01_Aviation 101

Content Area: **Technology**
Course(s):
Time Period: **Full Year**
Length: **16 Days and Ongoing**
Status: **Published**

General Overview, Course Description or Course Philosophy

Students will explore the different types of aviation at work in the modern world. They'll learn the uses and benefits of various forms of aviation, including commercial, military, private, and drone flying, as well as space exploration. Students will also learn about different types of aircraft, from drones and rockets to airliners and general aviation airplanes. This unit will give students a taste of the exciting and varied career possibilities in these fields.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

ESSENTIAL 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?

CONTENT AREA STANDARDS

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.
TECH.8.2.12.D.1	Design and create a prototype to solve a real world problem using a design process, identify constraints addressed during the creation of the prototype, identify trade-offs made, and present the solution for peer review.

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

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-ETS1-1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
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

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. (DOKL1)
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

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- 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/RESOURCES

You Can Fly! Presentation

You Can Fly! Student Activity 1

You Can Fly! Student Activity 2

You Can Fly! Student Activity 3

You Can Fly! Teacher Notes

Recommended Student Reading Pilot's Handbook of Aeronautical Knowledge Chapter One, Section on Pilot Certifications https://www.faa.gov/regulations_policies/handbooks_manuals /aviation/phak/media/pilot_handbook.pdf

INTERDISCIPLINARY CONNECTIONS

History of flight and pilot training

Mathematics needed for flight training

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 flightrelated organizations.