

# 08\_Aviation Innovation and Problem Solving

Content Area: **Technology**  
Course(s):  
Time Period: **Full Year**  
Length: **19 Days and Ongoing**  
Status: **Published**

## General Overview, Course Description or Course Philosophy

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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

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

## CONTENT AREA STANDARDS

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| 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.5   | Create scaled engineering drawings of products both manually and digitally with materials and measurements labeled.   |
| TECH.8.2.12.C.6   | Research an existing product, reverse engineer and redesign it to improve form and function.  |
| 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.C.CS3 | The role of troubleshooting, research and development, invention and innovation and experimentation in problem solving.   |
| 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)

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| CRP.K-12.CRP2 | Apply appropriate academic and technical skills.     |
| CRP.K-12.CRP4 | Communicate clearly and effectively and with reason. |

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| CRP.K-12.CRP6  | Demonstrate creativity and innovation.  |
| CRP.K-12.CRP7  | Employ valid and reliable research strategies.  |
| 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**

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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 assessemnts 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.