

The Capstone Project

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T H E R E S E A R C H P A P E R			

Central High School's Capstone Project

A capstone is literally the last stone added to a structure. Figuratively, a capstone is the final touch, crowning achievement or culmination.

How do you know that you are prepared for life after graduation? Too often, high school seniors from across the country discover that they are not prepared for the rigor of the workplace or the college environment. In a 2005 survey of employers, “four out of five say schools are not doing a good job preparing students for the workplace. One in three college freshmen has to take remedial classes to catch up on things he or she should have learned in high school” (Gates, 2007, p. 1). These statistics paint a grim picture for communities that rely on an educated workforce for economic development, and on the students themselves, who find “A wasted senior year can result in negative social and economic consequences for students during college” (Peterson, 2003, p. 2).

“A wasted senior year can result in negative social and economic consequences for students during college.” – *Overcoming Senior Slump*

“Senior slump” is a real problem for high school students today. Learning requires challenge, and too many students are not challenging themselves during the critical transition between high school and the workplace or college. This phenomenon is labeled “senior slump,” and too “many seniors lose momentum and motivation due to very lax senior year requirements in most high schools” (Association for Career and Technical Education, 2006, p. 8). Recent data suggests that “students find the last year of high school to be ‘a waste of time’ and ‘boring.’ Not only are students not being challenged during their senior year, they are also not preparing for college” (Peterson, 2003, p. 6).

“The education system will foster work force development for jobs of today and tomorrow.” — *City of Central Master Plan*

The situation in Louisiana is equally serious. Of an average group of 100 ninth graders in Louisiana, 59 will graduate high school on time. Only 33 will enroll in a college the following year, and only 13 will earn college degrees within four years. Thirty-six percent of those will be enrolled in remedial non-credit courses in college because they were not adequately prepared. “A 2004 survey of Louisiana businesses, conducted by the Council for a Better Louisiana, revealed that 71% of the surveyed businesses reported difficulty in finding qualified applicants for available positions” (*Louisiana High School Redesign Commission*, 2006).

R A T I O N A L E

Too many seniors are not challenged during their senior year. For many, the goal is simply to earn the minimum required credits for graduation. Yet most young people are poorly informed about what they need to do in high school to prepare for life after graduation. Parents often cannot help them make good decisions because they, too, are misinformed about what courses students will need—not just to graduate from high school, but also to enter college without having to take remedial classes. Most people would be surprised to hear that students who are not planning to go to college are equally misinformed about what it takes to be successful after high school. Few students and parents—and even teachers—realize how much jobs have changed over the past twenty years and how rapidly the job market continues to evolve. In today’s economy, the skills one needs to obtain a good job and advance in the workplace are very similar to the skills needed to do well in college English and math courses. Our children need to be prepared for this changing economic climate .

Skills necessary to success are not directly indicated on a student’s transcript as part of a course curriculum. Time management, dependability, organization, multi-tasking, maturity, problem-solving, interpersonal and communication skills are all characteristics that employers consider just as necessary as content knowledge. Certainly these characteristics contribute to a student’s academic success, yet these traits are rarely taught in high school curricula that focus on content knowledge. How can students demonstrate that they have the skills and attributes necessary to succeed?

What is a Capstone Project?

The concept of the senior or capstone project is not new. Colleges, universities, technical schools and vocational high schools across the country have required culminating projects from their graduating seniors. Many institutions have paired senior or capstone projects with internships in the students’ fields to give their graduates real world experiences. Culminating projects create “the opportunity for authentic interdisciplinary learning,” assisting schools in the “vocational and academic integration” so necessary to today’s students (Ancess & Darling-Hammond, 1994).

Culminating projects benefit seniors. More than half of senior or capstone project high school graduates felt that the experience had “influenced their future careers or plans. About

Capstone projects contribute “to a strong senior year of challenging courses and practical experiences that prepare students for the next step in work and further education.” –*Southern Regional Education Board*

75% of graduates reported developing specific skills through their senior projects. These skills include public speaking, research, writing, presentation, interviewing, time management, planning, organization, interpersonal and work-related skills” (Egelson et al, 2002, p. 22). Culminating projects provide opportunities for students to “choose an area of interest, conduct in-depth research, and demonstrate problem-solving, decision-making and independent learning skills. It contributes to a strong senior year of challenging courses and practical experiences that prepare students for the next step in work and further education” (*Southern*

Regional Education Board: Senior Project Guide). Research indicates that such stretch learning “imparts knowledge, skills and formative experiences to high school seniors” (Egelson et al, 2002, p. 22).

R A T I O N A L E

Central High School's capstone project follows guidelines set out by the Louisiana Department of Education (§2320 of Bulletin 741) and the Southern Regional Education Board, the sponsoring organization of "High Schools That Work." This project assists students with skills necessary in the workforce and on college campuses, and also allows students to explore future interests and career paths.





Why "Capstone" and not "Senior Project"? The Louisiana Department of Education defines a senior project as "a focused rigorous independent learning experience completed during the student's year of projected graduation from high school." Since our project does not reflect skills and information gained exclusively during the senior year, our project is designed as true culmination, or "capstone" of all four years of a student's development.

Sources

- Ancess, J. & Darling-Hammond, L. (1994). *The Senior Project: Authentic Assessment at Hodgson Vocational/Technical High School*. Columbia University. (ERIC Document Reproduction Service No. ED 378218)
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Overview: Components of the Capstone Project

Remember the four P's: **Paper, Product/Service, Portfolio, and Presentation.** Students must successfully complete the four components listed below with a score of Satisfactory or higher on each component:

-
-  Research Paper
 -  Product/Service
 -  Portfolio
 -  Presentation
-

- ◆ **A research paper of 8 to 10 pages on an approved topic of the student's choice.** The research paper is a formal paper that encourages students to develop a topic and demonstrate proficiency in conducting research, drafting and revising.
- ◆ **A product or service related to the research requiring at least 20 hours of work.** The product or service must be a tangible artifact or documented service to the school or community.
- ◆ **A portfolio that documents and reflects the process.** This portfolio must contain a resume, all letters and forms, the research paper, advisor and mentor records, logs/time sheets, product/service documentation, letters of recommendation, evaluation and certificate of completion.
- ◆ **A presentation to a panel of three to five adults from the community and school.** The presentation will consist of a speech and a display featuring the product/service.

These four components will be evaluated using rubrics provided by the Louisiana Department of Education (see **Forms**).

Student Responsibilities

1. Choose a faculty advisor and community mentor. Provide your community mentor and parents with an overview of the Capstone Project. Complete “Commitment Form.”
2. Meet with coordinator, faculty advisor and community mentor to identify possible topics for research related to interests or career choices. Conduct preliminary research to narrow choices to one topic. Complete “Research Proposal.”

RESPONSIBILITIES

3. Meet with coordinator, faculty advisor and community mentor to identify a product to build or produce or a service to perform. Remember, the product/service should: relate to your research; go beyond the scope of classroom instruction; demonstrate your academic/technical growth; and be either physically tangible or documented by some form of media. Complete “Product Agreement.”
4. Document all communications, meetings, procedures, and progress, including dates, times, research, etc. Complete “Weekly Log” for each week and submit.
5. Conduct research for the paper by using print and electronic media and interviewing professionals or experts in the field of knowledge. Meet with coordinator as required by the coordinator to discuss the research paper and deadlines for components. Sign statement of originality. Provide three copies of the research paper to the committee.
6. Schedule presentation by the date required. Prepare product or conduct service. Remember to document steps with photographs or other media. Write/practice speech and construct display for presentation. Be prepared to respond to questions from the Evaluation Committee.
7. Write thank-you letters to community mentor and members of the Evaluation Committee. Request letters of recommendation from the community members involved in your project. These letters will be helpful in pursuing employment and further education.
8. Collect all forms, letters and documentation in your portfolio. Submit by the required date.

Grading, Deadlines and Consequences

The Capstone Project will be reflected in the English IV or Business English grade. The research paper and the first portion of the portfolio (up to week 16) will constitute 15% of the student’s English IV or Business English grade for the Fall semester. The remainder of the portfolio, product and presentation will be worth an additional 15% the Spring semester.

Failure to meet deadlines will have the following consequences:

- one letter grade will be deducted for each day past deadline;
- mentor and parent notification;
- make-up sessions during non-school hours.

Deadlines will be set by the Capstone Committee, and students will be given a finalized timeline with specific dates during Orientation.

RESPONSIBILITIES

Timeline and Checklist

Specific deadlines will be determined by the Capstone Committee.

Week	Paper	Product or Service	Presentation	Portfolio
2	<input type="checkbox"/> Orientation—Students and Parents <input type="checkbox"/> Select Faculty Advisor and Community Mentor <input type="checkbox"/> Brainstorm Topic and Product/Service			
4	<input type="checkbox"/> Identify Topic			<input type="checkbox"/> Signed Commitment Form; Logs
6	<input type="checkbox"/> Finalize Research Proposal; Start Research			<input type="checkbox"/> Research Proposal; Logs
8	<input type="checkbox"/> Conduct Research	<input type="checkbox"/> Identify Product/Service	<input type="checkbox"/> Brainstorm Presentation	<input type="checkbox"/> Product Agreement; Logs
10	<input type="checkbox"/> Submit First Draft	<input type="checkbox"/> Begin Product/Service	<input type="checkbox"/> Document Product/Service	<input type="checkbox"/> All Notes/ Outline; Logs
12	<input type="checkbox"/> Revise /submit Final Draft	<input type="checkbox"/> Work on Product/Service	<input type="checkbox"/> Document Product/Service	<input type="checkbox"/> First Draft; Copy of Final Draft; Logs
14		<input type="checkbox"/> Work on Product/Service	<input type="checkbox"/> Document Product/Service	<input type="checkbox"/> Weekly Logs
16		<input type="checkbox"/> Work on Product/Service	<input type="checkbox"/> Document Product/Service	<input type="checkbox"/> Weekly Logs
18		<input type="checkbox"/> Finalize Product/Service	<input type="checkbox"/> Finalize Presentation	<input type="checkbox"/> Verification Form; Weekly Logs
20			<input type="checkbox"/> Practice Presentation	<input type="checkbox"/> All Product/Service Documentation/ Presentation Artifacts
22	<input type="checkbox"/> Presentation to the Evaluation Committee <input type="checkbox"/> Reflection			<input type="checkbox"/> Evaluation Forms/Reflection

RESPONSIBILITIES

Capstone Committee Responsibilities

The Capstone Committee consists of the coordinator, the faculty advisor, and the community mentor. Duties are outlined below:

The Coordinator

The coordinator is the student's English teacher. His or her responsibilities are:

1. to chair the evaluation committee, set agendas, facilitate communication and distribute information;
2. to guide the student through the process;
3. to collect, evaluate and maintain all written documentation;
4. to approve the student's topic in coordination with the committee;
5. to instruct the student in writing the research paper, including monitoring form and documentation;
6. to review the first draft and suggest revisions;
7. to evaluate the final draft of the research paper and assign a grade;
8. to instruct the student in preparing for the presentation, including review of public speaking skills;
9. to distribute materials to the evaluation committee.

The Faculty Advisor

The Faculty Advisor is a teacher on campus who shares the student's area of interest or career path. Responsibilities are:

1. to approve the student's topic in coordination with the committee;
2. to assist and advise the student in collecting information/data;
3. to review the first draft and suggest revisions;
4. to evaluate the final draft of the research paper and assign a grade;
5. to serve as a resource to the student in all stages or product/service development;
6. to advise the student in planning his or her presentation;
7. to evaluate the product or service.

The Community Mentor

The Community Mentor is a non-family member outside the school who can serve as a resource in the student's area of interest or career path. Responsibilities are:

RESPONSIBILITIES

1. to approve the student's topic in coordination with the committee;
2. to assist and advise the student in collecting information/data;
3. to review the first draft and suggest revisions;
4. to evaluate the final draft of the research paper and assign a grade;
5. to serve as a resource to the student in all stages or product/service development;
6. to advise the student in planning his or her presentation;
7. to evaluate the product or service;
8. verify the student's time commitment.

Note

. Coordinators and Faculty Advisors will assist students in finding a non-family member to serve as community mentor, but **the student is ultimately responsible** for this selection.

Evaluation Committee Responsibilities

The Evaluation Committee consists of the Capstone Committee and two outside judges from the community or from the student's area of interest or career path. Duties include:

1. to read all reports prior to the presentations;
2. to use rubrics provided and established criteria to evaluate presentations
3. to select a chairperson to return all forms to the coordinator and discuss individual student grades;

Capstone Project Board Responsibilities

The Capstone Project Board is composed of all coordinators, representative faculty advisors in the school, as well as interested community mentors. The board's duties are:

1. to arbitrate disputes and appeals;
2. to update and revise the project guidelines;
3. to formulate additional policies/procedures;
4. to establish guidelines for project recognition;
5. to determine how projects will be evaluated and included in final grades.

The Research Paper



When choosing a topic, be sure to:

- **relate the topic to your interests or career choice;**
- **choose a topic that will challenge you** to investigate previously unexplored information;
- **make the topic broad** enough to provide adequate resources and to yield a written report of eight to ten pages;
- **make the topic narrow** enough to be covered within the time frame of the project;
- **choose a topic that relates to a product or service.** It should lend itself to a manageable—and affordable—product or service.

Checklist for the Research Paper

- Submit a proposal for review.**
- Construct a working bibliography.**
- Make note cards (minimum to be determined by committee).**
- Organize note cards into outline.**
- Submit outline and note cards for approval.**
- Construct rough draft.**
- Have coordinator and faculty advisor evaluate the draft.**
- Revise and draft final paper; include works cited page.**
- Sign statement of originality.**
- Submit final draft and packet to coordinator and faculty advisor for evaluation.**

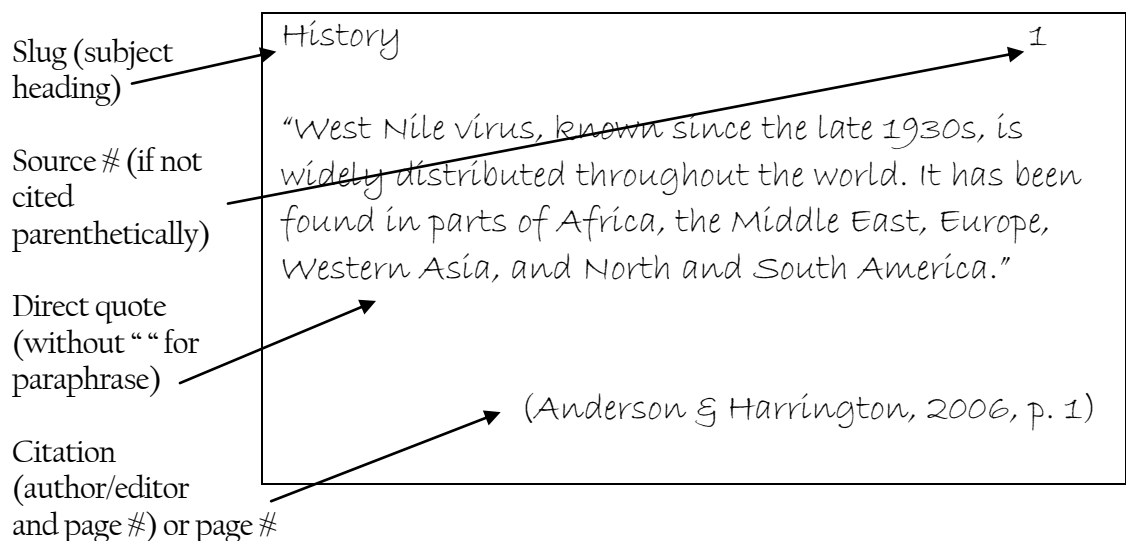
Conducting Research

***** A Note about Plagiarism: Plagiarism occurs when one tries to pass off another's words or ideas as his or her own. For the purposes of this paper, the student must cite (give credit) all information, even knowledge gained over the course of this process! The use of two or three of the author's original words in series is a direct quotation and must be enclosed in quotation marks. Rewording another's idea (paraphrasing) still requires citation! To be safe, everything must be cited! Students will be required to sign a statement of originality certifying that the work is original and derived from the sources indicated. The coordinator will be responsible for checking for plagiarism. Students who plagiarize intentionally will be required to choose another topic, and resubmit all components.**

THE RESEARCH PAPER

1. Working Bibliography. In order to insure that the paper is not merely a report, the student will be required to integrate a number of sources into his or her paper. A wide range of sources is suggested, including print, electronic media, and interviews with local professionals or experts (copies of interview transcripts must be submitted). The first step is to construct a working bibliography, a collection of sources that will be used for research. Publications in various fields require various forms of citation (MLA, APA, or Chicago/Turabian); therefore, mandating one style for all areas of research would not be appropriate. **The committee will approve the form of documentation to be used, as well as the number of sources required.**

2. Note Cards. Note cards must come from reliable, documented sources. Internet message boards, forums, and free-content encyclopedias such as Wikipedia are not be acceptable. Note cards should be considered direct “forensic” evidence from a source and treated with care. Paraphrasing should be done sparingly; it is difficult to reconstitute the original phrasing once information has been paraphrased. The original quotation should be preserved in quotation marks, and source (and page) noted parenthetically as shown below (sample card cited in APA style).



The student should always collect more cards than needed for the paper!

Organizing and Drafting

1. Outlining. Once the student has collected his or her information, the information can be organized. Use key words to order the cards. Distinguish between main and subordinate ideas, and arrange cards in the order they will appear in the paper. Any gaps in understanding or citation should be researched at this point. Write a formal outline (I, A, i) that will serve as the blueprint for the paper.

THE RESEARCH PAPER

2. Drafting. Remember, this paper is not personal writing; maintain an academic tone and avoid personal pronouns and informal phrasing or slang. Consider the following structural issues when drafting:

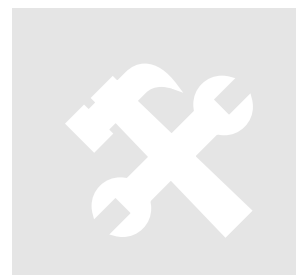
Components of the paper:

1. The introductory paragraph includes
 - a. a general statement of information
 - b. transitional sentences using words from the thesis
 - c. a thesis statement and explanation that
 - i. describes the topic being examined
 - ii. states an opinion or position
 - iii. narrows the topic so that it can be adequately supported in the research
2. The body of the paper includes paragraphs
 - a. with clear topic sentences related to the thesis
 - b. arranged in logical order (most important first or last)
 - c. with all information cited parenthetically!
3. The conclusion may
 - a. restate the thesis
 - b. paraphrase or summarize information supporting the thesis
 - c. go beyond the scope of the body and predict an outcome, connect to big picture, etc.
4. The Works Cited page:
 - a. Works Cited centered on page
 - b. lists all sources in alphabetical order
 - c. is numbered as part of the paper (last page)

3. Revision. Revising is literally “seeing again.” Do not merely consider mechanics and punctuation. Use this opportunity to address structural or logical deficiencies in the paper. Conduct additional research if required. Type and format according to style required by the committee.

4. Final Drafts. Provide three copies to the committee for review. Also **submit all copies of rough drafts, outline, note cards, and working bibliography.**

Choosing a Product or Service Project



The product or service should be related to your interests and/or career within budgetary and time constraints (don't attempt to launch a Mars unless you have NASA's budget and personnel).

Your coordinator and advisor will assist you in developing your product or service, but be prepared with a list of possibilities.

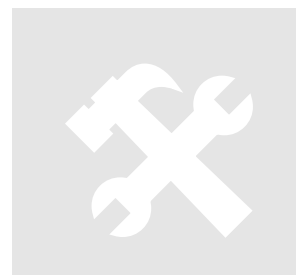
Be aware that product or service **must**

- **apply skills or investigate issues** in the research paper;
- **challenge you to stretch** beyond current knowledge and experience;
- **be a tangible artifact or documented** service to the school or community;
- **require at least 20 hours** of work outside of school hours;
- **NOT consist of job shadowing alone**—you must be actively involved!
- **be documented** from beginning to end. Think of how you will prove your involvement. Will you take photographs? Video?
-

Here are some ideas:

Interest/Career	Sample Research Topic:	Possible Product/Service:
Music	The Flower Children in Song: Music of	Organizing a choir concert
Education	Current Strategies for Reaching the	Tutoring students at local elementary
Business	Careers in Computer Networking	Building a computer from salvaged
Architecture	Trends in Designing Recreational	Designing blueprints for playground
Veterinary	Prevention and Treatment of Obesity	Volunteering at local animal shelter
Construction	Building in High Humidity	Constructing access ramps for the
Environmental	Toxins in South Louisiana	Analyzing local groundwater systems
History	The War in the Pacific	Creating web-based photo archive for
Art	Influence of the Comic Book on	Designing letterhead, advertising,
Welding	The Physics of Heat Transfer	Fabricating BBQ pit for church raffle
Fashion	The Well-Dressed 19 th Century	Constructing historically-accurate
Sports Medicine	Prevention and Treatment of ACL	Coaching a local little league team

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Commitment Form

I declare my commitment to this project, have received a copy of the timeline, and have read and now understand my responsibilities as outlined in the Central High School Capstone Course Guide. Furthermore, I understand that if any components are not completed on time or to the satisfaction of the Capstone Committee, my grade will be affected.

Student's Name: _____

Signature: _____ Date: _____

Career Cluster (Check one; must correspond to Five Year Plan.)	
<input type="checkbox"/> Architecture & Construction	<input type="checkbox"/> Health Science
<input type="checkbox"/> Arts, A/V Technology & Communications	<input type="checkbox"/> Manufacturing
<input type="checkbox"/> Business & Administration	<input type="checkbox"/> Marketing, Sales & Services
<input type="checkbox"/> Education & Training	<input type="checkbox"/> Science, Tech., Engineering & Math
<input type="checkbox"/> Government & Public Administration	
Tentative Research Topic: _____	
Tentative Product/Service Idea: _____	

I have read and now understand my child's responsibilities as outlined in the Central High School Capstone Course Guide.

Parent's Signature: _____ Date: _____

I have read and now understand my responsibilities as outlined in the "Mentor Letter" and am willing to assist this student in his/her capstone project.	
Mentor's Signature: _____	Date: _____
Phone #/Email: _____	

I have read and now understand my responsibilities as outlined in the Central High School Capstone Course Guide, and hereby agree to serve as Faculty Advisor for this student.

Advisor's Signature: _____ Date: _____

Coordinator's Signature: _____ Date: _____

Research Paper Proposal

Student's Name: _____
Topic: _____

Student's Signature: _____ Date: _____

Suggestions/Concerns/Sources:

Minimum Number of Sources: _____

Style (choose one):

- Modern Language Association
- American Psychological Association
- Chicago/Turabian

Advisor's Signature: _____ Date: _____

Coordinator's Signature: _____ Date: _____

Product/Service Agreement

Student's Name: _____

Product/Service Title: _____

Product/Service Proposal
Description: _____

Steps for Product/Service Completion: _____

Requirements: _____

Cost Analysis: _____

Documentation: _____

Approvals
Community Mentor: _____

Signature

Date

Faculty Advisor: _____

Signature

Date

Coordinator: _____

Signature

Date

Parent: _____

Signature

Date

Student: _____

Signature

Date

Community Mentor Verification Sheet

Student's Name: _____

Product/Service Title: _____

Dear Mentor:

Although you were not required to have 20 direct contact hours with the student, we need your help in verifying this student's time commitment on this project/service.

1. In your opinion, did he/she spend at least 20 hours outside of the classroom on this project?

Yes ___ No ___

Comments:

2. Have you seen this project at different stages of completion, not just the final phase?

Yes ___ No ___

Comments:

3. Please comment on any successes or setbacks the student encountered.

Community Mentor: _____

Signature

Date

Thank you again for your commitment. If you have any questions, please contact us at 261-3438.

Portfolio Checklist

Student's Name: _____

Product/Service Title: _____

Required Content

- Résumé
- Table of Contents?
- Commitment Form?
- Research Paper Proposal?
- Research Paper?
- Product/Service Agreement?
- Documentation of Hours (signed by mentor/advisor)?
- Documentation of Product/Service?
- Community Mentor Verification?
- Reflection on the process?
- Additional documentation/artifacts?

Creativity/Appearance

- Cover with visual related to project, title of project, student name, mentor, pleasing composition, and appropriate use of space?
- Neatness and professional appearance?

