

01-Getting to Know Aircraft

Content Area: **Technology**
Course(s):
Time Period: **Full Year**
Length: **7 Days**
Status: **Published**

General Overview, Course Description or Course Philosophy

Students will explore the types of aircraft operating in today's aviation environment, including traditional manned aircraft and remote piloted aircraft, or drones. They'll learn how the FAA categorizes aircraft and how to recognize aircraft of different types. Students will then investigate some of the factors affecting aircraft design, including how the aircraft will be used. This unit will give students a framework on which to build a deeper understanding of the variations in aircraft.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Enduring Understandings:

The aviation industry provides a multitude of pathways to pursue a career as a pilot. (EU6)

Essential Questions

- 1.How can you start flying now?
- 2.How can your path to an aviation career begin now?

Unit of Study:

A: <https://drive.google.com/file/d/1waac-H9z7pYleZWVhSsOVjWbc6tfbZNn/view?usp=sharing>

B <https://drive.google.com/file/d/1waac-H9z7pYleZWVhSsOVjWbc6tfbZNn/view?usp=sharing>

<https://drive.google.com/file/d/14yev1jA59jloF8RfoSfD69e3MdIOkIW9/view?usp=sharing>

C: https://drive.google.com/file/d/1UUTCTBL2FiFLoRD-K6g_OSOTQgUO35_D/view?usp=sharing

CONTENT AREA STANDARDS

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.
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.
TECH.8.1.12.A.2	Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related area for review.
TECH.8.2.12.C.7	Use a design process to devise a technological product or system that addresses a global problem, provide research, identify trade-offs and constraints, and document the process through drawings that include data and materials.
	Engineering design evaluation, a process for determining how well a solution meets requirements, involves systematic comparisons between requirements, specifications, and constraints.

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

LA.W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
LA.W.9-10.6	Use technology, including the Internet, to produce, share, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.
LA.W.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.W.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 (MLA or APA Style Manuals).
LA.W.9-10.9	Draw evidence from literary or nonfiction informational texts to support analysis, reflection, and research.
LA.RI.9-10.2	Determine a central idea of a text and analyze how it is developed and refined by specific details; provide an objective summary of the text.
LA.RL.9-10.1	Cite strong and thorough textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferentially, including determining where the text leaves matters uncertain.
LA.RL.9-10.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
LA.SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.
LA.SL.9-10.4	Present information, findings, and supporting evidence clearly, concisely, and logically. The content, organization, development, and style are appropriate to task, purpose, and audience.

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.9-10.4	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.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.7	Look for and make use of structure.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.
9-12.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.
9-12.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.

STUDENT LEARNING TARGETS

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

Declarative Knowledge

Students Will Know

1. Practical steps they can take now to experience flying
2. The training required to become a professional pilot

Procedural Knowledge

Students Will Be Able To

1. Explain the requirements to become a pilot. (DOK-L1)
2. Describe the options available to high school students to begin flying. (DOK-L1)
3. Create a personal aviation plan with goals to pursue outside of class. (DOK-L4)

EVIDENCE OF LEARNING

Formative Assessments

- Warm-up
Students watch a motivational video about learning how to fly, list different kinds of pilots, and discuss the kind of flying that is most interesting to them.
- Formative Assessment
Students complete an activity about the three primary pilot licenses and the requirements to attain each license.

Summative Assessments

Students create plans to begin pursuing their aviation goals outside of class and define action items to achieve their goals.

RESOURCES (Instructional, Supplemental, Intervention Materials)

Materials and resources are outlined in each unit of study. Unit of Study can be found at:

1. Semester
1: <https://drive.google.com/drive/folders/1nubRdDU15TnpI16VtMMMhk6JEOf4TCqm?usp=sharing>
2. Semester 2: <https://drive.google.com/drive/folders/13sAGkB1XMQd2jcqb-DYA3pEgBIE66Uv0?usp=sharing>

<https://www.aopa.org/training-and-safety/learn-to-fly>

<https://www.aopa.org/training-and-safety/learn-to-fly/become-a-pilot-types-of-certificates>

<https://www.aopa.org/training-and-safety/learn-to-fly/comparison-chart-airplane-single-engine>

<https://www.aopa.org/training-and-safety/active-pilots/ratings-and-endorsements>

<https://www.aopa.org/training-and-safety/drone-pilots>

<https://www.aviationexplorers.net/>

<https://www.aopa.org/learntofly/school/index.cfm>

<https://www.eaa.org/en/ea/ea-chapters/find-an-eea-chapter>

<https://www.eaa.org/en/ea/aviation-education-and-resources/ea-youth-education/ea-ye-program>

<https://www.aopa.org/community/flying-clubs>

INTERDISCIPLINARY CONNECTIONS

Students will be using reading and writing skills to develop their Pilot training plan.

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

DIFFERENTIATION

To support student comprehension in the EXPLORE section, conduct the brainstorm and discussion as a Think-Pair-Share rather than as a large group activity. Consider having partners conduct an initial brainstorm, then work with

another pair of students (forming a group of four) to add to their lists and discuss the similarities and differences between the options listed. This strategy ensures that all students contribute to the discussion, generate ideas, and verbally analyze information.

To help students successfully complete the student activity in the EXTEND section, use a collaborative writing workshop to help students generate a list of questions with a partner. Allowing students to generate questions with a partner can foster advanced literacy in the classroom, especially when students are encouraged to edit and revise their

lists. In addition, collaboration can spark motivation, which will lead to greater success when students contact flight-related organizations.

