

STRANDS AND STANDARDS

AVIATION HISTORY



Course Description

Aviation History will prepare students interested in the field of aviation by discussing general knowledge and terminology, historical events, research and development, and government roles to identify various aviation career paths. Students will use critical thinking and collaboration to discuss the following historical eras/ concepts: early, wartime, and peacetime aviation, civilian vs. military use, and space exploration applications.

Intended Grade Level	11-12
Units of Credit	0.5
Core Code	40.11.00.00.044
Concurrent Enrollment Core Code	40.11.00.13.044
Prerequisite	N/A
Skill Certification Test Number	N/A
Test Weight	N/A
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Aviation - Flight

STRAND 1

Students will be able to understand early aviation and the events leading up to the successful flight of the Wright Brothers.

Standard 1

Discuss the early inventions of aviation; balloons, drigibles, and airships before WWI.

- Early aviation pioneers (Leonardo DaVinci, Cavendish, Montgolfier, etc.)
- Significant historical aviation events
 - First unmanned and manned balloon flights
 - Balloons and drigibles used during wartime.
 - Importance of heavier than air aircraft in the stages of aviation development.

Standard 2

Identify early aviation pioneers and their significance to the development of the first controlled powered aircraft.

- Early flight developments and events in the discovery and advent of the airplane in Europe and America.
 - Gliders
 - Engines
 - Key figures (George Cayley, John Montgomery, Otto Lilienthal, Octave Chanute, Samuel Langley, and others)
- The first design and test of the Wright brothers controlled powered aircraft.

Performance Skills

- Discuss the early inventions of aviation; balloons, drigibles, and airships before WWI.
- Identify early aviation pioneers and their significance to the development of the first controlled powered aircraft.

STRAND 2

Students will investigate early twentieth century aviation events.

Standard 1

Identify aviation events and competitions that contributed to the aviation industry.

- Wright Brothers contracts with the War Department and French companies.
- Glenn Curtiss and the Aerial Experiment Association.
- Rheims Air Meet in France.
- First coast-to-coast flight competition.
- Women aviators (Harriet Quimby, Bessie Coleman, and others)

Standard 2

Recognize how World War I impacted the development of aviation

- Aviation events in preparation for the war.
 - Formation of military flying services
 - Development of the aviation industry
- Importance of airships, dirigibles, and balloons during WWI.
- Development and purpose of military aircraft during WWI

Performance Skills

- Identify aviation events and competitions that contributed to the aviation industry.
- Recognize how World War I impacted the development of aviation

STRAND 3

Students will discuss the significance of the Golden Age of aviation.

Standard 1

Distinguish the difference in aviation between WWI and WWII.

- Passenger travel on aircraft during the early days of aviation.
- Importance of airships and float plane designs.
- Modern barnstormers and their significance in aviation.
- Congressional Airmail Acts and their significance in the development of aviation.

Standard 2

Identify pioneers and their significance during the Golden Age of aviation.

- Charles Lindburgh
- Amelia Earhart
- General Billy Mitchell
- And others

Standard 3

Identify the importance of general aviation companies and commercial airlines.

- Cessna, Piper, Beechcraft, etc.
- McNary-Watres Act
- United Airlines, Transcontinental and Western Airlines, Pan American, etc.
- Boeing Aircraft and Douglas Aircraft Corporations

Performance Skills

- Distinguish the difference in aviation between WWI and WWII.
- Identify pioneers and their significance during the Golden Age of aviation.
- Identify the importance of general aviation companies and commercial airlines.

STRAND 4

Students will explain the changing roles, capabilities, and impact of the airplane on aviation advancements and outcomes of WWII.

Standard 1

Distinguish how different countries prepared their Air Forces for war after WWI

- Germany, Japan, and Italy (Axis Powers)
- Britain and US (Allied Powers)
- New type of war (Blitzkrieg)
- Significant aircraft (for example Spitfire, B-17, Bf-109, P-51, A6M Zero, FW-190, etc.)

Standard 2

Observe the differences in aerial warfare between WWI and WWII and how it impacted the outcome in the European Theater (WWII).

- Germany invades Poland and other European countries using airpower
- Battle of Britain
- Multiple fronts - Europe, Russia, North Africa, and Mediterranean
- Allied Air Strategy and Doctrine - Giulio Douhet, Billy Mitchell, Claire Chennault
- Combined Bomber Offensive and Normandy Invasion

Standard 3

Analyze how the Air War was fought and its outcome in the Pacific Theater.

- Japanese strategy in the Pacific
- US enters the war - Pearl Harbor
- Doolittle's Raid
- Naval air power - Battles of Coral Sea and Midway
- Island hopping
- Bombing of Japan - fire bombs and atomic bombs

Standard 4

Investigate and discuss pilot training during WWII.

- German Luftwaffe
- UK Royal Air Force
- US Civilian Pilot Training Program and War Service Program
- WAFS (Women's Auxiliary Ferrying Squadron) and WFTD (Women's Flying Training Detachment) join to become the WASP (Women's Air Force Service Pilots)
- Tuskegee Airmen
- Russian Night Witches

Standard 5

Provide examples of military research, development, and production during WWII.

- Aircraft production - bomber aircraft, fighter aircraft, and helicopters
- Radar
- Jet engines
- Rocket propulsion
- Norden bomb sight
- Atomic bomb

Performance Skills

- Distinguish how different countries prepared their Air Forces for war after WWI
- Observe the differences in aerial warfare between WWI and WWII and how it impacted the outcome in the European Theater (WWII).
- Analyze how the Air War was fought and its outcome in the Pacific Theater.
- Investigate and discuss pilot training during WWII.
- Provide examples of military research, development, and production during WWII.

STRAND 5

Students will understand military aviation from the Cold War through the modern age.

Standard 1

Understand and discuss the important aircraft and technology used during military conflicts of the Cold War and the aviation lessons learned from each conflict.

- Berlin Airlift (examples C-47 and C-54)
- Korean Conflict (examples F-80, F-84, F-86, F-4U, MiG-15)
- U2 Incident over USSR
- Vietnam War (examples F-100, B-52, F-105, F-4, A-6, MiG-17, MiG-19, MiG-21, SAM and AGM)

Standard 2

Explore the US military strategies used to protect the country from nuclear threat.

- Cuban Missile Crisis
- Strategic Air Command (SAC)
- Early Warning systems (E-3, Looking Glass)

Standard 3

Investigate the development of military aviation after the end of the Cold War by analyzing the following conflicts:

- Desert Shield and Desert Storm
- Operation Allied Force
- Operation Noble Eagle and Enduring Freedom
- Military Aircraft (F-15, F-22, KC-135, etc.)

Performance Skills

- Understand and discuss the important aircraft and technology used during military conflicts of the Cold War and the aviation lessons learned from each conflict.
- Explore the US military strategies used to protect the country from nuclear threat.
- Investigate the development of military aviation after the end of the Cold War by analyzing specific conflicts.

STRAND 6

Students will investigate civilian aviation after World War II.

Standard 1

Students will recognize modern major air carriers.

- Airline Deregulation Act of 1978
- Passenger and cargo carriers (United, Southwest, Delta, UPS, FedEx, etc.)
- Regional carriers (Skywest, Allegiant, Breeze, Horizon, etc.)
- Modern airliners

Standard 2

Compare the different types of general aviation aircraft.

- Personal aviation companies (Cessna, Beechcraft, Piper, etc.)
- Home-built and experimental models
- Ballooning, soaring, and gliding
- Aerobatics and racing (National Championship Air Races)

Standard 3

Differentiate the difference between business and commercial aviation.

- Executive aircraft (Turboprops, Multiengine Piston Aircraft, Turbojets, etc.)
- Commercial aviation passenger and cargo
- Nontransportation aircraft (agriculture, firefighting, aerial photography, etc.)

Standard 4

Investigate how to receive private pilot certification and beyond.

- Ground school and flight instruction
- Private pilot rating
- Instrument rating
- Commercial pilot rating
- Air transport pilot rating
- Part 107 UAS pilot rating

Performance Skills

- Students will recognize modern major air carriers.
- Compare the different types of general aviation aircraft.
- Compare the different types of general aviation aircraft.
- Investigate how to receive private pilot certification and beyond.

STRAND 7

Students will apply previous concepts to the development of space exploration.

Standard 1

Illustrate the invention, development, and impact of rockets on space operations.

- Titan
- Atlas
- Space-X

Standard 2

Explore the use and purpose of unmanned space vehicles and satellites.

- Rovers
- Telescopes
- Global Positioning System (GPS)

Standard 3

Understand the impact of manned space vehicles on space exploration.

- History of The Space Race
- Mercury, Gemini, and Apollo programs
- Space shuttles
- Space stations

Performance Skills

- Illustrate the invention, development, and impact of rockets on space operations.
- Explore the use and purpose of unmanned space vehicles and satellites.

STRAND 8

Students will understand the importance of career readiness skills as it relates to participation in TSA (Technology Student Association), SkillsUSA, or any other related CTSO in aviation-related fields.

Performance Skills

The following aviation workplace skills should be discussed, taught, re-enforced, and modeled throughout the strands and standards of the course:

- Communication
- Teamwork
- Critical and Creative Thinking
- Problem Solving
- Dependability