

# Fundamentals of Aviation

Career Cluster	STEM
Course Code	20056
Prerequisite(s)	None
Credit	.5
Program of Study and Sequence	This course is in the Aviation Pathway and is the first of three courses in the pathway. After completing this course, students could take Aviation 1 and/or Aviation II
Student Organization	Skills USA
Coordinating Work-Based Learning	local airports, air traffic controllers, aerial applicators
Industry Certifications	None
Dual Credit or Dual Enrollment	TBD
Teacher Certification	STEM Cluster Endorsement; Aviation Pathway Endorsement
Resources	<a href="https://www.faa.gov/education/">https://www.faa.gov/education/</a> <a href="https://www.faa.gov/education/educator_resources/curriculum/high_school/">https://www.faa.gov/education/educator_resources/curriculum/high_school/</a> <a href="https://www.osha.gov/SLTC/airline_industry/">https://www.osha.gov/SLTC/airline_industry/</a>

**Course Description:** This course provides students with an understanding of the science of flight and the history, regulations, and possible career paths within the aviation industry. It also covers the relationships of weight and balance, principles of navigation and flight control, ground and airport operations and services, and Federal Aviation Agency regulations.

## Program of Study Application

Aviation is a pathway course in the aviation pathway. Students in this pathway would generally complete foundation courses and one of the STEM cluster courses prior to participating in aviation. After the completion of this course, students could take Aviation I and/or Aviation II.

**Course Standards**

<b>Indicator # AV-F 1 Identify events in the history of flight</b>		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
<b>Level 2: Skill/Concept</b>	AV-F 1.1 Identify flight in the ancient world	
<b>Level 2: Skill/Concept</b>	AV-F 1.2 Identify the development of flight in the early 1900s	
<b>Level 2: Skill/Concept</b>	AV-F 1.3 Identify the development of flight during the Golden Age of Flight (1918 to 1939)	
<b>Level 2: Skill/Concept</b>	AV-F 1.4 Identify the development of flight innovation during World War II (1939 to 1945)	
<b>Level 2: Skill/Concept</b>	AV-F 1.5 Identify the development of flight innovation during the Cold War (1945 to 1991)	
<b>Level 2: Skill/Concept</b>	AV-F 1.6 Identify the development of flight innovation (1991 to present)	
<b>Level 3: Strategic Thinking</b>	AV-F 1.7 Analyze current trends in flight	
<b>Indicator # AV-F 2 Investigate the principles of flight</b>		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
<b>Level 3: Strategic Thinking</b>	AV-F 2.1 Investigate the basic parts and control surfaces on aircraft and drones	
<b>Level 3: Strategic Thinking</b>	AV-F 2.2 Investigate the four forces of flight	

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<b>Level 4: Extended Thinking</b>	AV-F 2.3 Investigate basic aerodynamics	
<b>Level 3: Strategic Thinking</b>	AV-F 2.4 Investigate airplane and drone stability	
<b>Indicator # AV-F 3 Understand the flight environment</b>		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
<b>Level 2: Skill/Concept</b>	AV-F 3.1 Comprehend air safety	
<b>Level 2: Skill/Concept</b>	AV-F 3.2 Comprehend the airport layout, inclusive of safety elements	
<b>Level 3: Strategic Thinking</b>	AV-F 3.3 Comprehend airspace control	
<b>Level 2: Skill/Concept</b>	AV-F 3.4 Comprehend radio communications	
<b>Indicator # AV-F 4 Understand aircraft and drone systems and performance</b>		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
<b>Level 2: Skill/Concept</b>	AV-F 4.1 Know the basic aircraft instruments	
<b>Level 2: Skill/Concept</b>	AV-F 4.2 Know aircraft or drone systems	
<b>Level 3: Strategic Thinking</b>	AV-F 4.3 Predict aircraft or drone performance	
<b>Level 3: Strategic Thinking</b>	AV-F 4.4 Calculate weight and balance	

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<b>Indicator # AV-F 5 Understand the relationships between weather and flight</b>		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
<b>Level 2: Skill/Concept</b>	AV-F 5.1 Explain basic weather theory	
<b>Level 2: Skill/Concept</b>	AV-F 5.2 Describe weather patterns and clouds	
<b>Level 2: Skill/Concept</b>	AV-F 5.3 Explain weather hazards	
<b>Level 3: Strategic Thinking</b>	AV-F 5.4 Interpret weather data	
<b>Level 2: Skill/Concept</b>	AV-F 5.5 Identify sources of weather information	
<b>Indicator # AV-F 6 Understand navigation in aviation</b>		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
<b>Level 1: Recall</b>	AV-F 6.1. Understand basic navigation	
<b>Level 1: Recall</b>	AV-F 6.2 Understand dead-reckoning and pilotage	
<b>Level 2: Skill/Concept</b>	AV-F 6.3 Utilize a flight computer or GPS programming and tracking	
<b>Level 3: Strategic Thinking</b>	AV-F 6.4 Utilize aeronautical charts	
<b>Indicator # AV-F 7 Understanding drone technology</b>		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
<b>Level 2: Skill/Concept</b>	AV-F 7.1 Understand key concepts affecting safe flight of a drone	
<b>Level 2: Skill/Concept</b>	AV-F 7.2 Understand basic drone theory and flight	

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<b>Level 2: Skill/Concept</b>	AV-F 7.3 Understand maintenance of drones	
<b>Indicator # AV-F 8 Explore the multiple careers in aviation</b>		
<b>Webb Level</b>	<i>Sub-indicator</i>	<i>Integrated Content</i>
<b>Level 2: Skill/Concept</b>	AV-F 8.1 Investigate aviation career fields and occupations.	