



**TWELFTH GRADE CURRICULUM: PILOT
 PILOT CAPSTONE**

SEMESTER TWO

The Pilot Capstone course is the culmination of the student’s learning experience throughout this pathway. The students will work as individuals or in small groups to study and report on an approved aviation topic of their choosing. The goal of this capstone course is to allow students to demonstrate a deep understanding of a topic in aviation. The curriculum will include suggestions for research topics or projects that can be adapted to match available resources.

Unit 5: What is a Capstone?

The concept and scope of a capstone project is introduced. Students begin by reflecting on their research proposal from the end of the first semester, their past experiences, and lessons learned in preparation for this semester's project. Their experiences will help them build a list of stackable credentials. Students will be asked to secure a bound, composition book or engineering notebook to act as a legal document to be a record of their work this semester. Students are also introduced to time management principles and project management practices.

The concept of research being something beyond a typical term paper is emphasized, and students learn the importance of research as intellectual property. Research design, methods, and approaches are reviewed and expanded upon from those introduced in the first semester. Finally, students determine the topic they wish to present in their research proposal.

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – The Capstone Experience (Real World Connections)</u>			
Lesson 1	What is a Capstone?	2	2
Lesson 2	Managing the Capstone: Time Management	2	4
<u>Section B – Research Methodologies</u>			
Lesson 1	The Research Notebook	1	5
Lesson 2	Conducting Educational Research	4	9
Lesson 3	Selecting a Capstone Topic	2	11
Performance Assessment		1	12
Total Sessions Unit 5	12		
Semester Total	12		



Unit 6: The Formal Proposal

Students were introduced to the concept of the research proposal at the end of their first semester. This unit continues that thread, deepens their understanding of the research proposal development process and provides an opportunity for the students to plan their capstone project in detail.

Students also refine their professional “soft skills” as they prepare to engage with mentors, enter workplaces, network with those in their field of interest, and communicate with their contacts. Any expenses they may incur should be planned, and a budget for the project is developed.

Pitching any project proposal is an important skill, and the students will have practice in this area as they develop and present their pitch.

The overall plan is documented in a research notebook and presented for assessment.

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – The Research Professional</u>			
Lesson 1	Refining the Topic	1	13
Lesson 2	Professionals in the Field	4	17
Lesson 3	Develop and Present a Budget	2	19
<u>Section B – Defending the Formal Proposal</u>			
Lesson 1	The Pitch	5	24
Performance Assessment		1	25
Total Sessions Unit 6	13		
Semester Total	25		



Unit 7: Collecting the Data

In Unit 7, students engage in their work to complete their capstone project. This may entail conducting surveys, engaging in an internship, participating in an apprenticeship, or other activity appropriate to the successful completion of their project.

At this stage, students are working independently, sharing progress regularly with the teacher, meeting with mentors, documenting and recording their progress, and deciphering data they have collected.

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – The Deep Dive</u>			
Lesson 1	Valid and Reliable Data	1	26
Lesson 2	Research in Action	19	45
Lesson 3	Deciphering the data	8	53
Performance Assessment		1	54
Total Sessions Unit 7	29		
Semester Total	54		



Unit 8: Research and Data Analysis

After collecting data from their capstone project research, students compile the data and create visualizations that effectively communicate their experience. They also develop a written research project report as well as a presentation to be delivered in the next unit.

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – Communicating the Results</u>			
Lesson 1	Visualizing the Data	3	57
Lesson 2	The Research Paper	5	62
Total Sessions Unit 8	8		
Semester Total	62		

PROPRIETARY



Unit 9: Communicating the Findings

The semester ends with an event developed by the students that will allow them to share their capstone projects with peers, families, mentors, community members, teachers, etc. Time is given for planning, practicing, and presenting the event and their work.

A semester assessment may include the final presentation event; however, a presentation of artifacts to mentors, conducting interviews, and sending professional thank you notes to contacts may also be included. Additionally, the completed research document and completed research notebook may be submitted for assessment.

		No. of Sessions Per Lesson	Day of Semester
<u>Section A – The Research Paper</u>			
Lesson 1	Cleared for Takeoff	4	66
Lesson 2	Taking Flight	3	69
Performance Assessment		1	70
Total Sessions Unit 9	9		
Semester Total	70		