

# 08\_Airframe Systems

Content Area: **Technology**  
Course(s):  
Time Period: **Full Year**  
Length: **15 Days**  
Status: **Published**

## **General Overview, Course Description or Course Philosophy**

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The type of powerplant and the performance requirements determine the type of fuel used in an aircraft.

Students

will learn about the variety of fuel sources used in aircraft, including JetA, avgas, diesel, and electricity. They also

will learn how aircraft fuel systems are designed to accommodate each of these fuel types, the types of instrumentation used to monitor aircraft fuel systems, and how to identify and troubleshoot fuel system issues.

In

addition, students learn the basics of aircraft electricity, including how it is generated and stored. Heating, hydraulics, landing gear, environmental control systems, and anti/de-ice systems will also be covered.

## **OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS**

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Objectives, essential questions and enduring understandings are outlined within each unit of study and/or Curricular Calendar.

Units of Study: <https://drive.google.com/drive/folders/11Q8sFu-T8ZX9O-2dZC7LEy8PaMNVtJnX?usp=sharing>

## **CONTENT AREA STANDARDS**

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SCI.HS-PS2-6	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
SCI.HS-PS3-3	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
SCI.HS-PS3-5	Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.
SCI.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.
SCI.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.
CS.9-12.8.2.12.ED.1	Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
CS.9-12.8.2.12.ED.4	Design a product or system that addresses a global problem and document decisions

made based on research, constraints, trade-offs, and aesthetic and ethical considerations and share this information with an appropriate audience.

## **RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

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LA.RST.9-10.2	Determine the central ideas, themes, or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.
LA.RST.9-10.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
LA.RST.9-10.4	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 9-10 texts and topics.
LA.WHST.9-10.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant sufficient textual and non-textual evidence.
LA.WHST.9-10.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
LA.WHST.9-10.6	Use technology, including the Internet, to produce, share, and update writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
LA.WHST.9-10.7	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.
LA.WHST.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
LA.WHST.9-10.9	Draw evidence from informational texts to support analysis, reflection, and research.

## **STUDENT LEARNING TARGETS**

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Student learning targets are outlined within each unit of study and/or Curricular Calendar.

## **Declarative Knowledge**

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Declarative knowledge is outlined within each unit of study and/or Curricular Calendar.

## **Procedural Knowledge**

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Procedure knowledge is outlined within each unit of study and/or Curricular Calendar.

## **EVIDENCE OF LEARNING**

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### **Formative Assessments**

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Formative assessments are included and outlined in each unit of study.

### **Summative Assessments**

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Summative assessments are included and outlined in each unit of study.

## **RESOURCES (Instructional, Supplemental, Intervention Materials)**

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Materials and resources are outlined in each unit of study.

## **INTERDISCIPLINARY CONNECTIONS**

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Interdisciplinary connections are outlined in each unit of study.

## **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

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Accommodations & Modifications are outlined in each unit of study.