



SPRING GROVE AREA SCHOOL DISTRICT



PLANNED COURSE OVERVIEW

Course Title: Pre-Flight Your Career (AOPA) Grade Level(s): 12 Units of Credit: .5 Classification: Elective	Length of Course: Semester Periods Per Cycle: 6 Length of Period: 40 Minutes Total Instructional Time: 60 Hours
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Course Description

After having prepared for the Private Pilot Knowledge Test and Part 107 Remote Pilot Test in the previous year, students will examine advanced aviation topics and aviation career options. Instrument flight, commercial aviation, and advanced aircraft systems begin the semester. Looking into the future, students then explore new horizons in the aerospace industry. What might aviation look like five, ten, or twenty years into the future? The focus then turns to business development opportunities in aviation. Finally, students learn about and conduct different types of research in preparation for their capstone project in the second semester.

Instructional Strategies, Learning Practices, Activities, and Experiences

Direct Instruction Field Experiences Groupwork Drone Flights	Instructional Videos Labs Practice Problems/Calculations	Reading Flight Simulations Flight Planning/Map Reading
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Assessments

Unit Quizzes Unit Tests Pre-Test	Projects Presentations Post-Test	Videos Simulations
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Materials/Resources

AOPA Curriculum Sectional Charts The York Airport	Plotters E6B Flight Calculators FAA Regulations FAR/AIM	Model Airplanes Drones The Pilots Handbook of Aeronautical Knowledge
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Adopted: 5/22/23

Revised:

https://springgroveareascho.sharepoint.com/sites/PrivateSGASD/Shared Documents/AASG/NEWCURR/STEM - Technology/2023/AOPA/Pre-Flight Your Career/AOPA Pre-Flight Your Career_Overview.docx

CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS
<p>Unit 1: Advanced Aviation</p> <p>Description: The sky's the limit for students seeking to advance their aviation knowledge and skills or pursue a career in an aviation-related field. This unit introduces students to what's beyond the private pilot certificate. How do pilots fly in weather that is below VFR minimums? Instrument flying is introduced in Section A. What types of flying jobs are available to pilots? Is it possible to pursue a career in aviation that is not a flying job? Students explore career possibilities while honing their employer research and interviewing skills. Commercial pilots need an in-depth knowledge of advanced aircraft and their systems; Section C allows students to become experts in various aircraft systems.</p>	<p>HS-ETS1-2 - Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</p> <ul style="list-style-type: none"> Science and Engineering Practices <ul style="list-style-type: none"> Asking Questions and Defining Problems Constructing Explanations and Designing Solutions Disciplinary Core Ideas <ul style="list-style-type: none"> ETS1.A: Defining and Delimiting Engineering Problems <p>HS-ETS1-3 - Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.</p> <ul style="list-style-type: none"> Science and Engineering Practices <ul style="list-style-type: none"> Constructing Explanations and Designing Solutions Disciplinary Core Ideas <ul style="list-style-type: none"> ETS1.B: Developing Possible Solutions Crosscutting Concepts <ul style="list-style-type: none"> Influence of Science, Engineering, and Technology on Society and the Natural World <p>HS-ETS1-4 - Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.</p> <ul style="list-style-type: none"> Science and Engineering Practices <ul style="list-style-type: none"> Using Mathematics and Computational Thinking Disciplinary Core Ideas <ul style="list-style-type: none"> ETS1.B: Developing Possible Solutions Crosscutting Concepts <ul style="list-style-type: none"> Systems and System Models

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<p>Unit 2: The Future of Aviation</p> <p>Description: Aviation and aerospace have been technology incubators from their beginnings in the 1900s, but what does the future hold? In this unit students investigate new companions in the National Airspace System: unmanned aircraft. How will the next generation of aircraft—even spacecraft—affect the career paths of today’s students? What technological innovations and dreams of today will become the everyday of tomorrow?</p>	<p>HS-ETS1-1 - Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.</p> <ul style="list-style-type: none"> Science and Engineering Practices <ul style="list-style-type: none"> Asking Questions and Defining Problems Constructing Explanations and Designing Solutions Disciplinary Core Ideas <ul style="list-style-type: none"> ETS1.A: Defining and Delimiting Engineering Problems Crosscutting Concepts <ul style="list-style-type: none"> Influence of Science, Engineering, and Technology on Society and the Natural World <p>HS-ETS1-2 - Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.</p> <ul style="list-style-type: none"> Science and Engineering Practices <ul style="list-style-type: none"> Asking Questions and Defining Problems Constructing Explanations and Designing Solutions Disciplinary Core Ideas <ul style="list-style-type: none"> ETS1.A: Defining and Delimiting Engineering Problems <p>HS-ETS1-3 - Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.</p> <ul style="list-style-type: none"> Science and Engineering Practices <ul style="list-style-type: none"> Constructing Explanations and Designing Solutions Disciplinary Core Ideas <ul style="list-style-type: none"> ETS1.B: Developing Possible Solutions

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<p>Unit 3: The Business of Aviation</p> <p>Description: In Unit 3, students will learn about the intersection between the disciplines of aviation and business, and how entrepreneurs—after perceiving a new opportunity—go about making their ideas a reality. Within this practical and highly differentiated unit, students will have the opportunity to come up with an aviation-related start-up idea either on their own or with a partner, and to then create a business plan that will allow them to develop it. Whether deciding to open a new flight school or FBO, charter company or UAS photography business, students will craft a plan that describes their business’s mission, as well as an analysis of its customers and the competitive environment in which it will exist. Other elements typically found in business plans, such as a risk analysis and start-up budget, will also be prepared. Finally, students will use their business plans as a launching point to prepare convincing pitches for potential investors. During this project, students are encouraged to make contacts with local business owners, both to seek advice and to gain unique insights into real-world entrepreneurship.</p>	<p>RST.11-12.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.</p> <p>RST.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.</p> <p>RST.11-12.9 - Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p>WHST.11-12.1 - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.5 - Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>WHST.11-12.6 - Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</p> <p>WHST.11-12.7 - Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</p> <p>WHST.11-12.8 - Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p>WHST.11-12.9 - Draw evidence from informational texts to support analysis, reflection, and research.</p> <p>WHST.11-12.10 - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>

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<p>Unit 4: Aviation Research Projects</p> <p>Description: The fourth and final unit of Semester One is intended to prepare students for Semester Two—in which they will be developing their capstone projects. Within this unit, students will be choosing an aviation-related topic that interests them and crafting a research proposal outlining a potential line of study they could pursue in Semester Two. In doing this, students will become familiar with important elements commonly found within research proposals, such as a literature review and a methodology section. They will also learn about important distinctions between qualitative and quantitative research, and appropriate contexts for both. Other research-related skills, including effective notetaking and time management techniques, will be looked at as well. Going through the process of creating a research proposal and presenting it to their classmates will help students explore research methods while also becoming more familiar with a topic that interests them.</p>	<p>RST.11-12.1 - Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.</p> <p>RST.11-12.2 - Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.</p> <p>RST.11-12.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.</p> <p>RST.11-12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.</p> <p>RST.11-12.8 - Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.</p> <p>RST.11-12.9 - Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.</p> <p>WHST.11-12.1 - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.</p> <p>WHST.11-12.4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p> <p>WHST.11-12.5 - Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>WHST.11-12.6 - Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</p> <p>WHST.11-12.7 - Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</p> <p>WHST.11-12.8 - Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p>WHST.11-12.9 - Draw evidence from informational texts to support analysis, reflection, and research.</p> <p>WHST.11-12.10 - Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p>