - c) Stability of paint

E. Additives

- 1. Theses are other components added to paint
- 2. Additives can speed curing, prevent wrinkling or blushing
- 3. They can improve chemical resistance or gloss

VII. Conclusion

- A. Summary of aerosol definition and purpose
- B. Aerosol's benefits to military in WWII led to its wide scale use
- C. Environment
- D. Aerosol products have become environmentally friendly and have revolutionized products in the marketplace.

This header (your last name and page number) goes one-half inch from the top of the page.

Student 1
One inch from edge of paper

Sarah Student

Ms. Teacher

English 7-8

2 December 2010

Double space everything; do not add any extra space between the heading of the paper, the title of the paper, or any of the paragraphs.

Aerosol

Aerosol sprays have existed since the 1800s and have had many beneficial uses in many occasions from the jungles of World War II to the luxury of your own home, even leading to the invention of many spray paints for all sorts of products. To begin with, aerosol is basically a system of compressed particles dispersed in a gas, smoke, or fog, usually from an aerosol spray container (Bellis). Aerosol sprays have had many improvements and uses throughout history because of necessity. For example, during World War II, American soldiers had many problems with insects and diseases during their stay in jungles and scientists had to find a way to resolve that situation, so they looked into aerosol technology ("History"). Aerosol containers have dispersed many different products, including automotive body paint, and have had different inventors improving the system all together. In the early stages of production of aerosol sprays, it was discovered that aerosol containers use a propellant that is dangerous to the environment and so it has encountered problems (Caroline). Aerosol and aerosol products have come a long way since the 1800s, and while they have revolutionized the way we use different kinds of tools today, they have caused problems with the environment that have led to restrictions on their production and use.

The concept of the word aerosol first came from France when pressurized carbonated beverages, for example soda, were introduced in the 1790s. Apparently after a while, people

in France and other countries wondered why the carbonated beverage would shoot out of the container when shaken. Scientists viewed this occurrence and studied it, viewing that a propellant was used in the beverage and unintentionally shot out of the container when shaken. At first, nobody thought of the idea beyond the fact that it was an occurrence that happens when you shake a carbonated beverage (Witzel 38-39). Later, on November 23, 1927, Norwegian engineer Erik Rotheim "patented the first aerosol can and valve that could hold and dispense products and propellant systems." Norway's post office celebrated the Norwegian invention of the spray can by issuing a stamp in 1988. Erik Rotheim was one of the inventors of the aerosol can but there were many other inventors who improved this technology (Bellis). So the first real aerosol test came accidentally through carbonated beverages and there started the concept of aerosol.

During the 1940s when World War II was raging in Europe, American soldiers had to fight in various irritating conditions, one of them being jungles where mosquitoes were a constant difficulty. These mosquitoes were more than just a nuisance. Diseases broke out within the military and soldiers died from these diseases, and the mosquitoes did a good job in spreading them.

Two American scientists named Lyle David Goodhue and W.N. Sullivan took and improved the aerosol technology from the eighteenth century. With the improvements that these scientists made, they created portable insect repellant, using aerosol containers for soldiers of the Allied Forces ("History"). This was the first-ever spray-on bug repellant. The repellent worked well but there were problems with the valve of the spray, which sometimes became clogged ("History").

After World War II, in the 1950s, imporvements were made to aerosol. An important improvement was made by inventor Robert H. Abplanalp when he invented a clog-free valve.

According to the Consumer Specialty Products Association, "Abplanalp's spray valve was clog-

free. His modification kicked aerosol technology into high gear, as hair sprays, bug sprays, and all sorts of aerosol products hit the market." Aerosol products were sold across the world and were a successful industry ("History"). It seems that people today who rely on the ease and convenience of aerosol products owe their thanks to World War II veterans and the scientists who helped them.

Not everything about aerosols was great, though. In 1974, Nobel Prize-winning scientist Dr. F. Sherwood Rowland and other scientists introduced a theory that would greatly affect the history of aerosol and the aerosol industry. Rowland theorized that CFCs, or chlorofluorocarbons, which were chemicals used in aerosol products, were destroying the ozone layer. The ozone layer is the part of the earth's atmosphere that absorbs the harmful rays of the sun, and CFCs were damaging it. According to the Oracle Education Foundation, "The increased cancer levels caused by exposure to this ultraviolet light could be enormous. The EPA estimates that 60 million Americans born by the year 2075 will get skin cancer because of ozone depletion." The depletion of the ozone layer would also cause various animals to die from the ultraviolet rays from the sun. Numerous catastrophic events would occur if the ozone layer were to be destroyed or depleted (Caroline).

Knowledge about the depletion of the ozone layer led to changes in aerosol use. The U.S. Environmental Protection Agency banned the use of CFCs in aerosol products in the 1970s. This greatly affected the aerosol industry because it basically shut down production until the industry found a new, safer chemical to use as an aerosol propellant. Quickly, scientists started testing new chemicals to use as the propellant and found it in nitrous dioxide and carbon dioxide. These chemicals still cause pollution but not as devastating and harmful as CFCs ("History"). According to Aboutaerosols.com, "The overwhelming majority of aerosol technology is now completely CFC-free, and completely environmentally friendly" ("History").

The invention of aerosol containers triggered a series of inventions of products that could be dispersed by aerosol cans, a major one being the invention of spray paint. The invention of the spray gun and aluminum paint is credited to Edward Seymour in the year 1949. According to Seymour's current company, "Though intended to show sales prospects how the paint would look when applied to surfaces, the aerosol sprayer proved so popular that Seymour borrowed a few thousand dollars from a local bank to develop this revolutionary idea." After many modifications, Seymour's company perfected its paint. Today, consumers of spray paint can include automotive, industrial, hardware, specialty, and marine users. The products from the Seymour Company are environmentally friendly paints and according to the business, "The company employs state-of-the-art manufacturing and testing equipment and the finest raw materials to ensure customers consistently superior quality and value" ("Our Story"). Edward Seymour was a successful man from the invention of the aerosol spray gun and spray paint to this huge company, and his contributions pointed aerosol technology into a new direction.

Automotive spray paint is unique; the chemistry of the paint is important because it is different from other types of paints because it has to withstand weather and other conditions of automobiles. Automotive paints consist of three, sometimes four, components: pigment, binder, solvent, and sometimes additives. The pigment is the component in the paint that gives it its color. Pigment absorbs and reflects color that it is made with. For example, a red pigment absorbs all of the light rays except red; that is why red is reflected off the pigment. A white pigment reflects all the light rays while a black pigment absorbs all the light rays.

The next component of automotive spray paint, binder, does exactly what its name says:

It holds or binds the pigment in liquid form and when applied to a surface, the binder has oils and

components that allow the paint to dry firmly. The three main factors that the binder contributed to paint are that it holds pigment in liquid form, makes pigment flexible, and makes pigment stick to surfaces (Yearick).

The last two components in the paint are the solvent and the additives, each one being important in the chemistry of the paint. The properties affected by solvent in paint can include the odor, flow, toxicity, and stability of the paint. According to Bob Yearick, "Solvent reduces the binder and transfers the pigment and binder through the spray gun to the surface that is being painted." In other words, the solvent makes the paint smooth so that it can be dispersed from the spray gun with ease.

The last components that are sometimes added to create unique paint are additives.

Additives make up a small percentage of the paint, and according to the article "The Science of Paint," "Additives can speed curing, prevent wrinkling or blushing, or improve chemical resistance or gloss" (Yearick). In other words, additives improve paints to create different finishes of paint like gloss, metallic, or pearlescent paint. Additives are what enable people to be particularly creative in their vehicle paint designs.

Aerosol and aerosol products have changed the way we use tools today and have boomed in the commercial market. Aerosol technology has benefited even the soldiers in the jungles during World War II using portable insect repellents. Improved and advanced by various scientists, aerosol containers hit the market by the 1950s, bringing out various uses from hair sprays and insect repellents to spray paints and even tools like aerosol spray guns. The aerosol industry has had its share of problems, though; the chemicals used in aerosol containers have been depleting on our earth's ozone layer. Chlorofluorocarbons, or CFCs, used in aerosol containers

have caused problems in our environment and the aerosol industry had to find different propellants to use in aerosol containers. Carbon dioxide and nitrous dioxide have replaced the harmful CFCs and have made aerosol containers environmentally friendly. Aerosols have become environmentally friendly since the 1980s and hat they have revolutionized the market, changing the way we use tools today.

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OTHER PORTFOLIO REQUIREMENTS

Pre-Employment
Writing Samples
Career Exploration
21st Century Competencies
Community Service
Weber Project Presentation

Pre-Employment

This section of your portfolio serves as a record of your skills and abilities in designing and executing a successful job search. At a <u>minimum</u>, this section must contain the following:

- ✓ One current resume
- ✓ Three business letters:
 - **■** One cover letter
 - **■** Two other business letters
- ✓ **Three letters of recommendation** written by adults (not relatives) who can comment on your skills, abilities, and character, such as employers, teachers, coaches, or pastors. No more than two of these letters may be from current or former employees of the Weber Institute.

You will develop the skills and abilities needed to build this section of the portfolio as a part of your classes.

Writing Samples

This section of your portfolio serves as a record of your skills and abilities to effectively communicate in writing. For this section, you will choose three exceptional samples of your writing that demonstrate your mastery in a variety of writing styles.

You will write the essays listed below as part of the requirements for your English classes. It is important that you save all the essays you write for English and any other subject in which essays are assigned. You will then have a variety of essays from which to choose when you are preparing your portfolio. It is recommended that before you place your essays in the portfolio, you make all the corrections and changes noted by your teacher on the graded essays — this way, the writing samples in your portfolio will be the best they can possibly be. The writing samples you choose must include:

- ✓ An autobiographical essay
- √ Two formal papers or essays of your choice

Career Exploration

In this section of your portfolio, you will demonstrate that you have investigated the various career options in your chosen academy theme. The assignment and requirements for this section of your portfolio will be determined by your academy teachers.

21st Century Competencies

This section of your portfolio serves as a record of specific skills and abilities you have developed while at the Weber Institute. This section should contain the following:

- √ High School Transcript (required)
- ✓ Delta College Articulation Agreement (required)
- ✓ 21st Century Skills Rubrics (required)
- ✓ Certifications for course completions specific to your academy (if available)
- ✓ Any awards you have received
- ✓ Any certificates, honor roll announcements, or other recognitions
- ✓ Newspaper articles in which you appear
- ✓ Scholarship award letters
- ✓ Any other documents which will verify your skills and abilities

Community Service

During your time at the Weber Institute, you will be required to perform a minimum of 30 hours of community service. This service must be performed for a nonprofit organization of your choice. You can perform this community service during any year(s) of high school.

Nonprofit organizations are agencies that provide services to the community and that do not seek to earn profits. Some examples of nonprofit organizations include hospitals, libraries, community centers, animal shelters, schools, environmental agencies, churches, homeless shelters, food banks, and museums. Beware: volunteering for a business is not community service.

Keep in mind that finding an agency that needs volunteer help may not be easy. Start early. Ask your teachers for help in locating a nonprofit agency you will enjoy helping. You may do your community service all at once (fall break and spring break are ideal times), or in small increments, such as an hour or two a week.

Once you find an agency willing to take you on as a volunteer, you must fill out the Volunteer Contract. A copy of the contract is on page 50. Once you have obtained all the necessary signatures, you may begin your community service. Keep track of your hours using the Community Service Log sheet, located on page 51. **The contract and log must go into your portfolio.**

After completing your community service, you must produce an MLA-formatted, one-page summary of your experience. **This summary is a portfolio requirement.** In this summary, reflect on your service: Where did you volunteer? Why did you choose this agency? What did you accomplish? What did you like? Dislike? What did you learn? Would you volunteer for this kind of agency again? Why? Your social sciences teacher will check your summary.

Weber Project Presentation

Purpose

- ✓ To present your physical project and research paper to a panel of teachers and business professionals
- ✓ To inform and instruct the panelists what you learned about your topic in your research
- ✓ To inform and instruct the panelists about your physical project
- ✓ To present the panelists with your complete and approved Weber Portfolio

Presentation standards

- Presentation must be preceded by a successful paper, project, and complete portfolio. Students who do not complete these items will not be scheduled for a speech.
- Presentation behavior must be exemplary: students must be on time, dressed **professionally**, and courteous at all times, especially during other students' presentations.
- ✓ Presentation must be between **7-10 minutes**.
- ✓ A successful presentation will have an effective introduction, clear organization, and excellent use of detail.
- ✓ Note cards may be used.
- ✓ Eye contact with the panelists is important.
- ✓ **Presentation must include a visual aid**, something that displays your multimedia skills. Some suggestions include Power Point presentations, web pages, and videos. You will have access to computers and projectors for your presentation.
- ✓ After your presentation, be prepared for questions from the panelists.
- ✓ **Presentation must be a 2.0 or better to pass**. (See the rubric on page 7). Students must pass the presentation to meet graduation requirements. The average of the panelists' scores will be your presentation grade.

Speech Writing Tips

- ✓ Like an essay, a speech should have an introduction, a body, and a conclusion. Be prepared to write several drafts.
- Rehearse your speech in front of a mirror or in front of a teacher, peer, or family member. Time your-self! A good plan is to have a 1-2 minute introduction, a 6-minute body, and a 1-minute conclusion.
- ✓ Practice your speech over and over the better you know it, the better your presentation will be.
- The goal of your speech is to present your physical project and research paper, and the work you put into them, so stay focused on this goal as you write the speech.
- ✓ Consider the following questions as you write your speech the answers may make good material for the body of your presentation:
 - Specifically, what do you want the panelists to learn about your topic by listening to your speech?
 - Describe the process of your physical project in detail.
 - Describe your physical project in detail.
 - Describe what you learned about your topic in doing your research paper.

FORMS

Parent Consent Form
Project/Paper Evaluation Form
Physical Project Self-Evaluation
Community Service Volunteer Contract
Community Service Volunteer Timesheet
Portfolio Checklist and Due Dates



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WEBER PROJECT — PARENT CONSENT FORM

This form and the Weber Portfolio Checkli	st (page 52) with due dates must be completed and turned in before
student begins project. Without the	ese two forms, teachers will not evaluate any project work.
As parent or guardian of	, a student at the Weber Institute of Ap-
plied Sciences and Technology, I am aware th	nat the following projects and assignments are critical parts of class
grades and graduation requirements:	
Weber Project	Research Paper
Weber Project Presentation	Community Service
Career Exploration	Pre-Employment Pre-Employment
Writing Samples	21st Century Competencies.
scribed in the Weber Portfolio Guidebook der capabilities as a future employee and/or colled Weber Project, Research Paper, Weber Project order to graduate from the Weber Institute. The topic of my child's Research Paper is Physical Project, my child has decided to I understand that the selection of a project top involves a minimum of 15 hours of work. I at the Weber Project, Research Paper, and other select a project that requires no expense. I also sonal expense, I will provide the financial assonal expense, I will provide the financial assonal expense.	portfolio Guidebook. As a whole, the projects listed above and demonstrate my child's success at the Weber Institute and his or her age student. I understand that my child must adequately complete the ext Presentation, and remaining components of the Weber Portfolio in . For the poic is the responsibility of the student. I understand that this project also understand that a teacher will be available to help my child with a components of the Weber Portfolio. I understand that my child can so understand that if my child selects a project that involves a persistance necessary to complete the project. Disagree Nonapplicable
Parent or Guardian Signature	
Date	
Student Signature	
Date	



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WEBER PROJECT AND PAPER TOPIC EVALUATION FORM

After submitting a Letter of Intent, teachers will use this form to evaluate your topic proposals.

Once approved, save this form and your Letter of Intent for your portfolio.

Stuc	dent_						
Tead	cher_	Date					
Tead	cher	Date					
	You	r paper and project are approved.*					
		ur paper and project are approved; correct the errors in your letter and reprint it for ur portfolio (see below).					
	You	r paper and project are <u>not</u> approved. You must take care of the following:					
		Paper					
		Project					
		Excessive errors in Letter of Intent (see below)					
Errors noted in Letter of Intent							

^{*} Approval is based on the letter written. A revised paper or project must be judged again.



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WEBER PROJECT — PHYSICAL PROJECT SELF-EVALUATION

Complete this evaluation when you finish your Weber Project. It must be turned in before your project will be evaluated. An electronic copy of this form can be found on the Weber Institute web page. Please take the time to reflect thoughtfully on each question or statement. Your answers should be in-depth. Type your answers and then print the document for your portfolio.

Student's r	name		
Project			

- 1. What was the picture in your mind before you started working on your project? How does this picture compare to the project you actually completed?
- 2. If given the opportunity, what would you do differently, now that you have the experience?
- 3. Describe what you learned about time management and using resources, including people.
- 4. Would you recommend your project to future seniors? Why/why not?
- 5. How would you feel about showing your work to an expert for evaluation? Explain.
- 6. What insights, knowledge, and personal satisfaction have you gained? Be specific.
- 7. Describe the stretch, or effort, you made in completing this project. Consider physical as well as emotional and intellectual challenges.
- 8. Beyond the project itself, what did you learn about yourself? Be specific.



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COMMUNITY SERVICE — VOLUNTEER CONTRACT

This contract must be completed and turned in <u>before</u> the student begins his or her Community Service volunteer work.

Student	
Mentor teacher_	
Approximate dates of service	
Name of organization	
Address	
Phone number	
Name and title of superviser	
Brief description of student's obligations	
The student shall: 1. Keep a timesheet to be signed by the superviser. 2. Contact the agency by phone if unable to volunteer that day. 3. Dress appropriately. 4. Be timely, respectful, and cooperative.	
Student signature	Date
Supervisor signature	Date
Parent signature	Date



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COMMUNITY SERVICE VOLUNTEER TIMESHEET

Address and phone of organization Date Time in Time out # hours Supervisor signature	Student						
Address and phone of organization	Organization						
Date Time in Time out # hours Supervisor signature	Address and						
Date Time in Time out # nours Supervisor signature							
	Date	11me in	11me out	# nours	Supervisor signature		

TOTAL HOURS

Weber Portfolio Checklist and Due Dates

Use this checklist throughout the school year to help build your portfolio. Your portfolio will not be complete until you have checked off every item on this list and placed the documents neatly in a professional-looking binder. When you have completed your portfolio, it must be approved by the teachers of your academy. You will not be scheduled for a Weber Project Presentation until your portfolio is complete and approved.

Sections of Portfolio	<u>Do</u>	<u>cuments for Portfolio</u>	<u>Due Dates</u>
Choosing Topics for Project and Paper		Letter of Intent Project and Paper Topic Evaluation	n/a
Physical Project		Parent Consent Form Project Log Project Documentation Physical Project Self-Evaluation Physical Project Rubric (graded)	n/a
Research Paper	_ _ _	Outline Research Paper Research Paper Rubric (graded)	n/a
Pre-Employment	0	One Resume One Cover Letter Two Other Business Letters Three Letters of Recommendation	
Writing Samples		Autobiographical Essay Two Formal Essays	
Career Exploration		To be determined by academy faculty	
21st Century Competencies	_ _ _	High School Transcript Delta Articulation Agreement 21st Century Rubrics Awards and Certificates	
Community Service	_ _ _	Community Service Volunteer Contract Community Service Log Community Service Paper	t
Portfolio Due Date			
Weber Project Presentation (U		•	
		elow, you acknowledge the requirements an	
Parent or Guardian Signature		Date	e
Student Signature		Date	e