

Air Force Junior Reserve Officer Training Corps



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Curriculum Guide



2014



Jeanne M. Holm Center for Officer Accessions and Citizen Development



AIR FORCE JUNIOR ROTC

CURRICULUM GUIDE

*2014 – 2015
Academic Year*

**CURRICULUM DIRECTORATE
Jeanne M. Holm Center for
Officer Accessions and Citizen Development**



AFJROTC Curriculum Guide

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Summary of Changes

Throughout the Curriculum Guide, changes are made to support/supplemental material and state/district mandated material as follows: “Support/Supplemental (or required material) included on a recurring basis during daily classroom instruction must be defined by going to WINGS | Unit Management | Curriculum | JROTC Unit Defined Curriculum and then added to Define Unit Courses.” Reference pages 7, 9, 41, 42, 48, 166, and 176. Examples are provided on page 42.

Credits

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Mr. Tray Ward, Maxwell AFB Graphics: 2013 Cover

References

The information in Part I is derived from these references:

- ISD: AFMAN 36-2234, *Instructional System Development*
- AFMAN 36-2236, *Guidebook for Air Force Instructors*

Additional references:

- AFH 36-2235 Series: *Information for Designers of Instructional Systems*
- Air Force e-Publishing <http://www.e-publishing.af.mil/>

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Preface

Air Force Junior Reserve Officer Training Corps (AFJROTC) is a program designed to develop citizens of character dedicated to serving their nation and community. To support this mission, the Curriculum Directorate of the Jeanne M. Holm Center for Officer Accessions and Citizen Development (Holm Center) produces “world-class” academic materials for AFJROTC units worldwide. A comprehensive description of the academic program is contained in this *AFJROTC Curriculum Guide*. The guide a relevant, informative tool designed to assist school leadership and AFJROTC instructors plan and implement their curriculum programs.

Each AFJROTC class consists of three components—aerospace science, leadership education, and a wellness program. Citizenship and character education, the heart of the curriculum program, is primarily embedded in the leadership education series of courses, while sense of service and education in science and technology related aerospace science is primarily found in the aerospace science series of courses. Thus, the typical high school student will spend two clock hours per week studying LE material, two more on AS subject matter and a fifth hour in wellness education, culminating in 120-180 contact hours per year for a single AFJROTC course offered at the host school. The flexibility of our curriculum design should enable you to meet the needs of your programs and accomplish the requirements set forth by your district and/or state.

To reinforce what is taught in the classroom, students participate in many outside activities such as field trips to military bases, aerospace facilities and industries, museums, civilian airports and other areas related to aerospace education. AFJROTC units also offer the opportunity to participate in extracurricular activities to include in drill and ceremonies, summer leadership schools, and honorary academic groups. Additionally, community service projects are a major part of the AFJROTC experience and helps instill a sense of civic pride and citizenship.

The *AFJROTC Curriculum Guide* has four parts:

“Part I – The AFJROTC Curriculum Program” describes the academic program, curriculum materials, and development, structure, and implementation of the curriculum. It expands on the curriculum development process and writing objectives and tests; 21st century teaching, learning, and assessments; and the course planning and scheduling process.

“Part II – Aerospace Science Courses” presents the menu of courses in the aerospace science series to include *A Journey Into Aviation History*, *The Science of Flight: A Gateway to New Horizons*, *Cultural Studies: An Introduction to Global Awareness*, *Exploring Space: The High Frontier*, *Management of the Cadet Corps*, *Survival*, *Aviation Honors Ground School*, and the *AFJROTC Honors Senior Project*.

“Part III – Leadership Education Courses” covers the leadership education series of courses to include *Citizenship, Character, and Air Force Tradition*; *Communication, Awareness, and Leadership*; *Life Skills and Career Opportunities*; *Principles of Management*; *Drill and Ceremonies*; and the wellness program.

“Part IV – Supplemental Materials and Resources” provides items to enhance the courses. The materials include: a comprehensive step-by-step approach to college financing and admissions, a program to inspire and prepare you adults for success, and another program that builds basic personal finance skills to lay a solid foundation for financial independence and future financial decisions. This section also includes free educational resources and lists NASA Educator Resource Centers by state so teachers can request materials and services.

Our AFJROTC academic program is a showcase for 21st century teaching, learning, and assessments. Having transformed our curriculum into the 21st century, we will continue our quest to create the best academic materials for our outstanding program for AFJROTC units worldwide.

*The AFJROTC Curriculum Branch
Holm Center Curriculum Directorate*

Part I – The AFJROTC Curriculum Program

HISTORY OF AFJROTC



The Junior ROTC program began in 1911 in Cheyenne, Wyoming. The originator of this idea was Army Lieutenant Edgar R. Steevers, assigned the duty of inspector-instructor of the organized military of Wyoming. The National Defense Act of 1916 authorized a junior course for non-college military schools, high schools, and other non-preparatory schools; the Army implemented Junior ROTC in 1916. Public Law 88-647, commonly known as the Reserve Officer Training Corps Vitalization Act of 1964, directed the secretaries of each military service to establish and maintain Junior ROTC units at public and private secondary schools which apply for and are eligible according to the regulations established by each secretary. Such schools must provide a course of military instruction not less than 3 years in length as prescribed by the military department concerned.

With a modest beginning of 20 units in 1966 Air Force Junior Reserve Officer Training Corps (AFJROTC) has grown to 875 high schools throughout the world, including units located in the Department of Defense Schools in Europe, the Pacific and Puerto Rico. Junior ROTC enrollment worldwide includes over 121,800 cadets. Only boys were allowed as cadets in 1966, but Public Law 93-165 amended the requirement that a Junior ROTC unit have a minimum number of physically fit male students, thus allowing female students to count toward the minimum students needed for a viable unit. In 1972 the enrollment included 2,170 females making up 9% of the corps. Since then the number of females has increased to over 36% of the cadet corps.

The AFJROTC program provides citizenship training and an aerospace science program for high school youth. Enrollment in the AFJROTC program is open to all young people who are in grades 9-12, physically fit, and are United States citizens. Host schools are selected upon the basis of fair and equitable distribution throughout the nation. Retired Air Force commissioned and noncommissioned officers who are full-time faculty members of the participating high school and employed by the local school board teach AFJROTC classes.

MISSION, GOALS, AND OBJECTIVES

The **mission** of the AFJROTC program is to “Develop citizens of character dedicated to serving their nation and community.”

The **goals** of the AFJROTC program are to instill:

- The values of citizenship,
- Service to the United States,
- Personal responsibility, and
- A sense of accomplishment.

The **objectives** of AFJROTC are to educate and train students in citizenship and life skills; promote community service; instill a sense of responsibility; and develop character and self-discipline through education and instruction in air and space fundamentals and the Air Force's core values of "Integrity First, Service Before Self and Excellence In All We Do."

This program will enable the students to:

- Develop a high degree of strong morals, self-esteem, self-reliance, personal appearance, and leadership.
- Adhere to the values of integrity, service, and excellence.
- Increase their understanding of patriotism and responsibilities as US citizens.
- Participate in community service activities.
- Expand their skills of critical thinking and problem solving, communication and collaboration, and creativity and innovation.
- Demonstrate military customs, courtesies, and traditions and develop habits of order, discipline, and social skills.
- Acquire a broad-based knowledge of aerospace studies and leadership education.
- Strive to graduate from high school and prepare for college and careers in the 21st century.
- Cultivate a commitment to physical fitness and a healthy lifestyle.

SACS CASI Accreditation by the AdvancED[®] Accreditation Commission

Air Force Junior ROTC was awarded continuing accreditation with the Southern Association of Colleges and Schools Council on Accreditation and School Improvement (SACS CASI) on 2 February 2011 by the AdvancED Accreditation Commission. AdvancED is the parent organization of SACS CASI. The AdvancED Accreditation Commission is a national panel that reviews and takes action on all SACS CASI accreditation recommendations. A copy of the letter and certificate are included on the following pages.

AFJROTC was first awarded accreditation by the Commission on International and Trans-Regional Accreditation (CITA) Board of Directors on 29 November 2005; they have maintained continuous accreditation since then. To achieve accreditation, AFJROTC has undergone and successfully completed rigorous self-studies and site evaluations conducted by the CITA and AdvancED teams of experienced educators.

In summer 2008 CITA became part of AdvancED, and the AdvancEd standards and protocol took effect 1 July 2009.





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February 22, 2011

Air Force Junior Reserve Officer Training Corps (AFJROTC)
551 East Maxwell Blvd
Maxwell Air Force Base, Alabama 36112

Dear Administrator:

I am pleased to inform you that Air Force Junior Reserve Officer Training Corps (AFJROTC) has been awarded continuing accreditation with the Southern Association of Schools and Colleges Council on Accreditation and School Improvement (SACS CASI). This action was taken at the AdvancED® Accreditation Commission meeting held on February 2, 2011. AdvancED is the parent organization of SACS CASI. The AdvancED Accreditation Commission, a national panel, reviews and takes action on all SACS CASI accreditation recommendations. On behalf of the accredited schools in the AdvancED network, we extend congratulations to your school, staff, and community.

An accreditation certificate which indicates the expiration date for your SACS CASI term of accreditation is enclosed. The tasks required of all schools to maintain accredited status are outlined in *AdvancED Accreditation Policies and Procedures for NCA CASI and SACS CASI Accreditation* available at www.advanc-ed.org/policies-procedures.

Accreditation provides your school with deserved recognition for demonstrating its continuous commitment to quality and the success of all students. We encourage you to display your certificate in a visible location so your school community is aware of your accreditation. To help you celebrate this recognition, we are providing you with a press release you may share with your local media. You can access the press release by visiting: www.advanc-ed.org/communicationskit.

Again, congratulations on your SACS CASI accreditation. If you have questions regarding the enclosed certificate, e-mail us at: accreditation-certificates@advanc-ed.org. We look forward to serving you now and in years to come.

Sincerely,

Mark A. Elgart

Mark A. Elgart, Ed.D.
President/CEO AdvancED



This is to certify that

Air Force Junior Reserve Officer Training Corps (AFJROTC)

having met the requirements established by the AdvancED® Accreditation Commission
and Board of Trustees is hereby accredited by the Southern Association of
Colleges and Schools Council on Accreditation and School Improvement.

Valid through June 30, 2016

Mark A. Elgart
Mark A. Elgart, Ed.D.
President and CEO, AdvancED

SYNOPSIS OF THE CURRICULUM PROGRAM

Cadets receive credit toward high school graduation by successfully passing AFJROTC classes. Aerospace Science study includes the history of aviation, cultural studies of major world regions, science of flight, space exploration to include astronomy, survival and management. Through the study of history of aviation, cadets will learn about the development of flight throughout the centuries. From the science of flight, students will become acquainted with the aerospace environment, weather, the human requirements of flight and the principles of navigation. Space exploration will equip students with the latest information available in space exploration and space science; the basic concepts of space are in this course. The science of flight and space courses are intended to complement material taught in high school math, physics, and other science-related courses. Through cultural studies, students will learn to see their world through many different perspectives. This course introduces students to the study of world affairs, regional studies, and cultural awareness. Students will learn to explore and discover the processes that shape the Earth, the relationships between people and environments, and the links between people and places.

Leadership Education offers students many opportunities to shape their character. Students will learn about character development while many character-building topics are discussed. Elements of good citizenship are instilled in students. They are introduced to the Air Force organizational structure, uniform wear, military customs and courtesies, flag etiquette, citizenship in the United States, first aid, health and wellness, fitness, individual self-control, and basic drill and ceremonies. They will learn to listen and think critically, effective communications, how to prepare for leadership, how to build personal awareness, key elements of building and encouraging effective teams, and key behaviors for becoming a credible and competent leader. Students will also learn about the importance of charting a career path, specific career options, how to create a personal budget and financial plan, how to write a resume, how to interview for a job, how to apply for college, the principles of management, making decisions, problem solving, human relations, and life skills.

The Holm Center Curriculum Directorate provides the materials needed to teach all AFJROTC courses—textbooks, instructor guides, PowerPoint slide presentations and student-centered learning methods/materials, support videos, the Classroom Performance System (CPS), and in limited cases Instructional DVDs. Holm Center-provided textbooks are to be used for AFJROTC classes via an issue and return policy, e.g. textbooks are to be collected from cadets at the end of each credit period for reissue. All Aerospace Science and Leadership Education courses contain textbooks with accompanying instructor guides and CDs. AFJROTC curriculum is written at the 8th – 12th grade reading level. Student workbooks are considered expendable items and do not have to be collected at the end of a credit period. *All hard copy workbooks have been phased out of the program with the exception of “A Journey Into Aviation History”, Drill and Ceremonies, and Unlocking Your Potential. When warehouse inventory is depleted these workbooks will no longer be available and will be deleted from the order form.* Electronic workbook files are found on the instructor guide CD-ROMs and/or posted on WINGS | Menu | Published Files | Directory | JROTC | Curriculum and for the newer courses test banks are also included on the CD-ROMs. The instructor guides give lesson objectives, samples of behavior, chapter and lesson overviews, teaching strategies, attention steps, lesson plans, activities, and answers to exercises found in the textbooks and student workbooks. Support materials from Civil Air Patrol (CAP) are considered

as supplemental material that may be used in the classroom. To reinforce what is learned in the classroom, cadets participate in many outside activities such as field trips to military bases, aerospace facilities and industries, museums, civilian airports, etc. Cadets also participate in parades, summer leadership schools, drill team competitions, military balls, honorary academic groups, and other community activities.

Permission has been granted by each commercial publisher used for AFJROTC courses to allow units to post all electronic files for those courses on **UNIT OR SCHOOL PASSWORD-PROTECTED WEBSITES, AS WELL AS COMMERCIAL SITES SUCH AS BLACKBOARD OR POWERSCHOOL**. These files may be accessed by enrolled cadets who possess or will possess the courseware that these companies sell the Holm Center for use in AFJROTC classrooms. Copyright rules allow instructors to copy selected pages from AFJROTC's commercially produced courses to facilitate instruction in AFJROTC classrooms, but the copying of entire publications for distribution in lieu of using Air Force purchased material is **PROHIBITED** by US copyright law.

CURRICULUM GUIDANCE

The point of contact for all AFJROTC curriculum issues is the Holm Center Curriculum Directorate, AFJROTC Curriculum Branch (CRJ). Per the Air Force School Agreement, the AFJROTC curriculum provided by the Air Force must be taught at the host school.

AFJROTC courses should be coded in school catalogs as AFJROTC courses unless the individual school district requires AFJROTC courses to be coded in a particular manner. The course description should clearly indicate that the course is offered by the AFJROTC department and is for AFJROTC students only. Course descriptions should accurately describe course content being taught for each course offered.

Units are expected to teach AFJROTC course objectives and use the curriculum materials provided by Holm Center/CRJ. **TEXTBOOKS OTHER THAN THOSE PROVIDED BY HOLM CENTER ARE NOT AUTHORIZED AND CANNOT BE USED.** This does not mean that teachers cannot use supporting materials (e.g., videos, exercises, games etc.) not provided by Holm Center/CRJ as long as those materials help the instructor accomplish the established course goals and objectives of the AFJROTC curriculum and are not used during more than 10% of the contact time allotted for teaching the course. Instructors choosing to include supplemental material to reinforce Headquarters' (HQs') provided curriculum must include this material when defining the unit course in WINGS. Support/supplemental material included on a recurring basis during daily classroom instruction must be defined by going to WINGS/Unit Management/Curriculum/JROTC Unit Defined Curriculum and then added to Define Unit Courses. Using non-AFJROTC support materials falls under the category of personalizing your lesson plans, which you are encouraged to do.

Units **must** use WINGS to maintain accountability for all curriculum material with all current Aerospace Science and Leadership Education materials on hand. Obsolete material should be disposed of IAW guidelines described in the Curriculum Guide and in AFJROTCI 36-2001.

If AFJROTC courses are loaded on school websites, they **MUST** be password protected.

Academic Program

AFJROTC is a three- or four-year program for high school students. The fourth year is available in schools that have ninth through twelfth grade. The curriculum includes Aerospace Science (AS), Leadership Education (LE) and Wellness. All students will be given credit towards graduation for successful completion of the AFJROTC program per the Air Force School Agreement. Each academic course must consist of an AS component, an LE component, and a Wellness component, except in Aviation Honors Ground School classes, and stand-alone drill courses.

Aerospace Science (AS)

AS acquaints students with the elements of aerospace and the aerospace environment. It introduces them to the principles of aircraft flight and navigation, the history of aviation, development of air power, contemporary aviation, human requirements of flight, cultural and global awareness, geography, the space environment, space programs, space technology, rocketry, propulsion, the aerospace industry, and survival.

Leadership Education (LE)

LE is the portion of the AFJROTC curriculum that develops leadership skills and acquaints students with the practical application of life skills. The leadership education curriculum emphasizes discipline, responsibility, leadership, followership, citizenship, customs and courtesies, cadet corps activities, study habits, time management, communication skills, career opportunities, life skills, financial literacy, management skills, and drill and ceremonies.

Wellness Program

Wellness is an official and integral part of the Air Force Junior ROTC program. The objective of the Wellness Program is to motivate cadets to lead healthy, active lifestyles beyond program requirements and into their adult lives. For classes awarding elective or PE credit for AFJROTC courses, 20% of available contact time must be devoted to Wellness instruction. Units that cannot integrate Wellness into their classes due to inadequate or inaccessible gym facilities, or other reasons, **must** submit a waiver request to Holm Center/JRO. Units with core or specified state required credit classes are encouraged to establish a Wellness program for their cadets outside normal classroom hours or during zero, lunch or after school periods, if facilities permit and must teach 20% Wellness for any other non-core or state mandated credit classes taught. There are 19 exercises in the AFJROTC program; descriptions for these exercises are located on WINGS | Menu | Published Files | Directory | JROTC | Wellness Program.

For schools awarding elective credit for AFJROTC courses, 40% of available contact time (contact hours) will focus on AS material, 40% on LE, and 20% on Wellness/PT. Units that cannot comply with 20% Wellness/PT requirement must have an approved Holm Center/JRO Wellness/PT waiver. For units that award core credit (e.g., science, history, geography, civics and government, etc.) or other required graduation credit for State/District/School mandated courses (e.g., Career Technical Education, Life Skills, Health, Freshman Orientation, Financial Literacy, etc.), 60% of

available contact time is to be spent teaching AS material and 40% on LE (or 60% on LE and 40% on AS, depending upon which component justifies the core or locally required credit). For courses receiving core or locally required credit that need to continue teaching 60% AS or LE to sustain that credit, the goal of a 40%-40%-20% mix does not apply; however, the unit must submit a waiver request to Holm Center/CR identifying any required courses that will not include a Wellness component in order to warrant graduation credit. Instructors including state/district mandated material in order to receive core/graduation credit must include this material when defining the unit course in WINGS. Required material included on a recurring basis during daily classroom instruction must be defined by going to WINGS/Unit Management/Curriculum/JROTC Unit Defined Curriculum and then added to Define Unit Courses. All other non-core courses at the unit must follow the requirements stated at the beginning of this paragraph.

Drill and Ceremonies

Drill and Ceremonies is offered as a part of the Leadership Education phase of a given course or can be taught as a zero hour class or as an after school extracurricular activity as part of the Leadership Education component. When Drill and Ceremonies is offered as part of Leadership Education, the drill portion must not exceed more than 50% of the LE component. If a cadet participates in Drill Team activities before or after school, they must also be enrolled in an AS/LE course to be counted as part of the unit's AFJROTC enrollment. The Drill and Ceremonies course may also be taught as a stand-alone course if the following criteria are met: (1) students enrolled in a drill-only class must be concurrently enrolled in a regular AS/LE class; at 4x4 block scheduled schools, enrollment in a standard AS/LE class during the first block is prerequisite to enrollment in a stand-alone drill class during the second block, versus requiring cadets to be concurrently enrolled; (2) the drill-only class must be recognized for graduation credit by the school; and (3) the Drill-only class does not count toward the AFJROTC Certificate of Completion.

Aviation Honors Ground School

Aviation Honors Ground School (AHGS) is a stand-alone course for third- and fourth-year cadets only. Attendance is open to deserving third- and fourth-year honor students who the AFJROTC instructor determines as having earned the opportunity to take the course. The course should receive "honors" (e.g., advanced) credit and must have principal approval. It is taught as the AS component of an AFJROTC course or may be presented as a standalone course (AS 500).

Instructors interested in offering an AHGS course must submit a request through the WINGS "Define Unit Course" section. Input the information at: WINGS | Unit Management | Define Unit Course | Request content waiver for this course | Submit. Please ensure supporting documents (FAA certificates or AF documents) are attached prior to submitting waiver request. After gaining program approval or waiver approval, units must order the ground school materials needed via WINGS at: WINGS | Menu | Logistics | Create/Display Orders | Create Order | Order | Search for Items | Category (Curriculum) | Subcategory (Ground School).

AHGS should only be taught by AFJROTC instructors who hold appropriate Basic Ground Instructor (BGI) or FAA Certified Flight Instructor (CFI) certificates, or Air Force Form 8's indicating aircrew instructor/evaluator experience. If the SASI or ASI is not a certified ground school instructor, the unit may apply for a waiver from Holm Center/CR to teach ground school

without certification. Waiver approval will be dependent upon their Air Force flying or related experience. Non-certified ground school instructors may not be able to provide instruction leading to FAA certification. (If FAA course certification is desired, a ground school certified instructor must certify the course meets FAA standards.) Holm Center/CR recommends that units who teach Aviation Honors Ground School teach *AS-200: The Science of Flight: A Gateway to New Horizons* as a prerequisite to the ground school course.

AFJROTC Honors Senior Project

This culminating honors project is designed for cadets to demonstrate essential skills through reading, writing, speaking, production, and/or performance. Skills in analysis, logic, and creativity will also be showcased through successful completion of this project.

The Honors Project is primarily targeted for senior cadets in a three- or four-year program. However, it is not uncommon for other academically successful cadets enrolled in Advanced Placement, other Honors, or in an International Baccalaureate program to successfully complete this project. In order to retain these cadets in the unit's AFJROTC program and to continue to improve their critical thinking and research skills, selected cadets with demonstrated academic capabilities may also enroll in this class with SASI approval.

Successful completion of the Honors Project will allow cadets to receive honors credit while maintaining their enrollment in the AFJROTC program. Recommended subject material must come from HQ-Curriculum approved curriculum materials. All materials including the grading rubric for the Honors Project is posted in [WINGS | Menu | Published Files | Directory | JROTC | Curriculum | Honors Project](#). For cadets to receive honors credit, they must meet state/district/school honors course criteria.

Current Curriculum Material

Current copies of the Curriculum Materials, Publications, and Forms (CMPF) document and the Curriculum Guide can be found in the WINGS Curriculum area. Hard copy Curriculum Guides are no longer provided. Instructors must be teaching from current curriculum material as defined in this guide and the CMPF. Instructors not teaching from current curriculum material during the Regional Director's visits must provide documentation showing that current materials were not available in time for instructor preparation and use before the current term began. Videos that are removed from the CMPF list and/or [WINGS | Menu | Logistics | Inventory](#) will remain authorized for use in the classroom at the units, as long as they remain relevant and are serviceable. A curriculum materials inventory must be maintained in WINGS to ensure proper accountability of all items.

Waivers and Deviations

Units may be granted waivers to deviate or be exempt from policy (e.g., curriculum, ground school, health and wellness program, uniform, etc.). Units will submit all waiver or deviation requests to HQ via [WINGS](#)—no phone or email waivers will be accepted. All waiver requests received in a particular month will be reviewed and staffed to the proper approval authority by the end of the respective month. No later than the 5th day of the following month, HQs will notify

those units who requested a waiver/deviation on the decision to approve/disapprove the request. Waivers for all categories, except Curriculum, expire at the end of the 2-year anniversary and must be resubmitted to Holm Center/JRO for subsequent approval. Curriculum waivers are approved by Holm Center/CR and remain valid for a period of 4 full academic years after the date of approval.

Course Offerings

All units have the option to determine which aerospace science and leadership education courses to offer to first-, second-, third- and fourth-year cadets. The options to select from are:

Aerospace Science

- *AS 100: A Journey Into Aviation History*
- *AS 200: The Science of Flight: A Gateway to New Horizons*
- *AS 220: Cultural Studies: An Introduction to Global Awareness*
- *AS 300: Exploring Space: The High Frontier*
- *AS 400: Management of the Cadet Corps*
- *AS 410: Survival: Survive • Return*
- *AS 500: Aviation Honors Ground School*
- *AS 510: AFJROTC Honors Senior Project*

Leadership Education

- *LE 100: Citizenship, Character, and Air Force Tradition**
- *LE 200: Communication, Awareness, and Leadership*
- *LE 300: Life Skills and Career Opportunities*
- *LE 400: Principles of Management*
- *LE 500: Drill and Ceremonies*

Note: The new LE 100 will be available for fall 2014; notification will be sent when it is available to order. The 2005 version is currently authorized, but effective **fall 2015 all units must be teaching from the new course.*

It is possible for units on non-traditional schedules (4x4, Block) teaching the AFJROTC basic courses to have cadets complete the program in 2 years. However, the creation of blended courses (as described later on) allows units to create more course options allowing cadets to remain 3 or 4 years in the program.

When selecting the courses units will offer in any given academic term, instructors should keep in mind the reading levels of the cadets since some course materials are written at upper high school levels. The higher the AS or LE course number, the higher the reading level designed for that particular course. Many lower reading level students will have difficulty reading and comprehending some of the upper level material such as the *Exploring Space: The High Frontier* course. New units are encouraged to offer AS-100, *A Journey Into Aviation History* and LE-100, *Citizenship, Character, and Air Force Tradition* to all first-time cadets and that all units always teach these two courses first to their first-time enrolled cadets.

Units may wish to group first-, second-, third- and/or fourth-year cadets in the same AS and LE course to reduce scheduling issues and to take advantage of the mentoring potential provided by upper level cadets. If this option is chosen, the unit must ensure the same aerospace science and leadership education courses are not offered in successive years. Over a period of three years, or in some cases four, cadets must receive different AS and LE courses and be precluded from signing up for the same course twice during their years in AFJROTC.

Outdated Curriculum Materials

The following curriculum materials are outdated and no longer authorized to be taught as **stand-alone** components:

Aerospace Science

Aerospace Science: Frontiers of Aviation History	2002
Aerospace Science: The Science of Flight	2001
Aerospace Science: Global and Cultural Studies (Volumes 1 & 2)	2006
Aerospace Science: The Exploration of Space	2003
Aerospace Science: The Exploration of Space, Second Edition	2005
Explorations: An Introduction to Astronomy	2004
World Geography: Building a Global Perspective	2001

Leadership Education

*Leadership Education I: Citizenship, Character, and Air Force Tradition	2005
Leadership Education III: Life Skills and Career Opportunities	2006
Leadership Education I: Introduction to Air Force Junior ROTC	1998
Leadership Education II: Intercommunication Skills	1998
Leadership Education III: Life Skills	1999
Leadership Education IV: Principles of Management	1999

**Effective Fall 2015: The 2005 version is no longer authorized to be taught.*

Disposal of Outdated and Obsolete Curriculum Materials

Outdated or obsolete curriculum materials may be disposed of via one of the options listed below. No specific documentation is required when these disposal actions are taken, since only obsolete materials are to be dispensed of in accordance with this policy. However, if these items are loaded into unit WINGS inventory, a write-off action must be taken to show the loss.

1. Donate to the host school library or another academic department
2. Donate to any public or private school library
3. Retain as cadet reference material
4. Donate to a home-schooled student
5. Donate to a Civil Air Patrol unit, the Boy Scouts, Girl Scouts, alternative schools or any other youth services, character development or public service agency
6. Donate to another public or private high school
7. Donate to any other publicly funded entity
8. Recycle via a local recycling program (does not include landfill disposal)
9. Dispose of obsolete or unserviceable curriculum using the schools disposal method

If a student loses curriculum material and a fee is collected, such fees must be returned to the Holm Center Support Directorate for deposit in the US treasury. These fees cannot be deposited into host school financial accounts or used by JROTC units or associated support groups/booster accounts, since property provided by the federal government cannot be transferred to state or local agencies via this means. Additionally, federally provided items cannot be lawfully sold to outside entities, including book stores or other commercial agents who may use the material for financial gain.

If the curriculum materials are damaged or destroyed due to a fire, flood, or other natural disaster (e.g., hurricane, tornado, earthquake, etc.), the school cannot claim these items on their school insurance policy since the materials were obtained by the US Air Force with government funds.

Disposal of Unusable Portable Curriculum Hard Drives (PHD)

PHDs must now be added to your unit AIM account; Holm Center/CR will no longer accept broken or non-working PHDs sent back to our office. IT equipment that is not working will need to be disposed of via DRMO/DLA. In order for IT equipment to be removed from your AIM account it must be properly disposed of, or transferred. Contact your regional ECO for proper disposition and/or transfer of IT equipment. PHDs are treated as any other IT equipment and must be disposed of using the same process.

Blended Courses

Blended courses are permitted. A *blended course* is defined as a course that combines lessons from two or more authorized AFJROTC courses into one course. For example, a blended Aerospace Science course may contain lessons from *Exploring Space: The High Frontier*; *The Science of Flight: A Gateway to New Horizons*, and *Cultural Studies: An Introduction to Global Awareness*, all taught in the same year, or in the case of block/trimester schedules, during the same term. The Leadership Education portion may consist of portions from LE 100, LE 200, LE 300 and/or LE 400.

Blended Classes

Blended classes are also permitted. Blended classes are defined as scheduled classes that may contain 9th, 10th, 11th, or 12th graders all in the same class. These blended classes may require offering curriculum as defined by blended courses. Instructors should design these blended classes for separate grade levels if possible, especially cadet senior staff members (AS 400 students), but it is not mandatory to do so. Repeating curriculum material is not authorized for these blended classes IAW AFJROTCI 36-2001.

Blended Leadership Education classes in which first-year cadets are enrolled will obviously have to contain portions of the LE 100 curriculum to teach the fundamentals of the AFJROTC program: uniform wear, customs and courtesies, etc., or provisions will have to be made to offer the LE 100 curriculum separately to those cadets.

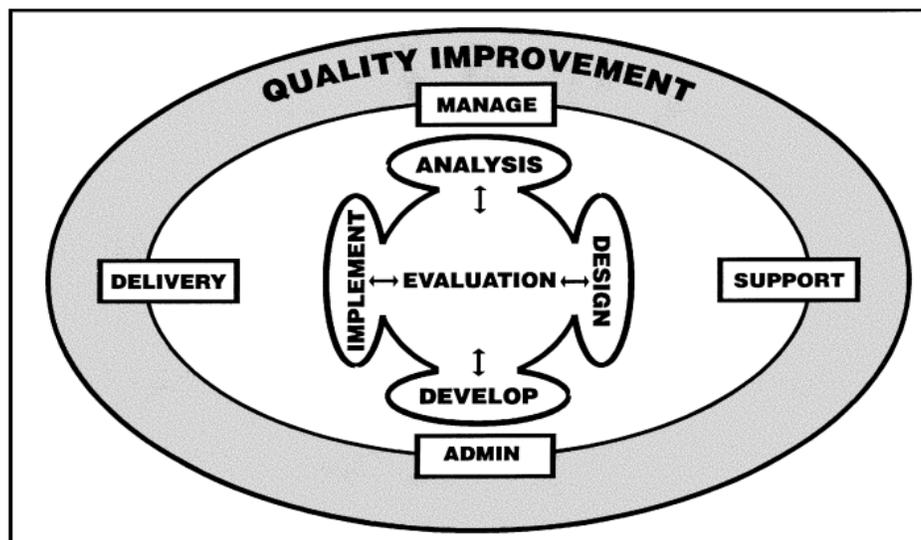
DEVELOPMENT OF THE CURRICULUM

The AFJROTC curriculum is the result of an extensive and continuous review using the Instructional System Development (ISD) process. ISD is a deliberate and orderly, but flexible process for planning, developing, implementing, and managing instructional systems. It ensures that personnel are taught in a cost-efficient way the knowledge, skills, and attitudes (KSAs) essential for successful performance.

Instructional System Development Process

The process involves instructional systems specialists, teachers, leadership, independent researchers, and evaluators from the academic and military environments. The ISD process requires instructional specialists to analyze and determine what instruction is needed, design instruction to meet the need, develop instructional materials to support system requirements, so teachers can implement the instructional system. During the process, evaluation is a central function that takes place in each phase. This model is similar to the ADDIE model: Analyze, Design, Develop, Implement, and Evaluate.

The ISD model represents simplicity and flexibility so instructional system specialists can use it to develop effective, efficient instructional systems. The model depicts the flexibility that instructional developers have to enter or reenter the various stages of the process as necessary. Entry or reentry into a particular stage of the process is determined by the nature and scope of the development, update or revision activity.



Air Force ISD Model

System Functions

The system functions of the ISD model are:

- **Management** - The function of directing, controlling instructional system development and operations.
- **Support** - The function of maintaining all parts of the system.
- **Administration** - The function of day-to-day processing and record keeping.
- **Delivery** - The function of bringing instruction to students.
- **Evaluation** - The function of gathering feedback data through formative, summative, and operational evaluations to assess system and student performance.

Using these essential functions to design the overall instructional system and then allocating them to the respective instructional system components, or people responsible, ensures that these functions are operational when the total training system is used. ISD products are integrated into the total instructional system, and aspects of the instructional system functions are active throughout all phases of the ISD process.

The model shows the phases used in the systems approach, which are analysis, design, development, and implementation, with the evaluation activities integrated into each phase of the process. The phases are embedded within the system functions. Evaluation is shown as the central feedback "network" for the total system.

ISD Phases

The instructional development process enables the collaborators to:

- **Analyze** and determine what instruction is needed.
- **Design** instruction to meet the need.
- **Develop** instructional materials to support system requirements.
- **Implement** the instructional system.

Evaluation is a central function that takes place at every phase.

- **Analysis Phase** – In this first phase, it is determined what students need to know and do to meet course requirements and national, state, and/or district standards as applicable. Course tasks are analyzed and compared with the skills, knowledge, and abilities of the incoming students. Many of the requirements for Junior ROTC were reviewed by the U.S. Congress and specified in General Military Law, USC Title 10, Chapter 102. This law sets the tasks/functions and identifies job components.
- **Design Phase** – Instructional objectives/outcomes and tests are created and the instruction is designed. A detailed plan of instruction is developed and includes selecting the instructional methods and media, and determining the instructional strategies. Existing instructional materials are reviewed during this phase to determine their applicability to the specific instruction under development.

- **Development Phase** - Both the student and instructor lesson materials are developed. These include media such as video segments, interactive courseware (ICW), and training devices.
- **Implementation Phase** - The instructional system has been designed and developed, and it is now time for the actual system to become operational. In this phase, the instructional system is fielded used by the teachers.

Evaluation is a continuous process beginning during the analysis phase and continuing throughout the life cycle of the total instructional system. Evaluation consists of:

- Formative Evaluation consists of process and product evaluations conducted during the analysis and design phases, and validation is conducted during the development phase. Included are individual and small group tryouts.
- Summative Evaluation consists of operational tryouts conducted as the last step of validation in the development phase.
- Operational Evaluation consists of periodic internal and external evaluation of the operational system during the implementation phase.

Each form of evaluation should be used during development, update, and revision of instruction, if possible, and if the form of evaluation is applicable.

Writing Student-Centered Objectives and Tests

When deciding what to teach and how to measure success in the teaching environment, there are many things to determine in the lesson-planning process. These include who our students are, what they will need to know, how we will present the material to them, and what our students will be able to do once they have received and processed the information we present. To do this, it is important to write student-centered objectives and tests that focus on the abilities we want the students to display after having received the instruction. With student-centered objectives and tests, teachers are better able to plan teaching activities designed to efficiently impart and display the knowledge we want the students to learn.

Planning for Student-Centered Outcomes

Since the 1950's, there has been a movement within civilian and military education to promote student-centered instruction through the use of appropriate objectives. As a result, student-centered objectives that describe learning in terms of student outcomes versus instructor inputs have been used for over four generations of education.

With the continued push for accountability in schools, the trend toward student-centered instruction is sure to continue. We have found that this approach is “results driven,” goal oriented, and client centered. It is so much more effective in meeting our educational goals that it is the standard. Moreover, since student learning is defined in terms of objectives, our measurement of success in instructing is now based on comparing student performance to the objectives rather than

on comparing students to each other in a given class. Hence, we have a more accurate, objective, and stable foundation on which to make academic judgments about our students and predictions of their future success.

Domains of Learning and Learning Taxonomies

Learning may be defined as a change in behavior based on instruction. Students should perform differently after receiving instruction. Moreover, if we have used student-centered objectives, that behavior should be what we predicted it would be.

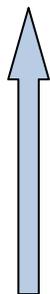
Domains of Learning

Learning takes place within one or more of the domains of learning: the cognitive domain (knowledge/thinking), the affective domain (attitude/feeling), and the psychomotor domain (skills/doing). There are different learning taxonomies—*classification systems*—for each of these domains. Each taxonomy is divided into sub-categories ranging from the simplest to the most complex. These educational taxonomies are used when writing objectives and help instructors classify student-learning outcomes.

The Cognitive Domain Taxonomy by Bloom¹

The cognitive taxonomy of Dr. Benjamin Bloom is used as a frame of reference to plan instruction and to give us a better understanding of the range of possible cognitive learning outcomes. By using this taxonomy, or classification of learning outcomes, we will carefully specify behaviors that will give us reasonable evidence of learning at the various levels of knowledge and understanding.

Cognitive Taxonomy by Bloom



Levels/Categories	Definition
Evaluation	<ul style="list-style-type: none"> Judging the value of material for a given purpose
Synthesis	<ul style="list-style-type: none"> Assembling parts together to form new patterns or structures
Analysis	<ul style="list-style-type: none"> Breaking down material into parts
Application	<ul style="list-style-type: none"> Using learned material in new situations
Comprehension	<ul style="list-style-type: none"> Understanding (translation, interpretation, extrapolation)
Knowledge	<ul style="list-style-type: none"> Remembering/recall of specifics

¹Adapted from Bloom, B.S., (Ed.), Englehart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, D.R. (1956). *Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook I: Cognitive Domain*. New York: Longmans, Green and Company, Inc.

The Revised Bloom's Taxonomy²

The Revised Bloom's provides a more authentic tool for curriculum design, teaching and learning processes, and assessment. It focuses on outcome-based objectives, which forms the basis for content, delivery, activities, and assessments. The categories (levels of learning) changed from nouns to active verbs, since thinking is an active process. In addition, three of the six categories were renamed, and the highest two were rearranged. For example, "knowledge" became "remember" and "comprehension" became "understand." The categories are: remember, understand, apply, analyze, evaluate, and create.

Revised Bloom's Taxonomy

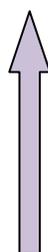
Levels/Categories		Definitions and Cognitive Processes
<i>Original</i>	<i>Revised</i>	
Evaluation	Create	<ul style="list-style-type: none"> Put elements together to form a coherent or functional whole; reorganize elements into a new pattern of structure (generating, planning, producing)
Synthesis	Evaluate	
Analysis	Analyze	<ul style="list-style-type: none"> Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose (differentiating, organizing, attributing)
Application	Apply	<ul style="list-style-type: none"> Carry out or use a procedure in a given situation (executing, implementing)
Comprehension	Understand	<ul style="list-style-type: none"> Construct meaning from instructional messages, including oral, written, and graphic communication (interpreting, exemplifying, classifying, summarizing, inferring, comparing, explaining)
Knowledge	Remember	<ul style="list-style-type: none"> Retrieve relevant knowledge from longterm memory (recognizing, recalling)

²Adapted from Anderson, L.W. & Krathwohl, D.R. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.

The Affective Domain Taxonomy by Krathwohl³

A similar scheme for specifying attitudinal objectives was developed by Dr. David R. Krathwohl. Like the Bloom taxonomy, Krathwohl attempted to arrange attitudinal objectives in an order of difficulty. Behavioral evidence is attached to the various levels of this taxonomy for purposes of measurement.

Affective Taxonomy by Krathwohl



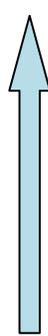
Levels/Categories	Definition
Characterization	<ul style="list-style-type: none">• Incorporates value into life style
Organization	<ul style="list-style-type: none">• Relating to other values
Valuing	<ul style="list-style-type: none">• Acceptance with developing commitment
Responding	<ul style="list-style-type: none">• Willingness to act
Receiving	<ul style="list-style-type: none">• Awareness and attention

³Adapted from Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). *Taxonomy of Educational Objectives, The Classification of Educational Goals. Handbook II: Affective Domain*. New York: David McKay Company, Inc.

The Psychomotor Domain by Simpson⁴

Elizabeth Simpson created the psychomotor domain taxonomy; it includes physical movement, coordination, and the use of motor-skills areas and deals with the development of physical tasks. Students' success in learning is assessed by having them complete an evaluation that demonstrates the same physical or mental skill described in the objective.

Psychomotor Taxonomy by Simpson



Levels/Categories	Definition
Origination	<ul style="list-style-type: none">• Creating new movement patten
Adaptation	<ul style="list-style-type: none">• Modifying motor actions to fit changing situations
Complex Overt Response	<ul style="list-style-type: none">• Performance involves controlled accuracy
Mechanism	<ul style="list-style-type: none">• Actions are habitual and performed with confidence
Guided Response	<ul style="list-style-type: none">• Overt imitation of instructor's actions
Set	<ul style="list-style-type: none">• Readiness to perform motor action
Perception	<ul style="list-style-type: none">• Focuses all senses to guide motor action

⁴Adapted from Simpson, E.J. (1972). *The Classification of Educational Objectives in the Psychomotor Domain: The Psychomotor Domain, Vol. 3*. Washington, DC: Gryphon House.

Develop Lesson Objectives

Lesson Objectives and Indicators/Samples of Behavior

It is usually helpful to plan learning systems with a general-to-specific strategy; that is, by starting with general objectives (referred to as “outcomes” in some environments) and ending with very precise performances. By writing general, carefully developed, non-behavioral objectives or outcomes as the first step in planning, we are better able to describe the general type of behavior to look for from our students. It is very important to decide the level of learning before we attempt to describe its evidence by precise behavior. In each course, the level of learning is illustrated using the verbs from Bloom’s cognitive domain.

After we have carefully communicated the level of learning we want our students to reach, we must decide which student behaviors we will accept as evidence of learning. The more specific samples of behavior (SOB) are observable and measurable behavioral indicators that help us determine if the student has achieved our general learning objective. Because we cannot “see” comprehend, we use samplings of behavioral indicators to measure our instructional success.

We can define a sample of behavior as a statement that specifies one of several measurable, observable, reliable, and verifiable behaviors that students should be able to demonstrate at the end of a period or block of instruction and which gives us significant evidence they have achieved our objectives. These samples begin with an action verb and eventually become the basis for our evaluation, most often in the form of test items.

Certain behavioral verbs lend themselves for use at each level of the taxonomy. However, the same verb may be used at different levels of the taxonomy depending on the context. The verb must reflect an observable behavior and the same level of learning as specified in the objective or outcome. If the sample is written at a higher or lower level, it will invalidate the effort to assess achievement of the objective at the specified level.

Here are some related action verbs based on the “**Revised Bloom’s**” Taxonomy:

Levels of Learning	Related Action Verbs
Remember	Define, describe, find, identify, label, list, locate, match, name, outline, recall, relate, select, state, tell, write
Understand	Compare, contrast, describe, discuss, explain, generalize, give examples, identify, outline, paraphrase, predict, recognize, research, restate, summarize, translate
Apply	Classify, complete, compute, construct, demonstrate, examine, illustrate, manipulate, modify, operate, practice, prepare, sequence, show, solve, use
Analyze	Categorize, characterize, classify, compare, contrast, correlate, debate, determine, differentiate, distinguish, examine, explain, identify, investigate, research, sequence
Evaluate	Appraise, assess, choose, decide, debate, discriminate, judge, justify, rate, recommend, prioritize, score, select, value
Create	Compose, construct, design, develop, formulate, generate, hypothesize, imagine, invent, plan, predict, prepare, produce, set up

Criterion-Referenced Objectives

The criterion-referenced objective (CRO), on the other hand, is found extensively in training environments. In this environment, students are usually learning a task they must perform. The CRO, when written as a performance, condition, and standard, is inherently observable and measurable. Both the indicator/SOB and the CRO are attempting to define the behavior we expect from the student once the instruction is complete. The SOB is taking a cognitive and/or affective outcome and making it observable and measurable while the CRO is defining the expectations of the student while performing a specific task under specified conditions.

The difference between an SOB and a criterion objective is that the CRO is more specific and detailed and usually states the standards and conditions. However, a comprehensively written SOB may contain all the elements of a criterion objective. Also, a simple criterion objective may read like an SOB if either or both of the conditions or standards are assumed. Rather than split hairs about where the SOB leaves off and the criterion objective begins, remember that the SOB generally contains only a statement of performance. The criterion objective generally goes into more detail by adding standards and conditions to the performance statements.

The essential elements of a criterion objective include:

- **Conditions:** A description of the testing environment including those problems, materials, and supplies that will be given (included) or specifically excluded from a measurement situation.
- **Performance:** The observable student behavior (or the product of that behavior) acceptable to the instructor as proof that learning has occurred.
- **Standards:** The qualitative and quantitative criteria against which student performance or the product of that performance will be measured to determine successful learning.

A Comparison of Indicators/Samples of Behavior and Criterion Objectives:

Illustrative Samples of Behavior	–	Interpreted as a Criterion Objective
1. Define...(insert term)		Without the use of references, define...according to AFM xx-xxx. (remember)
2. Give an example of...(insert concept)		Given the concept of...as developed in class, give new examples of (insert concept) consistent with its attributes. (understand)
3. Prepare a position paper on... (insert subject)		Using resources, local experts, and a topic assigned from the area of..., prepare a position paper which meets the content and format standards provided in class and in the assigned text. (apply)

Develop Criterion Tests

The lesson-planning process concludes with the construction of test items and tests to measure learning. At this point, we construct test items from indicators or samples of behavior to measure our objectives. These test items are one method we use to gather evidence that students have learned what we intended them to learn. Test items are written prior to instruction because we will use these requirements to determine what needs to be taught. The support material in the lesson should enable the student to perform the indicators or samples of behavior.

The practice of measuring the achievement of stated objectives—known as criterion-referenced testing—is a rigorous process, and used to assess student-centered objectives. The following provides an example of the process for writing student-centered test items.

- 1. Determine the Lesson Objective:** Know the meaning of leadership.
- 2. List the Sample/Indicator of Behavior:** Identify the definition of leadership.
- 3. Develop Criterion-Referenced Test Item:** Leadership is defined as:
 - a. The willingness to exercise management control over subordinates.
 - b. The ability to lead a group in a working environment.
 - c. The process of inspiring effective individual effort in a group environment toward achieving an objective.
 - d. Planning, organizing, staffing, directing, and controlling the capital, material, and human resources of an organization.

Types of Test Items

Written tests are the most frequently used means of measuring how well students achieve learning objectives. Here are some suggestions for preparing test items:

1. Keep the wording simple and direct.
2. Avoid tricky or leading questions.
3. Keep all items independent of other items on the test.
4. Crucial words or phrases in the stem should be underlined, capitalized, italicized, or otherwise highlighted. If possible, avoid negatives because they are often missed.
5. Include sketches, diagrams, or pictures when these will present information to the student more clearly than words.

Selection Test Items

Selection test items require students to select the correct response from a list of responses. Multiple-choice, true-false, and matching are examples of selection items.

Advantages:

1. Since students only have to identify the correct answer, two or more people can score selection items without letting personal bias or opinions affect the result.
2. Selection items take comparatively little time to answer. Students only have to read the item and choose between the responses provided rather than write out their answers.
3. Selection items can be readily analyzed statistically. Since answers to selection items are either right or wrong, statistical analysis is relatively easy.

Disadvantage:

A distinct disadvantage of selection test questions is the possibility of successful guessing. Students have a 50% chance of correctly answering true-false items and about a 25 to 33% chance (depending on the number of choices) of answering multiple-choice items correctly.

Multiple-Choice Items. The multiple-choice item can be used to measure student achievement and works equally well when a test problem has one correct answer or one best answer from an assortment of plausible answers. Certain standard terms are used in the construction of multiple-choice items. The preliminary sentence that poses the question or states the situation is known as the “stem.” Possible answers that can be selected by the students are known as “alternatives.” The correct answer is the “keyed response,” and incorrect answers are called “distracters.” Distracters are designed to attract less-informed students away from the correct answer.

Tips for Preparing the Stem of a Multiple-Choice Item:

1. Write the stem so it clearly represents the central problem or idea. The function of the stem is to set the stage for alternatives.
2. Only place the material in the stem relevant to the idea or to the solution of the problem unless selection of relevant material is part of the problem.
3. Make sure the stem does not reveal the correct response. Avoid clue words or phrases.
4. Include language in the stem common to all alternatives to avoid repetitious wording and to save reading time for the student.
5. Avoid any wording unnecessary to answer the question.
6. Avoid negative statements whenever possible because they often confuse the student.
7. Exercise caution when using the articles “a” or “an” at the end of the stem. These articles may reveal the correct response if all alternatives do not conform grammatically to the stem

Tips for Preparing the Alternatives of a Multiple-Choice Item:

1. Avoid clue words such words as “all,” “always,” “never,” “usually,” and “sometimes.”
2. Make sure all alternatives are approximately the same length; longer statements in the correct alternatives may be a clue to the correct answer.
3. When alternatives are numbers, list them in ascending or descending order.
4. Make all alternatives plausible.
5. Place correct alternatives in random positions throughout the total test.
6. Avoid using the alternative “all of the above” and/or “none of the above.” If you must use them, be extremely cautious.

True-False Items. The true-false test items are useful in testing knowledge of facts, especially when there is little question whether a statement about a fact is either right or wrong. True-False items may also be used to determine the persistence of popular misconceptions when the suggestion of a correct response in a multiple-choice item would be too obvious. The chief disadvantage of the true-false item is that the possibility of correct guessing, particularly in simple items, is greater than in any other type of selection test item.

Tips for Preparing True-False Items:

1. Do not make part of a statement true and another part false.
2. Avoid the use of negatives. They confuse the reader.
3. Avoid involved statements. Keep wording and sentence structure as simple as possible. Make statements clear and definite.
4. Whenever possible, use terms that mean the same thing to all students and write short, simple statements.
5. As a rule, avoid absolutes, such as “all,” “every,” “only,” “no,” and “never.” Similarly, avoid statements containing “some,” “any,” and “generally.”
6. Avoid patterns in the sequence of responses because students can often identify sequence patterns.
7. Make statements brief and uniform rather than writing true statements longer than false statements.

Matching Items. The matching test item, with several variations, presents many of the advantages of the multiple-choice item. It is particularly useful in measuring understanding of closely related concepts or facts. The matching item is actually a collection of related multiple-choice items. Thus, the matching format provides a more compact form for measuring the same learning and can allow the more efficient use of testing time.

Tips for Preparing Matching Items:

1. Give specific and complete instructions. Do not make students guess what is expected of them.
2. Test only essential information; never test for unimportant details.
3. Use closely related materials throughout an item. When students can divide the set of alternatives into distinct groups, the item is reduced to several multiple-choice test items with just a few alternatives. This increases the possibility of guessing the correct answer.
4. To minimize guessing by elimination, make all alternatives plausible.
5. Arrange the alternatives in some logical order. An alphabetical arrangement is common.
6. If alternatives are not to be used more than once, provide three or four extra to reduce guessing.

Supply Test Items/Open Ended

A supply test item requires students to furnish their own answers. They are not given alternative responses from which to choose. The basic forms of supply questions are completion, short answer, and essay. Supply test items are mechanically easier to construct than selection items but far more difficult to evaluate.

Advantages:

1. When the ability to express ideas or original thinking is to be measured, supply items have a distinct advantage over selection items. The ability to solve problems and to think creatively is seldom worthwhile end products in themselves; it is usually necessary to communicate the solutions or ideas to others, frequently in writing.
2. When developing the ability to write clearly is a legitimate course objective, supply items may be used effectively. Test items that call for a written discussion, such as the essay form, also give students an opportunity to express themselves—something students often like to do.

Disadvantages:

1. Constructing a supply item for which several equally competent instructors can give comparable scores is difficult. This difficulty in attaining objectivity often leads to reduced test reliability. The supply item requires considerably more time to score than a selection item.
2. Another disadvantage of the supply item stems from the ability of students to think and read more rapidly than they write.

Completion Items and Fill-in-the-Blank Items. Completion items and fill-in-the-blank items require the student to provide one or more words omitted from a statement. The student must supply at least part of the idea expressed in the statement. When the correct word or words are supplied in the proper blank, the statement is complete and true. This virtually eliminates the

possibility of guessing and it is a timesaving device in comparison with the essay test. The completion and fill-in-the-blank items can be used in testing student ability to make verbal associations of the who, what, when, where, and why types. When possible, use completion and essay items to measure such student behaviors as explain, define, and describe.

Tips for Preparing Completion Items and Fill-in-the-Blank Items:

1. Construct a completion item so it contains only one blank in each sentence.
2. Write the statement so that the blank appears at or near the end of the item.
3. Be sure there is only one correct or best response for each blank.
4. When testing comprehension and higher levels of learning, write word completion statements so they differ from the way they were worded in texts or lectures
5. Make all blanks uniform in length and indicate whether a single blank always requires one word or whether short phrases may sometimes be supplied.
6. For convenience and accuracy in scoring, include a separate series of blanks arranged in a vertical column on the test page.

Short-Answer Items. In general, the short-answer item, as a type of supply test item includes features of both the completion and the essay item. It may be used in measuring the ability to recall facts, basic concepts, and principles.

Tips for Preparing Short-Answer Items:

1. Be specific. The student should know exactly what is expected.
2. Be sure each required answer involves a simple idea, concept, or fact.
3. Be sure students know how complete to make their responses.

Essay Items. The essay test items should be used only when students are required to think reflectively or creatively, to organize knowledge in the solution of a problem, and to express their solution in writing.

Tips for Preparing Essay Items:

1. Generally, use essay items to measure achievement at the comprehension or higher level of learning.
2. State the items clearly so students will know exactly what type of discussion is required and mean essentially the same thing to all students who have achieved the desired level of learning. Revise or eliminate all items with a double meaning.
3. Whenever possible, increase the number of test items and reduce the amount of discussion required for each.
4. Suggest a time limit for each item. Indicate the desired length of response, or otherwise limit responses.
5. As part of the instructions to students, explain how each item affects the final score of the overall test and the possibilities of partial credit for each item.
6. Avoid making the answer to a first item the basis for a second item.

STRUCTURE OF THE CURRICULUM

The AFJROTC curriculum consists of textbooks and Instructor Guides with the lesson content and materials necessary to teach the courses. Over the past 10 years, the curriculum has transformed from a 20th century “teacher-centered” traditional learning environment and lecture mode to a “learner-centered” 21st century approach. The transformation started with the creation of state-of-the-art textbooks and alignment to national educational standards. Then in 2008, 21st century teaching and learning was infused into the lesson plans and other curriculum materials. The curriculum has evolved into engaging, student-centered courses capable of satisfying elective—*and in certain situations*—core credit requirements.

The Structure of the Courses

The basic structure of the courses depends on when each course was created. Courses created through 2008 were written in the original 20th century teacher-centered format, courses created in 2010 and 2011 were transformed into the 21st century learner-centered format, and courses created 2012 and later incorporate the Revised Bloom’s and Worldwide Instructional Design System (WIDS[®]) format.

- Original Format, Teacher-Centered (Publication Dates: Through 2008): AS 100, LE 100 (2005), 200, 400
- 21st Century Format, Learner-Centered (Publication Dates: 2010 thru present): Culture, Space, Science of Flight, New LE 100, and LE 300

X = yes

AFJROTC Courses	Pub Date	Work-book Files	LP Format	Test Bank Files
AS 100: A Journey Into Aviation History	2007	X	20 th	X
AS 200: The Science of Flight: A Gateway to New Horizons	2012		+♦21 st	X
AS 220: Cultural Studies: An Introduction to Global Awareness	2010		♦21 st	X
AS 300: Exploring Space: The High Frontier	2010/11		♦21 st	X
LE 100: Citizenship, Character, & Air Force Tradition	2005	X	20 th	
LE 200: Communication, Awareness, and Leadership	2006	X	20 th	
LE 300: Life Skills and Career Opportunities	2013		+♦21 st	X
LE 400: Principles of Management	2008	X	20 th	X

+ – Incorporated WIDS into the Part I

♦ – CPS Database with Questions Embedded in the LPs

Textbooks

In 2003, the Curriculum Directorate began collaborating with commercial publishers to create the first commercially produced course, *Aerospace Science: The Exploration of Space*. The new textbook design incorporated richer content, vivid color pages and covers, and high impact graphics to motivate the students to read, study, and learn. It also added a CD with the electronic PDF files bound to the back of the textbook. This format became the basic design for future innovative, full-color textbooks.

The collaboration process continued, and in 2005 the first of the leadership education series—*Leadership Education I: Citizenship, Character, and Air Force Tradition*—was produced. Enhancements to the new LE textbook included using the new design, improving the readability, expanding on the “Checkpoints” review and questions, and adding a “Quick Write” feature—reading comprehension and writing activities utilizing critical thinking skills. The last textbook to be updated to this new format was in 2012—*The Science of Flight: A Gateway to New Horizons*.

Instructor Guides and Lesson Plans

The Instructor Guides contain lesson plans and supplemental materials. Course objectives lay the foundation for the courses, and lesson objectives and samples of behavior identify desired outcomes. The format of the lesson plan is based on the Air Force model in the Guidebook for Air Force Instructors. Part I of the lesson plan includes the material covered and what teachers and students should do to prepare for the lesson and Part II contains the content of the lesson with embedded images of PowerPoint slides. The Part II is followed by the textbook review questions and answers. A typical Instructor Guide includes:

- Lesson plans with PowerPoint slides,
- National Standards and objectives,
- Activities, student handouts, and projects,
- Test bank files and answer keys in Word,
- *Classroom Performance System* (CPS) files and databank: lesson questions, vocabulary questions, PPT slides, and test questions (2010 and later), and
- CD or DVD with these electronic files.

NOTE: Detailed information for conducting each course is in the Preface of the applicable Instructor Guide.

Student Workbooks

Student workbooks were created for courses through 2008. The workbooks contained “test-type” items to include multiple choice, short answer, matching, true/false, fill-in-blank, and list or describe. The last workbook produced was for the new *Leadership Education 400: Principles of Management*, published in 2008. Later that year, due to budgetary restrictions, workbooks were eliminated. However, in an effort to provide “workbook-type items,” enhanced test banks were created beginning in 2010 with the publication of the new Culture course.

Though workbooks are no longer procured, if they are still in stock they may be ordered via WINGS Logistics until inventory is exhausted in the Holm Center warehouse. When a particular workbook is depleted, it is taken off the curriculum order form. Electronic versions of workbooks for the courses will remain available on the Instructor Guide CD and/or on WINGS | Menu | Published Files | Directory | JROTC | Curriculum.

Test Banks

Starting in 2007 test banks were provided for the courses, first with *Aerospace Science: A Journey Into Aviation History* (2007) and then *Leadership Education 400: Principles of Management* (2008). Test banks and answer keys were created for each lesson in Word and placed on the Instructor Guide CD.

The subsequent courses published 2010 and later were designed with enhanced test banks with student workbook type items. Each lesson contains test bank files with approximately 40 test items correlated to objectives/samples-of-behavior. These items include multiple choice, short answer, matching, fill-in-the-blank, true/false, list or describe, and an occasional case study. If desired, these can also be used as “student workbook” type items for homework or quizzes.

21st Century Teaching and Learning

In 2008, Curriculum’s journey continued with the transformation of the Instructor Guides and lesson plans and the implementation of the *Classroom Performance System* (CPS) student response system by *eInstruction*. 21st Century teaching and learning was infused—it utilizes a “learner-centered” approach to engage students while preparing them to live and work in a global society. In addition, the “Framework for 21st Century Learning” model created by the Partnership for 21st Century Skills was adopted. It includes 21st century skills, methods, strategies, tools, standards, and assessments. This was the first major update to the lesson plans in more than four decades.

21st Century Skills were integrated throughout the courses. They are:

- Learning and innovation skills—critical thinking and problem solving, communication and collaboration, and creativity and innovation;
- Information, media, and technology skills—information literacy, media literacy, and ICT (information, communications, and technology) literacy; and
- Life and career skills—flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

The major changes to the lesson plan format included:

- Changed the lesson time from 50 minutes to 1 hour 30 min
- Integrated the national standards directly into lesson plans and created correlations
- Decreased amount of “lecture” time—changed to a “mini-lecture” of approximately 15 minutes to lay the lesson foundation
- Incorporated formative and summative assessments throughout
- Created CPS questions and embedded them in the lessons; also added vocabulary questions

- Included four focused learner-centered activities per lesson including technology enrichment
- Added student worksheets and answer keys where applicable
- Created one main project per chapter using “project-based learning” and “assessment”
- Include 21st teaching and learning and 21st century skills

Revised Bloom’s and the New Hybrid Lesson Plan Format

Additionally, in 2012 further enhancements were made to the curriculum. The Revised Bloom’s Taxonomy and Worldwide Instructional Design System (WIDS®) model were incorporated into the courses, beginning with the new Science of Flight course. The WIDS model utilizes Gardner’s Multiple Intelligences, and activities were integrated into the body of the lesson plan. (For more information on Gardner’s Multiple Intelligences, refer to the distance learning courses provided by HQ AFJROTC Instructor Management Division). The combination of the Revised Bloom’s Taxonomy, WIDS model, and AF format results in a hybrid lesson plan producing outcomes-based curriculum. These updates built on the 21st century teaching and learning design features introduced in the new cultural studies and exploring space courses.

The new design includes course outcomes, learning outcomes, and learning objectives.

“Course Outcomes” replace course objectives:

- Describe what you want your learners to be able to “do” with what they “know”
- Are measureable and observable through performance assessments
- Start with a single cognitive domain verb at a higher level of learning using “Revised Bloom’s Taxonomy” (Remember, Understand, Apply, Analyze, Evaluate, and Create)

“Learning Outcomes” indicate desired lesson outcome:

- This is “what” students should learn to do by the end of each lesson
- Identifies the major skill or knowledge targeted in each lesson
- Indicates a single outcome per lesson

“Learning Objectives” replace lesson objectives and samples of behavior:

- Serve as the benchmarks for learning
- Learning activities support learning objectives; provide opportunities to “learn the outcome”
- Multiple learning objectives for each lesson

“Project-Based Learning and Assessments”:

- Knowledge is taken into account, but the primary evidence is performance
- Performance assessment task includes performance standards, performance condition, and criterion, and defines when proficient

National Standards and Standards-Based Curriculum

In 2003, the courses were correlated to national standards using the Mid-Continent Research for Educational and Learning (McREL) standards. This “Standards and Benchmark Review” correlation of the curriculum was performed by Troy University in Montgomery Alabama; the only course not included was Survival.

Beginning in 2006 as the courses were revised, the national standards were added into the course materials—in the textbooks for courses published through 2008, then in the Instructor Guide for publications 2010 and later. In addition to the McREL standards, the other national standards alignments include the:

- *National Science Education Standards (NSES),*
- *Math Standards and Expectations,*
- *National Council for the Social Studies (NCSS),*
- *Geography for Life – National Geography Standards,* and the
- *ISTE National Educational Technology Standards for Students (NETS•S).*

The correlations and alignments provide the foundation for standards-based curriculum and should assist you in meeting your district and state requirements.

Formative and Summative Assessments

The lessons incorporate rigorous formative and summative assessments that focus on standards-based student-centered activities and projects. There are individual, group, and class activities and technology enrichment based on the objectives; readings; writing and reflection; review questions; video segments; and assessments to guide in the reinforcement of the materials. In many instances, the teacher acts as a facilitator. The technology enrichment activities also go beyond the basic fact-finding to enable the students to apply, analyze, and/or evaluate what they’ve discovered through their web-based research.

The activities and projects are designed to facilitate higher-order thinking skills and actively engage students while bringing the courses into the 21st century. Most of the activities and projects enable the students to attain at least the comprehension level, and many of them go beyond to the application and higher levels.

The formative assessments include the “Checkpoints” Review questions in the textbook at the end of each lesson; CPS lesson learning check, review, and vocabulary questions; and activities with individual and collaborative group work. Summative assessments consist of the test bank items with student workbook-type questions, and projects with rubrics.

Each unit or chapter culminates with a capstone project using project-based learning (PBL) and assessment. The PBLs involve a project or problem incorporating real-world problems. Students work in collaborative groups to solve problems or create projects using authentic tasks; the projects embrace 21st century skills. There are also detailed project rubrics for research and writing, group work, and project presentations.

Assessments are linked to the course objectives/outcomes and the lesson objectives. This alignment illustrates the correlation:

Course Outcome: Analyze how economic, political, and social factors impact cultures.

Learning (lesson) Outcome: Describe the economic and social issues in Asia.

Learning Objective: Describe the environmental impact of industrialization without regulatory standards in China.

Lesson Activity: Conduct research and deliver a presentation on an assigned economic or social issue.

Test question: What is the most significant environmental problem facing China today?

Chapter Project: As a group, present a newscast on issues and/or topics facing Asia. Investigate the issues/topics and examine the impact of events.

Alignment of Course Outcomes Through Course Assessments

The Classroom Performance System

The *Classroom Performance System (CPS)* by *eInstruction* is an interactive, student response system that infuses technology into the classroom. CPS allows instructors to actively engage and involve the students throughout the entire class. The CPS provides a fun, interactive way for the students to learn the materials being taught in addition to allowing you to monitor students' success at answering questions and understanding the lessons. It will equip you with major tools to create a technology-rich classroom supporting 21st century teaching and learning.

CPS was obtained and implemented in 2008 for AFJROTC units worldwide. Through collaboration with *eInstruction*, the "Question Bank for Classroom Performance System (CPS) 1 Dec 08" database and CD was created and included courses published through 2008; the CPS files consist of lesson questions, vocabulary, and PPTs; and also test questions for the aviation history and principles of management courses (see information in "Test Banks). The files also include Survival and Drill and Ceremonies; however, survival includes lesson questions and vocabulary only since no slides were available in 2008. Courses published in 2010 and later have the CPS embedded in the lesson plans (e.g., lesson questions) and have a separate CPS database with all the course files on their Instructor Guide CD or DVD.

Companion Websites

In 2012 the first-ever companion website for an AFJROTC course was created —*The Science of Flight: A Gateway to New Horizons*. The first leadership course to receive this exciting enhancement is the new *Leadership Education 300: Life Skills and Career Opportunities*. These innovative, engaging educational tools offer online resources to support classroom education. The websites are designed to provide students with study aids to help them master the material in the textbook, prepare for upcoming classes, expand the scope of the textbook, and grant them access to student resources and up-to-date information. Additional web links and resources are available for teachers only. Student resources include items such as crossword puzzles, interactive glossaries, interactive flashcards, checkpoints lesson reviews, quizzes, and web links.

Since not all students have access to the internet for online learning or homework assignments, here are some ideas on how you can incorporate this technology into your classrooms.

- If you have a computer with Internet capability in your classroom, access the companion website and display the resource/activity from the computer onto your large screen or board
- Allow the students to complete the activity individually or as a group
- Conduct the activity as a team event
- Print out a hard copy and use as a review or class quiz

The screenshot shows the homepage of the companion website. The header has a dark blue background with the title 'THE SCIENCE OF FLIGHT' in large, gold, serif font, and the subtitle 'A Gateway to NEW HORIZONS' in a smaller, white, sans-serif font. Below the header is a navigation menu with blue buttons for 'Home', 'Student Resources', 'Crossword Puzzles', 'Interactive Glossary', 'Interactive Flashcards', 'Checkpoints Lesson Reviews', 'Quizzes', 'Web Links', 'Teacher Resources', and 'Additional Teacher Resources'. The main content area is white with a blue border. It features a 'Returning Users' login box with fields for 'LOGIN NAME' and 'PASSWORD', and a 'Submit' button. Below the login box, there is a section for 'Student Resources' with sub-sections for 'Crossword Puzzles', 'Interactive Glossary', 'Interactive Flashcards', 'Checkpoints Lesson Reviews', and 'Quizzes'. Each sub-section has a brief description of the resource. There is also a 'Teacher Resources' section with a sub-section for 'Additional Teacher Resources'. The footer includes the Jones & Bartlett Learning logo and copyright information: '© Copyright 2013 Jones and Bartlett Learning, LLC | Contact Technical Support'.

Final things to note:

- Read the Instructor Guide Preface for important information about the courses
- Review the new Culture, Space, Science, and LE 300 courses to give you ideas on how to incorporate 21st century activities and projects into the “original” formatted courses
- Review the DL courses provided by HQ AFJROTC Instructor Management Division for information on Gardner’s Multiple Intelligences
- Access WINGS to review the Curriculum folders: WINGS | Menu | Published Files | Directory | JROTC | Curriculum

IMPLEMENTING THE CURRICULUM

In the Classroom

The following section addresses areas of interest to new instructors in AFJROTC. It briefly discusses selected aspects of teaching.

Here are some suggestions to be the best instructor possible and have students learn what is expected of them through the AFJROTC curriculum in the most effective way, as well as make the job of teaching easier and more enjoyable:

1. **Knowledge of Content.** *Know what to teach (the subject), in what amounts, in what sequences, at what rates, with what expectancies and standards of achievement.*
2. **Use of Materials.** *Use all appropriate facilities and services provided by the Air Force, the school, and the community.*
3. **Human Relations.** *Relate to the students with respect to their background, goals, readiness, aptitude, intelligence, and adjustment problems.*
4. **Classroom Management.** *Understand the learning process and the adolescent you are teaching.*
5. **Planning.** *Select and prepare instructional materials and equipment. Plan and direct cadet activities to ensure appropriate motivation, control, and educational experiences.*
6. **Assessment.** *Assess and evaluate student achievement.*

Teaching Methods

Good teaching methods aid learning. The instructor should choose a teaching method (also called instructional method and/or strategy)—not in terms of instructor activities—but in terms of the students’ activities as a learner. In making this decision, the instructor considers the ways people learn—by doing, discussing, listening, observing, and participating. The instructor’s role is to select an organized set of activities that will result in meaningful, learning experiences for the students.

Because no one particular method is suitable for all teaching situations, examples of many methods are covered here. To determine an appropriate method, if the desired outcome is knowledge, students should probably observe and listen so they can relate what is seen and heard to their own experiences. If students must learn to apply a principle, the instructor might ask them to solve a problem or perform some task requiring an application of that principle. If students are to gain skill in performing a certain task, one of their activities should be to practice performing the task. The individual methods are grouped into three broad major categories—presentational methods, student verbal interaction methods, and application methods.

Presentation Methods
Informal lecture, briefing, guest lecturer, dialogue, teaching interview, panel, skits, coaching, tutoring, reading, programmed instruction , modular instruction, computer-assisted instruction, mediated instruction
Student Verbal Interaction Methods
Socratic method, student query, guided discussion, free discussion
Application Methods
Individual Projects, field trips, case studies, and experiential learning <ul style="list-style-type: none">• Experiential learning activities include real-life simulations, role playing, in-basket exercises, organizational or management games, and flight simulators.

Presentational methods provide situations in which the skill or material to be learned is in some way presented to or demonstrated for the learner. In some presentational methods there is little, if any, activity or interaction required of students other than their attention and desire to learn. In other instances, there is considerable student activity involved. What distinguishes these methods from the other categories is that students begin the learning experience with little or no previous exposure to the material or skills to be learned.

Student verbal interaction methods present situations in which students interact verbally with an instructor, group leader, or with each other. Learning is enhanced as students deal with the material as a group. These methods presuppose a certain amount of previous preparation by the students.

Application methods provide learners with opportunities to apply previously learned material in situations calling for the practical use of the material. Some application methods require students to relate material already learned to new experiences and mentally recognize how the material applies; that is, to transfer concepts to new situations. Other application methods require students to apply previously learned materials to new situations for the purpose of making decisions or solving problems.

The following provides a brief description of the most commonly used methods in the AFJROTC courses:

1. **Lecture Method.** The teaching lecture is a formal or informal presentation of information, concepts, or principles by a single individual. The formal lecture is usually given to large groups of people (more than 100) with no active participation by the students. The learning experience is essentially passive. In the informal lecture, the size of the group is usually smaller than the formal lecture and student participation develops when the instructor questions the students or they question the instructor on points presented
2. **Questioning Method.** Questioning as a method is used to emphasize a point, stimulate thinking, keep students alert, check understanding, review material, and seek clarification
3. **Non-Directed Discussion Method.** Non-directed discussion is a group interactive process in which task or objective-related information and experiences are evoked from the student. The instructor normally plays a very limited or passive role.
4. **Guided Discussion Method.**

The guided discussion is an instructor-controlled, interactive process of sharing information and experiences related to achieving an educational objective. The difference between non-directed discussion and guided discussion is the instructor's active involvement in asking questions and summarizing the concepts and principles learned.

The instructor interacts with the group as a whole through questions, but tries not to dominate the discussion through the use of lead-off questions, follow-up questions, and anticipated responses. Students are encouraged to learn about a subject by actively sharing ideas, knowledge, and opinions. The flow of communication is a transaction among all the students rather than question and response between individual students and the instructor. The method employs the general-to-specific presentation to help students form generalizations.

5. **Teaching Interview.** The instructor questions a visiting expert and follows a highly structured plan that leads to educational objectives. The advantage of the teaching interview over the guest lecture is that the instructor controls the expert's presentation. The expert normally requires little or no advance preparation, but responds extemporaneously from general experience. When a question-and-answer period follows the interview, students can interact with the expert.

6. **Case Studies.**

The case study is a learning experience in which students encounter a real-life situation in order to achieve some educational objective. By studying realistic cases in the classroom, students develop new insights into the solution of specific on-the-job problems and also acquire knowledge of the latest concepts and principles used in problem solving.

Case studies designed to reach the levels of apply, analyze, evaluate, and/or create are within the scope of the term Application Method. However, case studies designed to reach only the level of understand may be defined better as a Student Verbal Interactive Method. The complexity of the case, the level of the objective, and how the case is conducted will have a major impact on whether it is one or the other.

7. **Demonstration-Performance Method.** The demonstration-performance is the presentation or portrayal of a sequence of events to show a procedure, technique, or operation, frequently combining oral explanation with the operation or handling of systems, equipment, or material. This method is the most commonly used small group learning experience in a classroom or laboratory (which requires significant instructor intervention) to develop learner skills in the operation of equipment or the acquisition of mental skills.

8. **Experiential Learning.** The experiential method of learning centers on the students participating in structured learning activities that focus on a specific learning objective. Ideally, the activity has a direct real-world relevancy.

Teaching Methods Used in Courses

Here are the various methods, tools, and activities used in the courses. They include the original methods identified in the *Guidebook for Air Force Instructors*, and the 21st century learner-centered approaches. In the learner-centered (experiential) methods, the teacher is a facilitator/guide.

Original Teacher-Centered (The teacher directs the learning process)	Original Learner-Centered (Focuses on student interaction and activity)
<ul style="list-style-type: none"> • Informal lecture • Class Discussion • Guided Discussion • Teaching Interview • Demonstration • Reading 	<ul style="list-style-type: none"> • Small Group Discussion • Case Study • Role Playing • Brainstorming • Performance • Field Trip • Simulations
21st Century Learner-Centered	
<ul style="list-style-type: none"> • Discovery Learning: inquiry-based learning method • Inquiry Learning: Problem-Based Learning, WebQuests • Cooperative Learning: students work in small groups to solve a problem or complete a task • Project-Based Learning or Problem-Based Learning (PBL): incorporates real-world situations or problems using authentic tasks; students work in collaborative groups to create projects utilizing 21st century skills such as critical thinking, communication, collaboration, and problem solving • Digital Storytelling • Graphic Organizer: strategy/tool • Virtual Field Trip 	
Methods Identified in Lesson Plans	
<ul style="list-style-type: none"> • Informal Lecture with Discussion • Individual Writing and Reflection • Individual and Group Activities • Class/Small Group Discussion 	<ul style="list-style-type: none"> • Internet Research • Reading • Chapter Project
Tools and Activities	
<ul style="list-style-type: none"> • Journal/Blog: method of communication • K-W-L Chart: tool • Crossword Puzzle: tool/activity • Outline Map: activity • Worksheet/chart and surveys 	<ul style="list-style-type: none"> • Podcasting: activity • Rubrics: tools • CPS by <i>eInstruction</i> • Technology Enrichment • Academic Challenge (CPS team activities/games)

Curriculum Models

Each academic course must consist of Aerospace Science (AS), Leadership Education (LE), and Wellness components, except in the case of core or state mandated courses. All courses must consist of a *minimum* of 120 contact hours (contact time). As described in the Curriculum Guidance section, courses awarding “elective” credit use a 40%-40%-20% Curriculum Model. Units that award “core” credit use a 60%-40% model. In both models, the Drill and Ceremonies portion of Leadership Education must not exceed 50% of the LE component. You will develop these courses in WINGS | Unit Management | Define Unit Courses.

The Standard Curriculum Model (40%-40%-20%)

Units that teach the course for elective credit use this model. The contact time focuses on 40% AS material, 40% LE (includes 20% of LE 100, 200, 300, or 400 and 20% LE 500: Drill and Ceremonies), and 20% on Wellness/PT. Recommended contact hours (contact time) for elective credit classes are:

<u>Aerospace Science</u>	<u>Hours</u>	<u>Leadership Education</u>	<u>Hours</u>
AS 100: A Journey Into Aviation History	72	LE 100: Citizenship, Character, and Air Force Tradition	36
AS 200: The Science of Flight: A Gateway to New Horizons	72	LE 200: Communication, Awareness, and Leadership	36
AS 220: Cultural Studies: An Introduction to Global Awareness	72	LE 300: Life Skills and Career Opportunities	36
AS 300: Exploring Space: The High Frontier	72	LE 400: Principles of Management	36
AS 400: Management of the Cadet Corps	72		
AS 410: Survival	72	LE 500: Drill and Ceremonies	36
AS 500: Aviation Honors Ground School	72	<u>Wellness</u>	36

The “Core” Credit Curriculum Model (60%-40%)

In schools where core or specific state required credit is awarded, 60% of available contact time is to be spent teaching AS material and 40% on LE (or 60% on LE and 40% on AS, depending upon which component justifies the core or locally required credit). Instructors including state/district mandated material in order to receive core credit must include this material when defining the unit course in WINGS. Recommended contact hours (contact time) for core or state required credit classes are:

<u>Aerospace Science</u>	<u>Hours</u>	<u>Leadership Education</u>	<u>Hours</u>
AS 100: A Journey Into Aviation History	108	LE 100: Citizenship, Character, and Air Force Tradition	36
AS 200: The Science of Flight: A Gateway to New Horizons	108	LE 200: Communication, Awareness, and Leadership	36
AS 220: Cultural Studies: An Introduction to Global Awareness	108	LE 300: Life Skills and Career Opportunities	36
AS 300: Exploring Space: The High Frontier	108	LE 400: Principles of Management	36
AS 400: Management of the Cadet Corps	108	LE 500: Drill and Ceremonies	36
AS 410: Survival: Survive • Return	108		
AS 500: Aviation Honors Ground School	108		

Four-Year Curriculum Plan

Each unit must develop and have on file a current and complete four-year curriculum plan that describes courses to be taught term-by-term (block) or year-by-year (traditional or trimester) and includes the specifics for conducting the courses. A “term” is defined as a period of time for which a course receives a year’s worth of credit on a transcript. In addition to the courses being taught for the current year, the plan should include those courses forecasted to be taught for the following three years and include the course name and number that corresponds to the school-published course directory. As a minimum, the plan should also contain resources used, class sizes, grades of cadets in each course, explanations and descriptions regarding any course blending, and grading policy.

The curriculum plan reveals how the unit ensures a student does not repeat the same course content over the period of their enrollment in AFJROTC. **Cadets are not allowed to take the same course twice.** The curriculum plan will be reviewed by Regional Directors during their visits to ensure instruction is proceeding as planned and that the unit is not deviating from the intent of the AFJROTC curriculum program. The basic layout of “Sample” templates for Traditional School, Block School, and Trimester School Curriculum Planning are shown on the following pages.

Each of the following “sample” curriculum plan templates show an outline of what courses or parts thereof are to be taught, by cadet year: a year-by-year (traditional), term-by-term (block), or trimester. Scanning down a column will show how many and which AS and LE courses are being taught during a particular term or year. Scanning diagonally downward and to the right will show a particular student’s progress through four different sets of AFJROTC courses.

Use the sample templates provided to create your own plans. Replicate the applicable template and fill in the planned courses in the appropriate columns for each cadet year group. Next, describe the resources, blending plans, class sizes, and cadets to be taught. *This curriculum planning format is not required*, but is provided simply to illustrate an example of an acceptable plan. As long as the plan devised by a unit meets the requirements stipulated or if the unit obtains a waiver from CR, the exact curriculum planning format used is not important.

The following applies to all templates:

1. Holm Center-provided materials must be used for all courses listed.
2. CR-provided curriculum is the predominate courseware used to teach each class. (Otherwise a waiver letter must be on file)
3. Authorized supplemental material includes any CR-provided supporting materials or related outside videos, news articles, exercises, games, etc. (if more than 10% is used, a waiver is required)
4. LE and AS material is blended within each course, with a wellness component being taught 20% of the time each week, to provide a 40%-40%-20% mix (2 days AS, 2 days LE, and 1 day Wellness per week).
5. For core credit classes, AS/LE mix can be 60%-40%, to meet core credit requirements.
6. First year cadets are grouped together for LE-100/AS-100 classes and should be taught introductory material.

7. Upper class cadets are grouped together for other AS and LE courses.
8. Selected upper class cadets are enrolled in AS-400: Management of the Cadet Corps, instead of classes listed.
9. Selected 11th and 12th grade honor students may be enrolled in AS-500, Aviation Honors Ground School, instead of in AS courses listed.
10. Class sizes are determined by SASI or ASI.
11. Units may vary the above by teaching different AS/LE pairings and/or by grouping different levels of students within classes (from integrating all class levels to teaching each level different AS/LE material).
12. The plans incorporate CR-provided supplements into the LE components to illustrate how this can be done.

Creating an Electronic Curriculum Plan in WINGS

As stated earlier, the curriculum is provided by the Holm Center Curriculum Directorate but may be augmented by school requirements and/or instructor preferences (e.g., customization of curriculum and/or unit-defined curriculum). In WINGS, the “Define Unit Courses” module is designed to help you create, organize, and track the curriculum that is being presented to each of your students. *The Holm Center WINGS User’s Guide* will walk you through the steps of viewing provided curriculum, unit defined curriculum, organizing curriculum to define courses, and creating a class by rostering students to your defined courses. **Note:** Customized curriculum may require a waiver approval.

Specifically, this tool allows AFJROTC instructors an electronic mechanism to create curriculum plans with enhanced capabilities. This tool will assist you in creating a four-year curriculum plan, customize unit defined material, create classes by rostering students to define courses (enabling your ability to run reports with student course completion), and easily track contact hours. These capabilities are important for the future of AFJROTC in regards to Career Technical Education, student completion certification, graduation, and AdvancED SACS CASI accreditation.

To access this section in WINGS go to: WINGS | Unit Management | Define Unit Courses.

Drill Categories and Define Unit Course Entries

We classify drill and ceremonies into two categories in order to maximize your Define Unit Course entries:

- LE-500: Drill and Ceremonies – Directly taken from AFM 36-2203, Personnel Drill and Ceremonies, these seven chapters provide instructors with detailed instructions for teaching military drill, ceremonial performances, and protocol.
- Drill: Drill Curriculum (Cumulative) – Created to allow instructors the ability to continue teaching drill and ceremonies in conjunction with LE-500 or standalone instruction after all chapters of LE-500 have been taught.

Here are some samples for you to use:

- Teaching LE-500 year 1 and Cumulative Drill last 3 years:
Year 1: LE-500 – All 7 Chapters = 35 contact hours
Year 2, 3, 4: Drill, Cumulative – 36 contact hours
- Dividing LE-500 over 4 years:
Year 1: LE-500 – Chapters 1, 2 = 10 contact hours
Year 1: Cumulative – 26 contact hours
Year 2: LE-500 – Chapters 3, 4 = 10 contact hours
Year 2: Cumulative – 26 contact hours
Year 3: LE-500 – Chapters 5, 6 = 10 contact hours
Year 3: Cumulative – 26 contact hours
Year 4: LE-500 – Chapter 7 = 5 contact hours
Year 4: Cumulative – 31 contact hours

Things to Remember:

- LE-500/Drill, Cumulative: Contact time (contact hours) counts as 50% of the leadership education requirement.
- LE-500/Drill, Cumulative may be delivered in any combination as illustrated by the samples, as long as it provides no more than 50% of the leadership education component (unless a waiver has been approved).

Supplemental | Support | Core Material Curriculum Plan Entries

Instructors choosing to include supplemental/support/core material to reinforce HQs' provided curriculum must include this material when defining the unit course in WINGS. Support/supplemental material included on a recurring basis during daily classroom instruction must be defined by going to WINGS | Unit Management | Curriculum | JROTC Unit Defined Curriculum and then added to Define Unit Courses.

Examples of recurring support/supplemental material:

Movie videos, state/district provided curriculum, instructor developed lessons/PPTs from support/supplemental material, repeated use of current event articles, books, other materials, and free educational resources listed in the curriculum guide.

Examples of support/supplemental material not required to be Unit Defined:

Occasional current event articles or video clips, courses already defined and listed such as UYP or NEFE. *Please remember that occasional means material not used on a regular or recurring basis.*

Sample Curriculum Plan Template for AFJROTC Unit on a “Traditional” Schedule

CADET YEAR	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
1	AS-100	AS-100	AS-100	AS-100	AS-100	AS-100	AS-100
	LE-100 + Drill + UYP	LE-100 + Drill + UYP	LE-100 + Drill + UYP	LE-100 + Drill + UYP	LE-100 + Drill + UYP	LE-100 + Drill + UYP	LE-100 + Drill + UYP
2	AS-210	AS-300	AS-220	AS-200	AS-300	AS-220	AS-200
	LE-300 + Drill + Fin Col + NEFE	LE-400 + Drill	LE-200 + Drill	LE-300 + Drill + Fin Col + NEFE	LE-400 + Drill	LE-200 + Drill	LE-300 + Drill + Fin Col + NEFE
3	AS-210	AS-300	AS-220	AS-200	AS-300	AS-220	AS-200
	LE-300 + Drill + Fin Col + NEFE	LE-400 + Drill	LE-200 + Drill	LE-300 + Drill + Fin Col + NEFE	LE-400 + Drill	LE-200 + Drill	LE-300 + Drill + Fin Col + NEFE
4	AS-210	AS-300	AS-220	AS-200	AS-300	AS-220	AS-200
	LE-300 + Drill + Fin Col + NEFE	LE-400 + Drill	LE-200 + Drill	LE-300 + Drill + Fin Col + NEFE	LE-400 + Drill	LE-200 + Drill	LE-300 + Drill + Fin Col + NEFE

UYP – Unlocking Your Potential
Fin Col – Financing College

Sample Curriculum Plan Template for AFJROTC Unit on a “Block” Schedule

CADET YEAR	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2015	Spring 2016
1	AS-220	AS-100	AS-220	AS-100	AS-220	AS-100	AS-220
	LE-100 (Units 3 & 4) + Drill	LE-100 (Units 1 & 2) + Drill + UYP	LE-100 (Units 3 & 4) + Drill	LE-100 (Units 1 & 2) + Drill + UYP	LE-100 (Units 3 & 4) + Drill	LE-100 (Units 1 & 2) + Drill + UYP	LE-100 (Units 3 & 4) + Drill
2	AS-300 Space	AS-210 Science of Flight	AS-410 Survival	AS-200 Science of Flight	AS-300 Space	AS-200 Science of Flight	AS-300 Space
	LE-200 (Units 3 & 4) + Drill	LE-300 (Units 1 & 2) + Drill + Fin Col + NEFE	LE-300 (Units 3 & 4) + Drill	LE-400 (Units 1 & 2) + Drill	LE-400 (Units 3 & 4) + Drill	LE-200 (Units 1 & 2) + Drill	LE-200 (Units 3 & 4) + Drill
3	AS-300 Space	AS-210 or AS-500 AHGS	AS-410 Survival	AS-500 AHGS	AS-300 Space	AS-200 or AS-500 AHGS	AS-300 Space
	LE-200 (Units 3 & 4) + Drill	LE-300 (Units 1 & 2) + Drill + Fin Col + NEFE	LE-300 (Units 3 & 4) + Drill	LE-400 (Units 1 & 2) + Drill	LE-400 (Units 3 & 4) + Drill	LE-200 (Units 1 & 2) + Drill	LE-200 (Units 3 & 4) + Drill
4	AS-300 Space	AS-210 or AS-500 AHGS	AS-410 Survival	AS-200 or AS-500 AHGS	AS-300 Space	AS-200 or AS-500 AHGS	AS-300 Space
	LE-200 (Units 3 & 4) + Drill	LE-300 (Units 1 & 2) + Drill + Fin Col + NEFE	LE-300 (Units 3 & 4) + Drill	LE-400 (Units 1 & 2) + Drill	LE-400 (Units 3 & 4) + Drill	LE-200 (Units 1 & 2) + Drill	LE-200 (Units 3 & 4) + Drill

UYP – Unlocking Your Potential
 Fin Col – Financing College
 AHGS – Aviation Honors Ground School

Sample Curriculum Plan Template for AFJROTC Unit on a “Trimester” Schedule

CADET YEAR	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
1	AS-100						
	LE-100 + Drill	LE-100 + Drill	LE-100 + Drill	LE100 + Drill	LE-100 + Drill	LE-100 + Drill	LE-100 + Drill
2	AS-210						
	LE-200 + Drill						
3	AS-300	AS-220	AS-300	AS-220	AS-300	AS-220	AS-300
	LE-300 + NEFE + Drill						
4	AS-500	AS-400	AS-500	AS-400	AS-500	AS-400	AS-500
	LE-400 + AS 410 + Drill						

Course Syllabus

A well-prepared syllabus is not only valuable for students, but also for the instructor. A course syllabus lets students know on the first day of class what is expected of them so they can plan their semester. It serves as an informal contract between the instructor and the student, giving both the course objectives or outcomes, special projects, if any, attendance and participation requirements, examinations, evaluation procedures and so forth.

A course syllabus must be available to each cadet for every AFJROTC course taught during the school term. The syllabus should be distributed to students on the first day of the school term or as directed by host school.

The course syllabus should be in the format directed by the school. When the school does not specify a particular format, instructors are encouraged to use the “sample” syllabus template provided on the following page. Syllabi may cover individual classes or all JROTC classes offered at a unit. If a syllabus covers all classes offered by the unit, it may be included in the Cadet Guide.

A syllabus should contain as a minimum: course name, instructors names; basic purpose or description of the class (be concise); course objectives or outcomes; grading procedures; physical training requirement; uniform day; textbooks and/or supplemental material and resources used; other rules, regulations, or requirements specific to the course or instructor.

Keeping the format simple is the recommended approach. The ‘sample’ template is provided as a starting point in developing unit course syllabi.

Cadet Guide

Units will publish a cadet guide or unit operating instruction to which all cadets have access. As a minimum, the guide will outline program opportunities, program expectations to include cadet promotions and appearance, and corps operations.

Sample Course Syllabus Template

COURSE NAME: (List the name of course)

CREDIT HOURS: (List number of credit or elective hours)

INSTRUCTOR'S NAME: (List instructor's name)

REQUIRED TEXT: (List name and date of required textbook[s])

COURSE DESCRIPTION: (Give a description of the course. This information can be found in the Instructor Guide and in this Curriculum Guide.)

COURSE OBJECTIVES: (This information can also be found in the Instructor Guide and this Curriculum Guide.)

UNIFORM DAY: (Uniform wear requirements)

GRADING PROCEDURES: (NOTE: These are only examples)

- a. Scheduled Exams/Quizzes
- b. Make up exams
- c. Assignments
- d. Absences (excused/unexcused)
- e. Class attendance/participation
- f. Special projects (if any)

Course Evaluation	Number of points awarded
Exams (3 @ 100 points each)	300
Quizzes (3 @ 50 points each)	150
Assignments	50
Attendance/class participation	100
Uniform wear	<u>100</u>
TOTAL	700

Grading Scale: (NOTE: This is only an "example", follow your school's grading policy)

<u>Grade</u>	<u>Percentage Required</u>
A	90% and above
B	89% - 80%
C	79% - 70%
D	69% - 60%
F	59% and below

(Include any other rules, regulations, or requirements specific to the course you would like to provide to your students).

CURRICULUM VIDEOS

The AFJROTC curriculum program includes the following videos. The videos are provided to supplement the content area you are teaching. Instructors choosing to include supplemental material to reinforce HQs' provided curriculum must include this material when defining the unit course in WINGS. Support/supplemental material included on a recurring basis during daily classroom instruction must be defined by going to WINGS | Unit Management | Curriculum | JROTC Unit Defined Curriculum and then added to Define Unit Courses. Supplemental material must not exceed 10% of instruction time without a waiver approved by Holm Center/CR.

****NOTE:** Because of budget cuts, once video stocks are depleted, they will no longer be available.

1. **Legends of Airpower: The Complete Series** include summaries of the stories of twenty-six people who made America's air power the most respected in the world. Each legend is profiled in a separate, thirty-minute biographical program that traces their personal and professional lives. Legends of Airpower are targeted at both airpower aficionados and general audiences who flock to historical documentaries. These series mythologize the personalities and personalizes the people behind the myths. (*A Journey Into Aviation History, The Science of Flight: A Gateway to New Horizons; Exploring Space: The High Frontier*)

- **Season 1:** Chuck Yeager, Benjamin Davis and the Tuskegee Airmen, Billy Mitchell, "Duke" Cunningham, Jimmy Doolittle, Gabby Gabreski, Jimmy Stewart, Curtis LeMay, Bernard Schriever, Hap Arnold, Chuck Horner, Russ Dougherty, and John Glenn
- **Season 2:** John McCain, Charles McGee, Robert Morgan, Carl "Tooe" Spaatz, Buzz Aldrin, Kelly Johnson, John Alison, Charles Lindbergh, Jackie Cochran, Eileen Collins, Francis Gary Powers, William Tunner, The Wright Brothers
- **Season 3:** James Lovell, Everett Alvarez, Paul Tibbets, Igor Sikorsky, Donald Lopez, Deke Slayton, Robin Olds, Daniel "Chappie" James, Edward "Butch" O'Hare, Sam Johnson, Joe Foss, Tommy McGuire, Claire Chennault
- **Season 4:** George McGovern, Lorraine Zilner Rodgers, James Stockdale, Glenn H. Curtiss, David Lee "Tex" Hill, Albert Scott Crossfield, Richard Bong, Amelia Earhart, Edward Rickenbacker, John Boyd, Charles Bolden, Richard "Steve" Ritchie, Harry B. Combs

2. **Aerodynamic Principles** is a unique video explaining the fundamental concepts of flight. It begins with an analysis of the four forces of flight, lift, weight, thrust, and drag -- and continues with easy-to-follow segments in maneuvering flight and airplane balance and stability. The program provides an excellent introduction to aerodynamics or a good basic review. Many units now possess a VHS format video entitled **Basic Aerodynamics**, which is the same video as **Aerodynamic Principles**. The latter is simply the DVD version of the VHS tape. There is no

need to replace the VHS version with the DVD format, until the VHS version becomes unusable. (*The Science of Flight: A Gateway to New Horizons; A Journey Into Aviation History*)

3. **Blue Planet** reveals the Earth to us as only few people have ever seen it: from space. Orbiting 200 miles above Earth's surface, we can see familiar landforms: the majestic Himalayas, giant Namib Desert sand dunes, and jewel-like Caribbean islands. From this unique vantage point we see how natural forces—volcanoes, earthquakes and hurricanes—affect our planet, and how a powerful new force—humankind—has begun to alter the face of the Earth. From Amazon rain forests to Serengeti grasslands, Blue Planet inspires a new appreciation of life on Earth, our only home. (*Exploring Space: The High Frontier*)

4. **NASA Liftoff To Learning** captures the excitement of space flight and explains, in basic and practical terms, the scientific, mathematical and technological concepts that make space flight possible. The 16 episode series also provides concrete examples of the global perspective space flight offers and the new frontiers of research and exploration space flight has created. In essence, NASA astronauts are teaching from space. This program combines the stunning visual images of space flight with clear and entertaining graphics. Each program comes with a printed video resource guide that provides valuable background information for teachers, resources for additional study and practical hands-on demonstrations of concepts presented in the videotapes. (*Exploring Space: The High Frontier*)

- Volume 1 – Space Basics; Go for Eva; Newton in Space; All Systems Go; The Atmosphere Below; and Voyage of Endeavour - Then & Now
- Volume 2 – Toys in Space II; Living in Space; From Undersea to Outer Space; Tethered Satellite & Electrical Circuits in Space; Assignment Spacelab; and Microgravity
- Volume 3 – Geography from Space; The Mathematics of Space –Rendezvous; Let's Talk Robotics; and Plants in Space

5. **The Many Faces of Old Glory** is a unique and rewarding experience for all who see it. No other program so perfectly combines humor with historic facts about the exciting beginnings of our great country. While showing over 20 flags of great historic significance, Vane Scott will weave the exciting, entertaining and even humorous stories of each into a program that will make you come away a proud and better American. (*Citizenship, Character, and Air Force Tradition*)

6. **Best of Drill Series** is a DVD set that combines an earlier set of two videos provided by Holm Center entitled **Best of Exhibition Drill** and **Best of Basic Drill** and is an updated version of the later 3-DVD set also previously stocked by the Holm Center. Part of this new 6-DVD set is devoted exclusively to exhibition drill, featuring armed and unarmed squad (element) and platoon (flight) performance, as well as interesting armed solo and dual exhibition routines. The rest of the new DVD set features teams performing in unit inspection; regulation drill; and 4-person color guard competition. Armed and unarmed performances are featured within the inspection and regulation competitions, while all color guard performances feature 4-person units performing with 2 rifle bearers and 2 flag bearers. The long hours of practice and attention to detail come to the screen when you watch these exceptional displays of standard, SOP-style drill

excellence. There is no need to replace the earlier versions with the newer 6-DVD set, until the older versions become too dated for unit use or becomes damaged. (*Drill and Ceremonies*)

7. **In Real Life - Sexual Harassment** is unwelcome attention of a sexual nature. It's harmful, and it's illegal. Sexual touching, grabbing, pinching or intentionally brushing up against someone in a sexual way -- all of these can be considered harassing behavior. Even obscene comments, looks, teasing and rumors can be forms of harassment. This award-winning video, "In Real Life," dramatizes the verbal and nonverbal circumstances that can become sexual harassment at school by peers, teachers, and staff. It demonstrates effective ways for students and others to diffuse or stop these occurrences. (*Citizenship, Character, and Air Force Tradition; and Communication, Awareness, and Leadership*)

8. **Credit: You're in Charge** shows the importance of good credit history, and the secrets to receiving credit. It explores the advantages and disadvantages of credit use. Explores how to choose the form of credit that is right for you. Answers to frequently asked questions concerning educational loans, installment loans, credit cards, and other forms of credit are discussed. Section quizzes and a final quiz help with the retention of information. (*Life Skills and Career Opportunities*)

9. **Money Matters** explains the difference between a want and a need. Gives information on the secrets to a successful budget. Learn the four basic reasons for financial failure and the seven basic laws for accumulation of wealth. Complete understanding of the power of money can lead to smart and successful financial planning. The presentation features section quizzes, a final exam and covers the essentials of astute money management. (*Life Skills and Career Opportunities*)

10. **Unlocking Your Potential (UYP)** is designed for preparing and inspiring young adults to succeed. This 14 unit, video-assisted series, guides students through a safe, dynamic and inspiring process to develop winning habit patterns. The process includes a practical "tool kit" for young adults that they carry with them for the rest of their lives. (*Citizenship, Character, and Air Force Tradition; Communication, Awareness, and Leadership; Life Skills and Career Opportunities; and Principles of Management*)

- Units 1 & 2 – You've Always Had the Potential
You're Born to Win
- Units 3 & 4 – The Most Amazing Computer of All
Changing from the Inside Out
- Units 5 & 6 – You'll See it When You Believe It
How to Increase Self-Confidence
- Units 7 & 8 – Know You're Good...And Wear it Well
Success is a Journey...Not a Destination
- Units 9 & 10– If You Fail to Plan, You're Planning to Fail
How to Motivate Yourself and Others
- Units 11 & 12–What Employers Expect of a Great Employee
You Never Get a Second Chance to Make a First Impression
- Units 13 & 14–Taking Responsibility for Your Life

Qualities of Peak Performers

11. **Warplane: A Century of Fight and Flight** contains four programs. Program I: “*Airplane to Air Force.*” After their first successful powered flight, the Wright Brothers turned to the US Army, well aware of the potential military value of their airplane. In 1903, with no looming threat of war, the government rejected their \$100,000 asking price, but within five years, the entire Western world would embrace the idea of powered flight. World War I ushered in the airplane’s first military roles as armies used planes for aerial reconnaissance, and then for artillery spotting. With aviation still in its infancy, aerial combat took longer to develop, but the evolution of fighter tactics was inevitable as planes became more sky-worthy. The results transformed combat from fly-by pot-shots to fast, furious duels. By the end of the war, the airplane had been defined as an “eye in the sky”—a role that remains as vital over the deserts of the Middle East today as it was over the trenches of France in 1914. Every country recognized the potential of the warplane and the growing necessity to take control of the skies. Other titles under Program I include: “The Rotary Engine,” “Airborne Cameras,” and “Synchronized Machine Guns.”

Program II is titled “*Air Force to Air Power.*” World War II was an era of rapid innovation and terrible destruction from above. From the invention of radar to the birth of the fighter ace, and from Hitler’s blitzkriegs to the bombing of Hiroshima and Nagasaki, this was the period where national air forces came of age, where individual planes coalesced into unstoppable squadrons, and where wartime tactics were dictated from the sky down. Evolving from their roles as spotters, reconnaissance planes transformed into bombers. Germany rained shells down on London, the Allies executed precision bombing raids by day and frightful carpet bombing missions by night. Pathfinders led bomber squadrons to their targets, and fighters protected other planes as they flew. By the time America dropped the atomic bomb – once and for all illustrating the effectiveness of destruction from above – each airplane had its own role, and together, they had made the world a much smaller place to wage war. Other titles under Program II include: “*The Bomber*”, “*The ‘Think Wing’ and the Monoplane*,” “*Radar*,” “*The Strategic Bomber*,” and “*The Superfortress.*”

Program III is titled “*Jet Power.*” Missed opportunities, a vital arms race and the secrets hidden among the spoils of war come vividly to life in this third program of **WARPLANE**. In the latter days of World War II, Britain and Germany feverishly advanced early dreams of a jet airplane, a defining piece of mid-20th-century technology that would revolutionize existing airplane roles and create an entirely new generation of mission-specific machines. With the world in the grip of the Cold War, combat planes became faster and more agile, spy planes cruised over enemy territory at dizzying heights and dazzling speeds, and jet-powered helicopters entered military service. Designers, test pilots and combat crews took huge risks as they pushed the technological envelope, and within 58 years of Orville Wright’s historic flight at Kitty Hawk, man had broken through the boundaries of both sound and space. Program III includes “*The Jet Engine*,” “*Supersonic Flight*,” “*The Helicopter*,” “*Targeting Systems*,” and “*The Surface-to-Air Missile.*”

Program IV is titled “*The Spy.*” Over the trenches of World War I, the “eye in the sky” had been indispensable. Since that time, developers have worked endlessly to make planes harder to

spot and shoot down. Speed worked at first, then the ability to fly high, but each advance was eventually met by a counter-advance that all but neutralized its. Until, that is, the birth of the computer. With the computer age came avionics – systems to control planes that humans could never fly. These systems, combined with new materials, designs and paints, as well as the unwavering commitment and singular vision of men like Skunk Works' Ben Rich, gave rise to the most recent revolution in military aviation – stealth planes that are all but invisible to enemy eyes. Like the jet engine before it, stealth technology has transformed warfare, and together with ever-advanced precision ordnance and purely autonomous planes, has positioned the world's most advanced air forces for a future where in-cockpit pilots may no longer be necessary. Other topics included in Program III are “*Fly-by-Wire and the Flight Control Computer*,” “*Reconnaissance Planes*,” “*Stealth*,” and “*Unmanned Aerial Vehicles*.” (*A Journey Into Aviation History, The Science of Flight: A Gateway to New Horizons; Exploring Space: The High Frontier*)

12. **2 Million Minutes** focuses on the lack of motivation and preparedness for US students when compared to students in other countries. It takes a deep look at how the three superpowers of the 21st Century - China, India, and the US are preparing students for the future. The DVD gives a “global snapshot” of education from the viewpoint of students. It sends out a signal that “globally” US students are not being prepared to compete with kids from other countries who devote more time and effort to studying; in some cases go to school 6 days a week, and take the tougher courses. It is an interesting film and gives some very alarming statistics. (**This DVD can be integrated into any AFJROTC Course**)

13. **Legion of Valor** will introduce cadets to some genuine heroes. It tells the real story of real heroes. The Medal of Honor, the Distinguished Service Cross, the Navy Cross, and the Air Force Cross are medals awarded for acts of extraordinary bravery beyond the call of duty. Organized in 1890, the **Legion of Valor** is an organization for those who were awarded these medals, and represents fewer than half of one percent of the tens of millions of Americans who have served in the US Armed forces. Follow these stories of heroism as the men who fought with great courage tell them with striking detail. Awarded for their acts of bravery in the face of eminent danger, these men represent the sacrifices of the US Military in its grandest triumphs. These men are legends of valor and their stories are told on this DVD. (*A Journey Into Aviation History*)

14. The following are free supplemental teacher resources/ DVDs provided by the [Pennsylvania Veterans Museum](#). Contact them directly to obtain the materials (see the CMPF).

a. **On Freedom's Wings – Bound for Glory** features the Legacy of the Tuskegee Airmen. During World War II, The Tuskegee Airmen escorted and protected B-17 and B-24 aircraft on 200 bombing missions. Thanks to the heroic efforts and flying skills of the Tuskegee Airmen, not a single bomber was lost to enemy aircraft during those missions. No other WWII fighter group's performance matched this record. Featured on this DVD are Luther H. Smith, Captain, USAF, Retired, an original Tuskegee airmen; Charles E. McGee, Colonel, USAF, Retired; and Lee “Buddy” Archer, Lieutenant Colonel, USAF, Retired. (*A Journey Into Aviation History*)

b. The American Humanitarian Effort tells the untold veterans' story of humanitarian efforts during and after the Vietnam War. Most of the troops who served in Vietnam in one way or another played a role in the humanitarian or pacification programs. This is the story of how our troops helped to protect, feed and clothe villagers; how they provided medical treatment to Vietnamese in need, and how they airlifted orphans and fleeing refugees to safety. (*A Journey Into Aviation History*)

c. Their Sacrifice, Our Freedom (WWII in the Pacific). This documentary, created for the classroom, focuses on soldiers, Marines, and sailors who served valiantly in the Pacific. Hear their stories of friendship, heroism and sacrifice. In their own words, they describe: The Attack on Pearl Harbor; The Battle for Iwo Jima; Attacking Kamikazes and the Surrender Ceremonies in Tokyo Bay. During WW II, American servicemen faced a formidable enemy in the Pacific: the Japanese were well-armed, experienced, and ferocious fighters. "Surrender" was not in their vocabulary – in every engagement with US troops, they fought to the death. When US soldiers and Marines stormed hundreds of beaches in the South Pacific, they would always find the Japanese Army there ahead of them – reinforced and dug in. US sailors aboard ships kept their big guns trained on the sky, to defend against deadly kamikazes. Nearly 52,000 servicemen lost their lives in the Pacific all in the name of freedom. (*A Journey Into Aviation History*)

d. Their Sacrifice, Our Freedom (WWII in Europe). World War II in Europe claimed millions of lives and changed the landscape of the continent in the early 1940s. The war years also brought many changes to this country and altered the course of human history forever. In this documentary, created especially for students, the focus is on the Pennsylvania soldiers who served so valiantly on the battlefields of Europe. Listen to their stories and learn about the hardships they endured, the friendships they cherished, and the sacrifices they made. Hear them relive combat training, parachuting into France on D-Day, fighting in a fox hole, serving under General S. Patton, and under fire at the Battle of the Bulge. (*A Journey Into Aviation History*)

e. In the Company of Heroes (101st Airborne: Screaming Eagles). This is the story of "Easy Company," told by the Pennsylvania Veterans who lived it. They came together as young men, green and untested, at an army training camp in North Carolina. It was 1942, the beginning of WWII. The men of "Easy Company" were part of a new type of soldier. They were paratroopers. They were trained to parachute behind enemy lines and open roads for the Allied army. In this video your students will witness the tough training at Toccoa, the terror of parachute jumping on D-Day; the heroism at Carentan and Market Garden; the bloody winter of Bastogne; and the exultant capture of Hitler's Eagles' Nest. Through it all, these combat-hardened soldiers fought side-by-side, first comrades-in-arms, then friends, then finally brothers. (*A Journey Into Aviation History*)

f. Women in the Military. Since America's founding, women have been driven by patriotic zeal to serve their country, while concurrently pursuing greater economic and social opportunity. From uncommon soldiers who disguised themselves to fight and nurses that faced horrific wounds to those who proudly wear the uniform in battle zones today, women have contributed to our military might in ways unknown to most Americans. This DVD tells their story. It is a tale of pride and love of country; a quest for status and recognition; a journey of dedication to the freedoms we all relish. (*A Journey Into Aviation History*)

EXTRA-CURRICULAR ACTIVITIES

Extra-Curricular activities include functions and programs cadets help plan, and serve to augment, but not replace AFJROTC classroom Aerospace Science and Leadership Education requirements. All of them are designed to:

1. Acquaint AFJROTC cadets with the importance of the program.
 2. Increase cadets' knowledge of aerospace science and motivate them to attain an even greater knowledge of aerospace science.
 3. Employ an interest in the program to enrich the total development of AFJROTC cadets.
 4. Provide activities and opportunities for the development of aerospace leadership skills.
 5. Inspire interest in related aerospace careers.
 6. Contribute to the development of an understanding of aerospace power.
 7. Lead to the discovery of the individual educational needs of cadets aspiring to careers in aerospace.
- **Dining-In and Dining-Out.** A dining-in and dining-out cultivates a spirit of loyalty, pride and enthusiasm. They stimulate cadets' *morale* and *esprit de corps* and provide experiences in Air Force customs and traditions. The dining-in and dining-out also provides an appropriate setting for recognizing individual and unit achievements. It is important for the success of the dining-in and dining-out that members enjoy the festivities, and those ceremonies are done in a tasteful, dignified manner.
 - **Curriculum-In-Action (CIA).** CIA school-sponsored activities include field trips to aerospace facilities such as aerospace industries, military museums, NASA, commercial airports, military bases, parades, etc.
 - **AFJROTC Aerospace Static Model Program:** Static Modeling is the designing and/or building of small model rockets or planes. A static model program can provide an exciting introduction for cadets to concepts of aerospace engineering and design.
 - **AFJROTC-Air Force Weather Agency Program.** The AFJROTC-AFWA Program provides a stimulating activity-based program which introduces weather terms, elements, and concepts to AFJROTC cadets. This program enhances the cadets' knowledge and increases their appreciation for the important role weather plays in the operational world of aviation and safety.
 - **Cadet Orientation Flight Program:** The Cadet Orientation Flight Program is designed to introduce cadets to general aviation through hands-on familiarization flights in single-engine aircraft. The program is motivational and should stimulate an interest in general aviation and aerospace activities.
 - **Model Rocketry Program.** Model rocketry is the designing, building, and flying of small rockets that are made of paper, plastic, balsa wood, or any other lightweight material. Model rockets constructed in this manner are approved for use by AFJROTC members.

- **Radio Controlled Aircraft and Flying Model Aircraft Program.** Radio controlled aircraft are pre-assembled and assembled “ready to fly” kits; the categories include trainer, sport, park flyer, and gliders and sailplanes.
- **Kitty Hawk Air Society (KHAS)** is the official academic honor society of AFJROTC. The society upholds academic standards and promotes further interest in academic achievement. The KHAS is also affiliated with the Air Force Association. Its purpose is to:
 1. Promote high academic standards and achievement,
 2. Promote school and community service,
 3. Promote self-confidence and initiative.
 4. Develop leadership abilities, recognizes academic excellence, and
 5. Further members’ knowledge of the Air Force role in aerospace.
- **TEEN Community Emergency Response Team (CERT)** is an after school program sponsored by the Federal Emergency Management Agency and a national program of volunteers trained in disaster preparedness and emergency response. Teen CERT training teaches students about the potential disasters that could affect their area and how to safely and responsibly respond to them.

AFJROTC programs need to address the following concerns prior to implementation of a TEEN CERT program at their school:

- Liability: Who would be responsible for any injuries to students performing in the capacity of an emergency response team member?
 - Coordination and approval should be between the AFJROTC unit, parent, principal, and school district/county office of education willing to authorize TEEN CERT at the school site.
 - Once approval has been granted and waivers signed by parent/guardian, agreements between the AFJROTC unit, school, district/county office should be renewed on an annual basis.
- **Marksmanship Program** is an after school program where cadets can receive training in marksmanship and the safe handling of an air rifle. Participation is optional and at the discretion of the school administration. Competitions are held to promote training, good sportsmanship, and a high standard of performance in the safe use of an air rifle.

Note: For detailed information about these programs, refer to the *AFJROTC Reference Guide*.

Part II – Aerospace Science Courses

Aerospace Science courses are taught in four-year sequences. For organizational purposes, there are separate textbooks for these courses and the Leadership Education courses. In practice, however, the overlap is considerable. For example, writing and speaking skills are categorized as “leadership education topics” but can and should be incorporated into the “Aerospace Science” courses. Additionally, many of the Aerospace Science topics will be helpful in the Leadership Education classes.

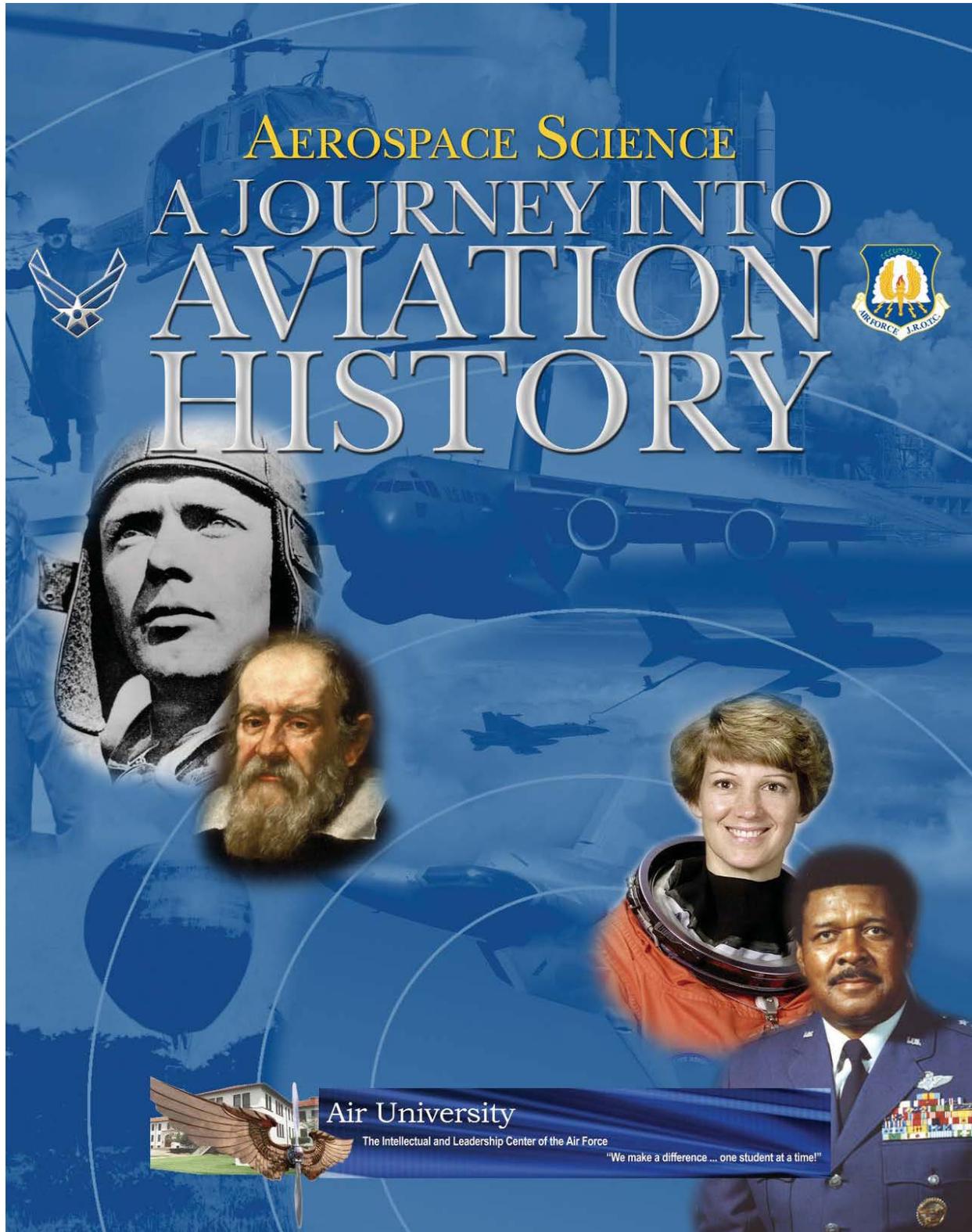
Goals for Aerospace Science Courses

Students will learn about:

1. The development of flight, and civilian and military contributions to aviation.
2. How airplanes fly, how weather conditions affect flight, flight and the human body, and flight navigation.
3. Various cultures through the study of world affairs, regional studies, cultural awareness, people and places, religions, languages, political systems, economics, social issues, environmental concerns, and human rights.
4. Astronomy and the space environment, space exploration, manned and unmanned spaceflight, and space technology.
5. The elements of surviving, personal protection, necessities to maintain life, and orientation and traveling.
6. The fundamentals of flight, flight operations, aviation weather, performance and navigation, and integrating pilot knowledge and skills.

Aerospace Science Courses

Course Title	Recommended Hours
Aerospace Science: A Journey Into Aviation History	72
The Science of Flight: A Gateway to New Horizons	72
Cultural Studies: An Introduction to Global Awareness	72
Exploring Space: The High Frontier	72
Management of the Cadet Corps	72
Survival	72
Aviation Honors Ground School	72



Aerospace Science: A Journey Into Aviation History

Published by Pearson Custom Publishing

AS 100: Aerospace Science: A Journey Into Aviation History

This is the recommended first AS course for all new cadets. It is an aviation history course focusing on the development of flight throughout the centuries. It starts with ancient civilizations, then progresses through time to modern day. The emphasis is on civilian and military contributions to aviation; the development, modernization, and transformation of the Air Force; and a brief astronomical and space exploration history. It is interspersed with concise overviews of the principles of flight to include basic aeronautics, aircraft motion and control, flight power, and rockets. Throughout the course, there are readings, videos, hands-on activities, and in-text and student workbook exercises to guide in the reinforcement of the materials.

The course objectives are:

1. Know the historical facts and impacts of the early attempts to fly.
2. Know the major historical contributors to the development of flight.
3. Know the contributions of the U.S. Air Force to modern aviation history.
4. Know the key events of space exploration history.

Aerospace Science: A Journey Into Aviation History

Course Units		Recommended Hours
Unit One	Imagining Flight	18
Unit Two	Exploring Flight	18
Unit Three	Developing Flight	18
Unit Four	Extending Flight	18

Unit One

Imagining Flight

Chapter 1: Ancient Flight

1. Chapter Objectives

- a. Know how humans tried to fly in ancient times.
- b. Know key aviation devices created during ancient times.
- c. Know why machines do not fly the way birds do.

2. Chapter In Brief

In Chapter One students will learn that the invention of the airplane was not the beginning of aviation history. The Wright brothers and other inventors built on the work of many others before them. Students will learn that flight dated back to ancient times. Emphasis is placed on the fact that this course will introduce them to many exciting figures and events in aviation history. This lesson will also help them appreciate the heritage of flight we have today.

Unit Two

Exploring Flight

Chapter 2: Pioneers of Flight

1. Chapter Objectives

- a. Know how the Wright brothers succeeded in the first flight.
- b. Know the anatomy of the *Wright Flyer*.
- c. Know the principles of airplane flight.
- d. Know the history of the Wright brothers' involvement with the US Army.
- e. Know the key individuals involved in early aircraft development.
- f. Know the names and anatomy of period aircraft.
- g. Know the significance of other American pioneers in aviation following the Wright brothers.
- h. Know the contributions of US pilots during World War I.
- i. Know the role of air power in World War I.
- j. Know the ways air power expanded during World War I.

2. Chapter In Brief

Chapter Two, Lesson One, “*The Wright Brothers*”, covers the significance of the Wright Brothers’ first flight. Emphasis is placed on the fact that the Wrights’ achievement was a milestone in aviation history. Students are encouraged to recognize the similarity between the *Wright Flyer* and the basic model of an airplane today. Students will learn how the Wrights succeeded, the anatomy of the *Wright Flyer*, the principles of airplane flight, and the history of the Wrights’ involvement with the US Army. They will understand the principles of flight in particular, as all subsequent lessons will build on the principles introduced in this lesson.

Lesson Two, “*Developing Aircraft*”, focuses on how aircraft developed following the Wrights’ breakthrough. Key individuals involved in early aircraft development are discussed as well as the names and anatomy of period aircraft, and the significance of other American pioneers in aviation following the Wright brothers. Emphasis is placed on the important contributions made by aviation pioneers. Their courageous achievements—in an age in which flying was still dangerous—paved the way for aircraft to become safe, reliable, and innovative.

In Lesson Three, “*Air Power in World War I*”, students will learn about air power in World War I. They will also learn about the contributions of US pilots during World War I, the role of air power in World War I, and the ways air power expanded during World War I. Emphasis is placed on how war affected and sped up aviation development. After studying this lesson, students will understand how the airplane evolved as a weapon of war.

Chapter 3: Expanding the Horizon

1. Chapter Objectives

- a. Know the barnstormers
- b. Know the major contributions of the barnstormers
- c. Know how the barnstormers contributed to public awareness of aviation.
- d. Know Charles Lindbergh's famous contribution to aviation
- e. Know the significance of the first transatlantic flight
- f. Know other significant contributions that helped flight become mainstream
- g. Know early developments in commercial flight
- h. Know about the use of the airplane in delivering mail
- i. Know about the development and use of helicopters

2. Chapter In Brief

Chapter Three contains three lessons. Lesson One, "*The Barnstormer*" students will learn about the barnstormers, their major contributions, and how they contributed to public awareness of aviation. This lesson also emphasizes the important role the barnstormers played in sustaining aviation in an age before commercial flight and the US Air Force. The barnstormers' love of flying became contagious and paved the way for flight to become mainstream in America.

In Lesson Two "*Flight Goes Mainstream*" students will study about developments in aviation during this period that paved the way for flight to become mainstream. Emphasis is placed on Lindbergh's famous contribution to aviation, the significance of the first transatlantic flight, and other significant contributions that helped flight become mainstream. Also discussed are other milestone flights, Amelia Earhart's transatlantic flights, how other developments helped push flight into the mainstream, and the first air refueling of the *Question Mark*.

Students will study about early developments in commercial flight, the use of the airplane in delivering mail, and the development and use of helicopters in Lesson Three, "*Commercial Flight, Airmail, and Helicopters*". Advances made during this period allowed commercial flight, airmail, and helicopters to become an integral part of American's everyday lives. Emphasis is placed on the significance of these developments.

Unit Three

Developing Flight

Chapter 4: The Early Air Force

1. Chapter Objectives

- a. Know the predecessors of the U. S. Air Force.
- b. Know how the Army Air Corps developed.
- c. Know the Air Force's path toward independence.
- d. Know the role air power played in WWII and its significance.
- e. Know how air power was developed during WWII.
- f. Know the significance of the Allied air campaigns.

2. Chapter In Brief

Chapter Four covers two lessons. Lesson One "*The Army Air Corps*" discusses the predecessors to the U S Air Force, how the Army Air Corps developed, and the path of the Air Force toward independence. Emphasis is placed on how the predecessors of the Air Force evolved, slowly giving the air forces more control, leading to the formation of the Army Air Forces, and eventually complete independence. In Lesson Two "*Air Power in World War II*" students will learn about the role air power played in World War II and its significance. They will also learn how air power was developed during World War II and the significance of the Allied air campaigns. This lesson will also emphasize how air power contributed to Allied victory in World War II. Thanks to the contributions of Allied pilots and many others, World War II ended with the utter defeat of the Axis Powers.

Chapter 5: Commercial Flight

1. Chapter Objectives

- a. Know key developments in commercial aircraft.
- b. Know developments in commercial flight use.
- c. Know key contributors to the expansion of commercial flight.
- d. Know the significance of the development of the jet engine.
- e. Know key developments in the commercial flight industry.
- f. Know the pros and cons of commercial flight travel for passengers.

2. Chapter In Brief

In Chapter Five, Lesson One “*The Propeller Era in Commercial Flight*”, the students will learn about key developments in commercial aircraft and commercial flight use, as well as key contributors to the expansion of commercial flight. This lesson emphasizes the boost that World War II gave to US commercial aviation and the technical developments of the propeller period. In studying this lesson, students will learn that technical developments eventually ended this era with the introduction of the jet engine. As students study Lesson Two “*The Jet Era in Commercial Flight*” they will learn the significance of the development of the jet engine, and how it led to key developments in the commercial flight industry. They will also learn about the pros and cons of commercial flight travel for passengers and the impact of the jet engine and the ways it transformed commercial flight.

Chapter 6: Modern Air Force

1. Chapter Objectives

- a. Know about the creation of an independent Air Force in 1947.
- b. Know what the Cold War was and how it began.
- c. Know the USAF role in the Berlin Airlift.
- d. Know the role of air power in the Korean War.
- e. Know the role of air power in the Cuban Missile Crisis.
- f. Know the role of air power in the Vietnam War.
- g. Know how the USAF gained an increasingly significant role in other US military operations during the Cold War.
- h. Know key developments in aircraft, missile capability, and nuclear capability during the Cold War.
- i. Know the significance of stealth aircraft.
- j. Know the role of air power in the Gulf War (Operation Desert Storm).
- k. Know the role of air power in Operation Enduring Freedom (OEF).
- l. Know the role of air power in Operation Iraqi Freedom (OIF).
- m. Know the role of air power in various other US military operations from 1990.

2. Chapter In Brief

Chapter Six is comprised of three lessons. Lesson One “*Air Force Beginnings Through the Korean War*” discusses the creation of an independent Air Force in 1947 and its significance. It also discusses the Cold War and its impact on the missions of the newly independent Air Force. The Berlin Aircraft and the Korean War are also discussed. Students will learn about the impact of the Cold War on the Air Force and its development. Lesson Two “*The Vietnam War and Other Military Operations*” continues with a discussion of the Vietnam War and other military operations during the Cold War. In this lesson students will learn about the Cuban Missile Crisis, how the United States became involve in the Vietnam War, other military operations, and NATO. Students will also learn how the Cold War ended. Emphasis is placed on how each conflict discussed impacted the overall Cold War and US-Soviet relations. Finally, in Lesson Three “*Global Interventions From 1990*” students will study about global interventions from 1990 and about the significance of stealth aircraft. The roles of air power in the Gulf War, Operation Enduring Freedom, Operation Iraqi Freedom as well as various other US military operations are discussed in depth. Importance is placed on the active role the USAF has had since the end of the Cold War. Emphasis is also placed on the varying types of global interventions the US has participated in.

Unit Four

Extending Flight

Chapter 7: Astronomy and Space

1. Chapter Objectives

- a. Know the objects in the solar system.
- b. Know the significant contributions of key early astronomers.
- c. Know how developments in rocketry made space exploration possible.
- d. Know how the Cold War led to a race in space.

2. Chapter In Brief

Chapter Seven consists of two lessons. Lesson One is entitled “*The Solar System and Some Early Astronomers*” and discusses what students need to know about objects in the solar system and about the significant contributions of key early astronomers such as Ptolemy, Ulug Bek, Copernicus, Kepler, and Galileo. Students will gain an understanding of all the objects in the solar system and also areas of the solar system yet to be explored. Lesson Two “*Rocketry and the Space Race*” talks about how developments in rocketry made space exploration possible and how the Cold War led to a race in space. Students will gain an understanding of rocketry developments, the principles of rocketry, how rocketry made space exploration possible, and how space became an area of competition in the Cold War.

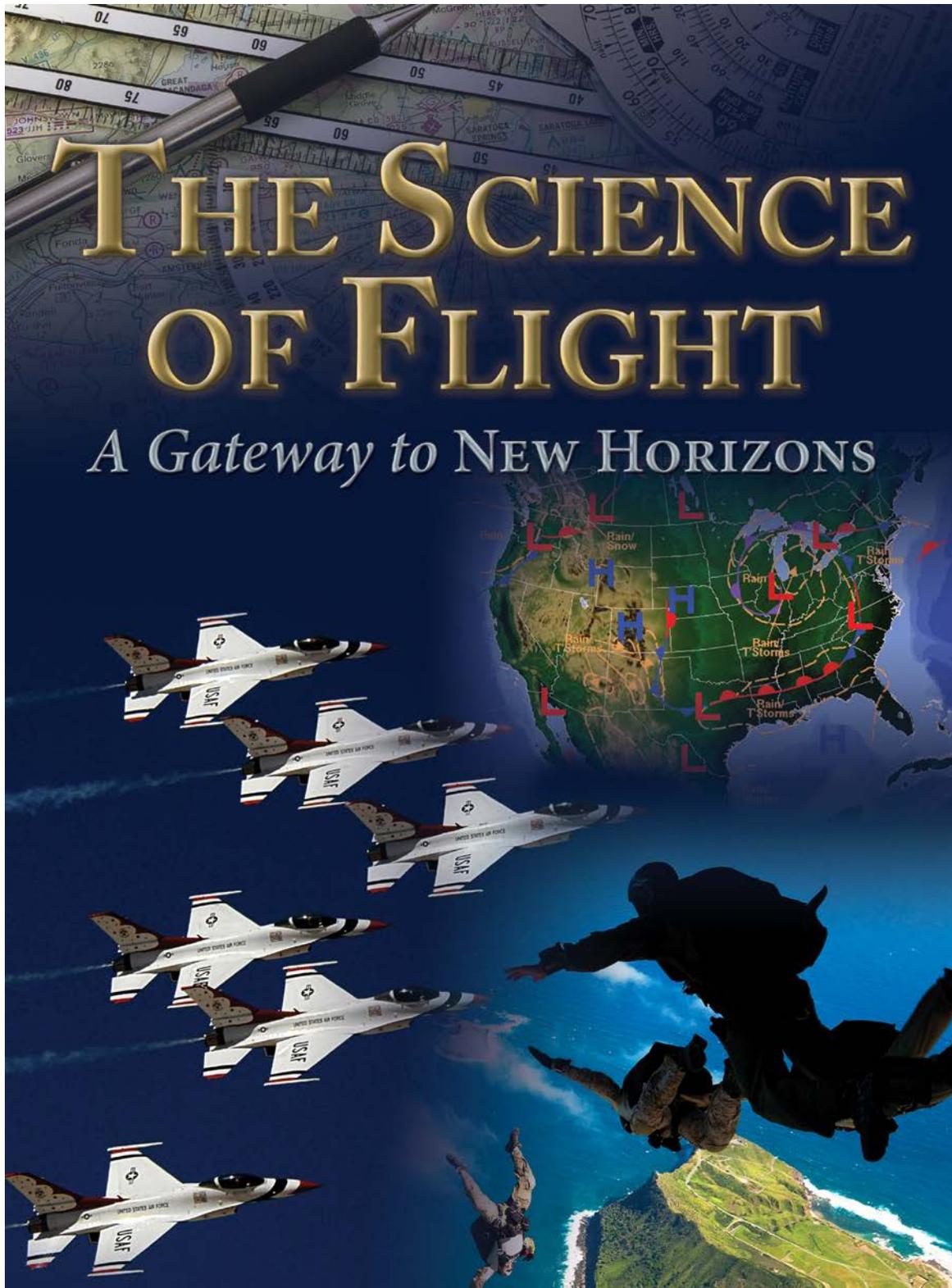
Chapter 8: Exploring Space

1. Chapter Objectives

- a. Know the key steps in the US and Soviet space programs.
- b. Know the key steps in the development of spacecraft.
- c. Know the significance of the phrase: “One small step for (a) man, one giant leap for mankind.”
- d. Know the key space shuttle missions.
- e. Know the purpose of the International Space Station.
- f. Know current and anticipated developments in manned air vehicles.
- g. Know current and anticipated developments in unmanned systems.
- h. Know current and anticipated developments in cyber warfare.
- i. Know anticipated Air Force plans for integrating air and space operations.
- j. Know NASA’s vision for the future.

2. Chapter In Brief

Lesson One in Chapter Eight is entitled “*The Space Program*”. Students will learn about the US and Soviet space programs, the development of spacecraft, astronauts who contributed to the exploration of space, the significance of the first moon mission and the phrase “One small step for (a) man, one giant leap for mankind”. They will also learn about space shuttle missions and the purpose of the international space station. Emphasis is placed on the role of the United States in exploring space. Lesson Two is entitled “*The Future of Air and Space Power*”. Students will study about current and anticipated developments in manned air vehicles, unmanned systems, and cyber warfare. They will gain an understanding of anticipated Air Force plans for integrating air and space operations, and of NASA’s vision for the future. Emphasis is placed on what the Air Force and NASA are doing now and ways they are looking ahead far in the future. Students will explore the many possibilities that lie ahead in the realm of air and space.



The Science of Flight: A Gateway to New Horizons

Published by Jones and Bartlett

AS 200: The Science of Flight: A Gateway to New Horizons

The Science of Flight: A Gateway to New Horizons is an introductory course and customized textbook that focuses on how airplanes fly, how weather conditions affect flight, flight and the human body, and flight navigation. The course is designed to complement materials taught in math, physics, and other science-related courses and is aligned with the National Science Education Standards, the Math Standards and Expectations, and ISTE National Educational Technology Standards for Students.

In this course, every lesson includes a “Quick Write” and a short story related to the lesson; a “Learn About” that tells students what they’ll learn from the lesson; a list of vocabulary words in the lesson; “Wing Tips” that highlight specific and interesting facts; and many biographies and profiles. Each lesson closes with “Checkpoints” that will allow students to review what they have learned. An “Applying Your Learning” section at the end of each lesson presents discussion questions that will give them a chance to use what they have learned and provides another way to reinforce their understanding of the lesson’s content. The text has four chapters, each of which contains a number of lessons.

The course outcomes are:

1. Analyze the elements of flight.
2. Evaluate how atmospheric conditions affect flight.
3. Evaluate how flight affects the human body.
4. Analyze flight navigation and the purpose of aerial navigation aids.

The Science of Flight: A Gateway to New Horizons

Course Chapters		Recommended Hours
Chapter One	How Airplanes Fly	18
Chapter Two	Working Through Flight Conditions	18
Chapter Three	Flight and the Human Body	18
Chapter Four	Flying From Here to There	18

Chapter 1: How Airplanes Fly

1. Learning Outcomes

- a. Outline the principles of flight.
- b. Determine the relationship between the four forces of flight and flight stability.
- c. Relate the parts of the airplane to their function in flight.
- d. Analyze aircraft motion and control.
- e. Compare and contrast the types of airplane engines.
- f. Identify the forces that drive the development of aerospace technology.

2. Chapter in Brief

“Chapter 1: How Airplanes Fly” discusses the elements of flight. Lesson 1 describes the principles of flight, the theory of flight, airfoils, relative wind, and angle of attack. The second lesson looks at the physics of flight and flight’s four forces—lift, weight, thrust, and drag—and flight stability. Lesson 3 explores the various parts of an airplane and the functions each performs. Lesson 4 explains how an airplane moves and how the primary controls work. Lesson 5 compares the different types of aircraft engines and how they work. The last lesson covers aviation research and innovation.

Chapter 2: Working Through Flight Conditions

1. Learning Outcomes

- a. Analyze the atmosphere’s makeup.
- b. Analyze atmospheric components and their affect on weather.
- c. Evaluate the role of weather on air flight.
- d. Forecast stable and unstable conditions for air flight.
- e. Assess the role of meteorology in aviation.

2. Chapter in Brief

“Chapter 2: Working Through Flight Conditions” explores how weather conditions affect flight. The first lesson analyzes Earth’s atmosphere, atmospheric motion, cloud types and how they form, and how the atmospheric layers impact flight. Lesson 2 looks at air masses and fronts, high and low pressure systems, and terrain factors that affect weather. The third lesson discusses how atmospheric instability, turbulence, and severe weather affect aviation. Lesson 4 covers how meteorologists forecast the weather, the instruments they use, and the various communications types used to provide pilots with weather information. Lesson 5 examines the effects of weather on aircraft—specifically ice formation, microbursts, sandstorms, and wake turbulence.

Chapter 3: Flight and the Human Body

1. Learning Outcomes

- a. Relate the flight environment to the human body.
- b. Analyze the purpose and function of personal protective equipment.
- c. Analyze the four elements of navigation.

2. Chapter in Brief

“Chapter 3: Flight and the Human Body” covers how flight affects the human body. Lesson 1 discusses the four zones of the flight environment, the physical laws of gases, the respiration and circulation processes, G-forces, spatial disorientation, motion sickness, and other stresses. Lesson 2 describes the protective equipment and aircrew training used by pilots and astronauts and the function and use of flight simulators.

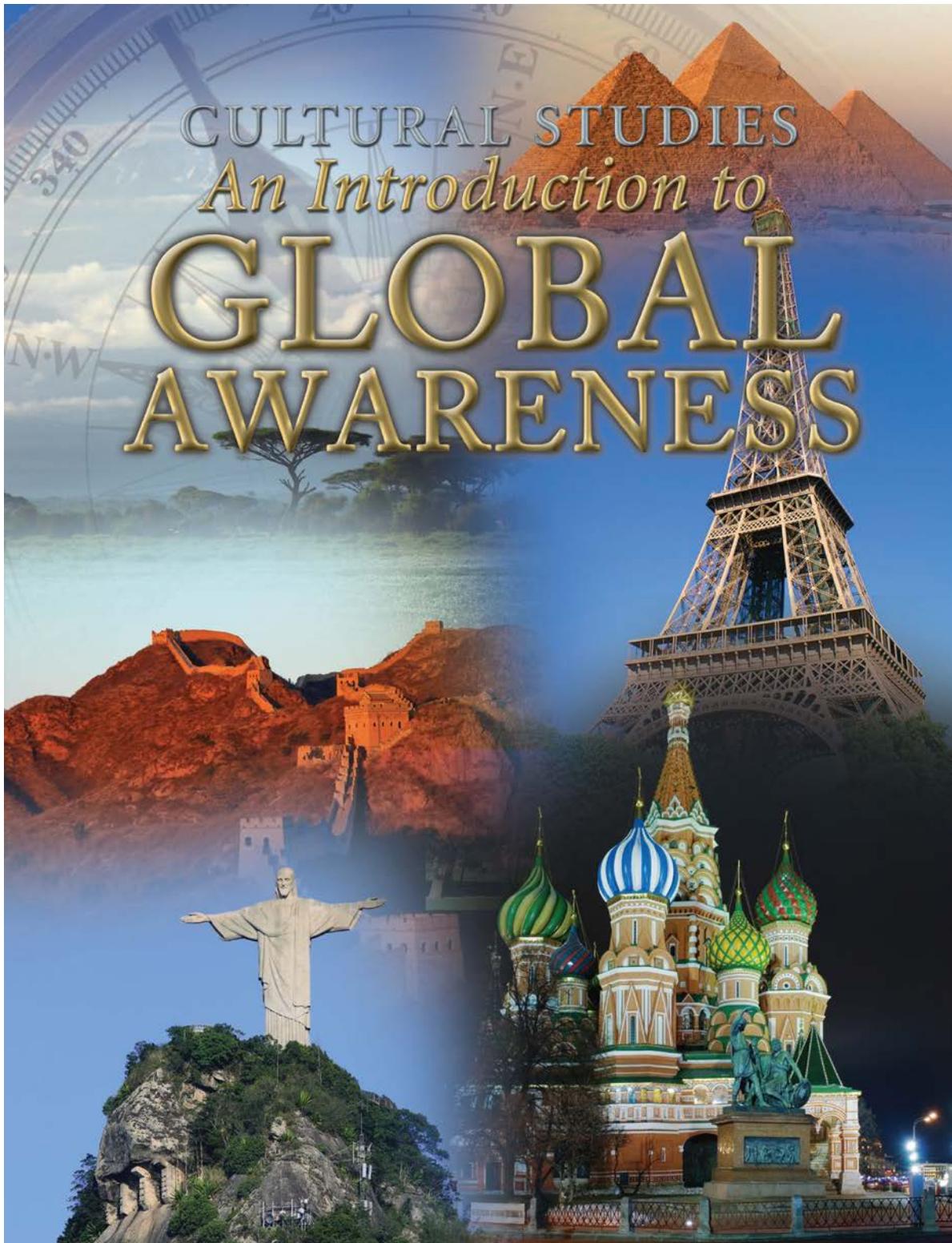
Chapter 4: Flying from Here to There

1. Learning Outcomes

- a. Analyze the four elements of navigation.
- b. Assess the purpose and function of navigational aids.
- c. Relate the role of dead reckoning to navigation.
- d. Distinguish among the primary flight instruments.
- e. Analyze the developments of navigational technology.

2. Chapter in Brief

“Chapter 4: Flying From Here to There” discusses flight navigation and the purpose of navigation aids. The first lesson explores the elements and history of navigation and navigation instruments, along with direction and chart projections. Lesson 2 looks at navigational aids—clocks, compasses, maps, and air navigation charts—flight planning, and procedures to perform when lost. Lesson 3 explains the principles of dead reckoning, the wind triangle, and inertial navigation systems. The fourth lesson covers the primary flight instruments a pilot uses: the airspeed indicator, altimeter, horizontal situation indicator, and altitude indicator. The final lesson describes the uses of navigation technology using the plotter, dead reckoning computer, radio aids to navigation, global positioning system, and computer flight-planning tools.



Cultural Studies: An Introduction to Global Awareness

Published by Jones and Bartlett

AS 220: Cultural Studies: An Introduction to Global Awareness

This is a customized course about the world's cultures. The course is specifically created for the US Army, Marine Corps, Navy, and Air Force Junior ROTC programs. It introduces students to the world's cultures through the study of world affairs, regional studies, and cultural awareness. The course delves into history, geography, religions, languages, culture, political systems, economics, social issues, environmental concerns, and human rights. It looks at major events and significant figures that have shaped each region. Throughout the course, there are readings, video segments, hands-on activities, other optional activities, technology enrichment, and assessments to guide in the reinforcement of the materials.

Twenty First Century Skills as defined by the Partnership for 21st Century Skills are integrated into the course. These include learning and innovation (thinking) skills—critical thinking and problem solving, creativity and innovation, and communication and collaboration; information, media and technology skills—information literacy, media literacy, and ICT (information, communications and technology) literacy; and life and career skills—flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility. Again, the content of this course is correlated using the National Geography and Social Studies Standards. These include the National Geography Standards - *Geography for Life*; and the *National Council for the Social Studies* (NCSS) standards. In addition, the technology enrichment activities are correlated to the *National Education Technology Standards for Students* (NETS•S).

The course objectives are:

1. Know how historical, geographic, religious, and ethnic factors have shaped the six major regions of the world.
2. Know how economic, political, and social factors impact cultures.
3. Know how environmental resources influence global economic development.
4. Know how population density, famine, war, and immigration influence the world.
5. Know how the economic systems of communism and capitalism have shaped the six major regions of the world.
6. Comprehend how cultural perspectives of time, space, context, authority, interpersonal relationships, and orientation to community affect interactions among people.

Cultural Studies: An Introduction to Global Awareness

Course Chapters		Recommended Hours
Chapter One	The Middle East	12
Chapter Two	Asia	12
Chapter Three	Africa	12
Chapter Four	Russia and the Former Soviet Republics	12
Chapter Five	Latin America	12
Chapter Six	Europe	12

Introduction: What is Global Awareness?

The focus of the introduction is to explain the concept of global awareness and the importance of being aware of global trends. We are living in a global village. Technological advancements, especially in computer hardware and software and fiber optics, have reduced the time it requires to communicate across the world. This has resulted in a global economy in which China, India, Pakistan, and other developing nations are now having a major cultural and economic impact on the world. It is essential that we adapt ourselves to the rapid changes in the global economy in order to sustain the social and economic stability in the United States.

Objectives

- a. Comprehend how global cultures and interactions impact relationships between different cultural groups.
- b. Know the significance of global economics, trade, and markets.
- c. Know how the effects of global growth raises environmental concerns over natural resources.
- d. Comprehend how ethics, religion, poverty, wealth, and views of human rights influence people.
- e. Know how changes in technology and education influence the competition for jobs.

Chapter 1: The Middle East

1. Chapter Objectives

- a. Know why the Middle East is viewed as a cradle of western civilization.
- b. Know the characteristics of Judaism, Christianity, and Islam.
- c. Know about changes in the Middle East during the 20th Century.
- d. Know the different groups of people who live in the Middle East.
- e. Know what historical events contributed to the founding of modern Israel.
- f. Know about the historical events associated with the Six-Day War of 1967.
- g. Comprehend how the Yom Kippur War of 1973 affected Arab-Israeli relations.
- h. Know the various attempts at lasting peace in the Middle East.
- i. Know the historical situation of Iraq under the rule of Saddam Hussein.
- j. Know the historical events associated with the 1991 Persian Gulf War.
- k. Know the events surrounding the 2003 US invasion of Iraq.
- l. Know the US attempts to stabilize Iraq since the 2003 invasion.
- m. Know the general impact of terrorism in the world.
- n. Know how radical Islamist beliefs contribute to terrorism.
- o. Know the events associated with the 9/11 attacks and the Global War on Terror.
- p. Know the importance of the production and distribution of oil and energy.
- q. Comprehend how the clash of Middle Eastern and Western cultures affects relationships between people from Middle Eastern and people from Western cultures.
- r. Know the importance of nuclear nonproliferation and the Iranian Issue for the United States.
- s. Know the importance of the water problem in the Middle East.

2. Chapter In Brief

“Chapter 1: The Middle East” reviews the region from its earliest days as the cradle of Western civilization and the birthplace of Judaism, Christianity, and Islam. It then looks at the more recent challenges of war and terrorism. It considers changes the Middle East underwent in the twentieth century and the spread of nuclear weapons there in the twenty-first. Any discussion of this region must include its most sought after natural resource: oil.

Chapter 2: Asia

1. Chapter Objectives

- a. Know the geographic locations of Japan, Korea, China, India, Pakistan, and Afghanistan.
- b. Know the major religions of Asia.
- c. Know the main ethnic groups of Asia.
- d. Know the history of the unitary government and the rule of warlords in China.
- e. Know what caused the shift from isolation to openness in Japan.
- f. Know the impact of domination and division on Korea.
- g. Know the political and economic impact of World War II on China and Japan.
- h. Know that Japan, South Korea, and China have become economic powerhouses.
- i. Know the pre-colonial history of the Mughals in the Indian sub-continent.
- j. Know the encounter with Europe and the colonial period in the region.
- k. Know the history of the struggle for independence in South Asia.
- l. Know what caused the partition and war between India and Pakistan.
- m. Know how Muslim-Hindu strife affects the politics and economics of South Asia.
- n. Know which groups have struggled for control in Afghanistan and why.
- o. Know the impacts of industrialization and pollution in China and India.
- p. Know the interactions between the rich, urban, and the poor rural areas in Asia.
- q. Know the role of women in India, Pakistan, and Afghanistan.
- r. Know China's one-child policy.
- s. Comprehend the challenges of human trafficking and sex tourism in Asia.
- t. Comprehend the dilemma that North Korea creates for the US.
- u. Know the important issues of nuclear nonproliferation in India and Pakistan.
- v. Comprehend the impacts of global wages, labor, outsourcing, and offshoring in the US.
- w. Know why Asia represents a new target market for US corporations .
- x. Know the effects of Asian imports on the US market and economy.
- y. Comprehend the human rights issues in various Asian nations.

2. Chapter In Brief

“Chapter 2: Asia” begins with a general overview of Eastern religions and the region’s peoples. Students will study Japan, Korea, and China in East Asia, as well as India, Pakistan, and Afghanistan in South Asia. The chapter looks at what unites and what divides these countries. The chapter also tackles Asia’s environmental and social challenges and researches the region’s impact on US security and its economy.

Chapter 3: Africa

1. Chapter Objectives

- a. Know the five major regions of Africa.
- b. Know the natural resources of Africa.
- c. Know the distinctive characteristics of African culture.
- d. Know the main ethno-linguistic groups in Africa.
- e. Know the main language groups in Africa.
- f. Comprehend how Islam, Christianity, and indigenous religions influence Africa.
- g. Know the pre-colonial period of African history.
- h. Know the colonial period of African history.
- i. Know the history and impacts of African independence.
- j. Comprehend how ethnic and sectarian politics undermined democracy in Africa.
- k. Comprehend the tensions between Arabs and Africans in Sudan.
- l. Comprehend the tensions between Hutus and Tutsis in Rwanda.
- m. Comprehend the tensions between Afrikaners, English, and Africans in Zimbabwe and South Africa.
- n. Know the civil wars of Liberia, Sierra Leone, and the Congo.
- o. Know the main health challenges in Africa.
- p. Know the extent and impact of AIDS in Africa.
- q. Know the recurring problems with famine in Africa.
- r. Know the main environmental issues facing Africa.
- s. Know the human rights issues in Africa.
- t. Know the challenges of resources and commerce in the regions of Africa.
- u. Know the immigration trends associated with Africa.
- v. Comprehend the challenges associated with pirating and lawlessness in Somalia.
- w. Comprehend the US and European development efforts in Africa.

2. Chapter In Brief

“Chapter 3: Africa” covers a continent subject to outside influences, from Arab merchants and Islam to European traders and Christianity. Ethnic clashes have long marred the region. Pirates patrol some areas and hinder trade. AIDS, malaria, and other diseases kill thousands each year. Yet Africa is rich with natural resources, such as oil and diamonds, and US and European development agencies are working hard to help. This chapter looks at the area’s potential and what’s being done to encourage it.

Chapter 4: Russia and the Former Soviet Republics

1. Chapter Objectives

- a. Know the geographic locations of Russia and the countries of the former Soviet Republics.
- b. Know the major religious groups of Russia and the former Soviet Republics.
- c. Know the historical context of Russia from the Kievan Rus through the time of Peter the Great.
- d. Know how events from the Nineteenth Century and World War I contributed to the October Revolution.
- e. Know the economic and political impacts of World War II and the Cold War on Russia.
- f. Know the effects of the fall of communism.
- g. Know the characteristics of communism as an economic system.
- h. Know the economic and political influence of Marx, Lenin, and Stalin on communism in Russia.
- i. Know how the Soviet economic system worked and eventually failed.
- j. Know the importance of the export of resources for the restructured Russian economic system.
- k. Know the political and economic influence of Russia on the Ukraine, Belarus, and Moldova.
- l. Know the political and economic influence of Russia on the Baltic States.
- m. Know the political and economic influence of Russia on Armenia, Georgia, and Azerbaijan.
- n. Know the political and economic influence of Russia on Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, and Turkmenistan.
- o. Comprehend the historic relationship between Russia and the United Nations.
- p. Comprehend the historic relationships between Russia and neighboring European nations.
- q. Comprehend the historic relationship between Russia and the three major Asian nations China, Japan, and Korea.
- r. Comprehend the historic relationships between Russia and the United States.
- s. Know the impact of the restructured Russian economic system on worldwide democracy.
- t. Know the Russia-US challenges of nuclear threats, nonproliferation, and missile defense.
- u. Know the impacts on the United States caused by Russian oil production and distribution.
- v. Know the importance of the cooperation in space between Russia and the United States.

2. Chapter In Brief

“Chapter 4: Russia and the Former Soviet Republics” tracks the Cold War struggle between communism and capitalism. Students will study how the Soviet Union’s economy operated and why it failed. In addition, the chapter deals with Russia’s relationships with Asia, Europe, America, and the United Nations. It also looks ahead to such things as the challenges to US-Russian relations.

Chapter 5: Latin America

1. Chapter Objectives

- a. Know the geographic locations of the five major regions of Latin America.
- b. Know the major religious groups and languages of Latin America.
- c. Know the history before the Spanish conquest and the consequences of the Spanish conquest of Latin America.
- d. Know some key historical events associated with Latin America since independence.
- e. Know the challenges of the region's economic systems.
- f. Know the challenges related to the political struggle for power.
- g. Comprehend how weak governments, corruption, and crime affect economic development.
- h. Know about the struggle for power between church and state.
- i. Know how free trade agreements have affected the region.
- j. Know the key factors that drive and sustain the drug trade.
- k. Know how the drug trade undermines local governments and damages economies.
- l. Know how the US and local governments have tried to cut off the drug trade.
- m. Know how reliance on commodities versus manufactured goods impacts poverty.
- n. Comprehend the impact of racial and socioeconomic divisions in Latin America.
- o. Know how poor education, urban overcrowding, and high population growth contribute to poverty.
- p. Know the challenges of environmental pollution and deforestation.
- q. Know the history of US relations with Cuba.
- r. Know the history of US relations with Haiti.
- s. Know the challenges of migration from Latin America to the United States.
- t. Know the effects on the US of the political and economic challenges in Latin America.

2. Chapter In Brief

“Chapter 5: Latin America” reviews the region’s history before and after European conquest. It considers the tug-of-war between church and state, the effects of wide social and economic divisions, and struggles with weak governments and corruption. The chapter also examines the effects of poverty and population growth on the region and its flow of migrants northward.

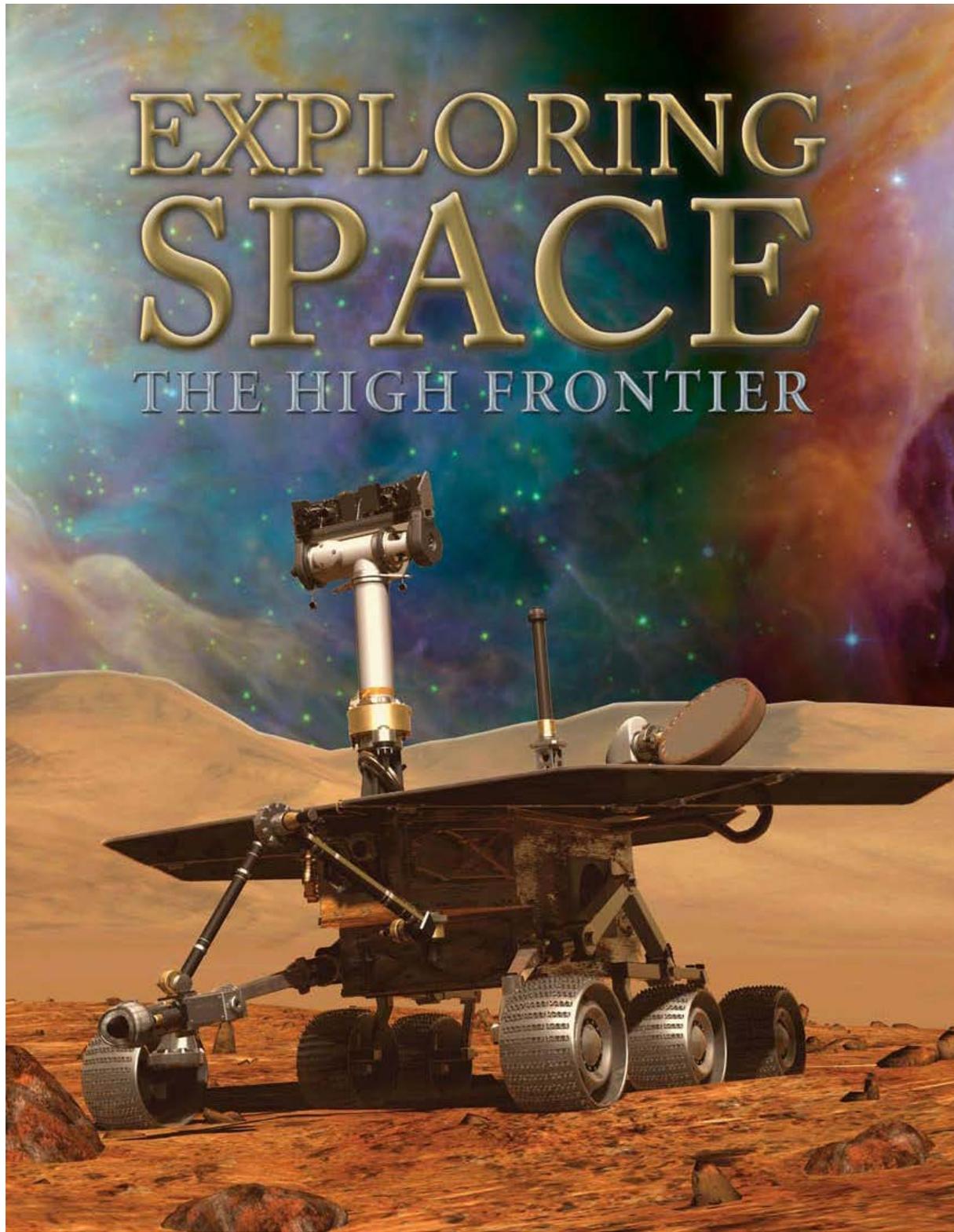
Chapter 6: Europe

1. Chapter Objectives

- a. Know the geographic locations of the major nations of Europe on a map.
- b. Know how Ancient Greece and the Roman Empire influenced Europe's development.
- c. Know how Christianity, Islam, and Judaism affected the development of Europe.
- d. Know how nationalism destroyed the continental European empires.
- e. Know how Marxism, socialism, and fascism affected the development of Europe.
- f. Know the origins of the European Union.
- g. Know which countries are members of the European Union.
- h. Know the political and economic structure of the European Union.
- i. Know the importance of the Euro as a world currency.
- j. Know why European countries have permitted immigration
- k. Know why immigrants have had difficulty assimilating into European societies.
- l. Know the difficulties Al Qaeda and its allies have posed for Europe.
- m. Know the background of ethnic and religious strife in Northern Ireland.
- n. Know how Yugoslavia was created after World War I.
- o. Know how World War II affected Yugoslavia.
- p. Know the role of Josip Broz Tito in uniting Yugoslavia after World War II.
- q. Know how Yugoslavia dissolved into seven independent countries.
- r. Know the history of ethnic cleansing in the Balkans.
- s. Know why the United States intervened in the two world wars and fought the Cold War.
- t. Know the historic purpose and current activities of North Atlantic Treaty Organization (NATO).
- u. Comprehend the importance to the US economy of trade with Europe.
- v. Comprehend the development of human rights and democracy in Eastern Europe following the Soviet Union's collapse.

2. Chapter In Brief

“Chapter 6: Europe” explains how the ancient Greeks and Romans molded Europe's character. It shows how their influence eventually extended to the founding principles of the United States. The chapter also delves into Europe's colonial ambitions, the effects of new nationalism on old empires, and the effects of fascism and communism. The chapter looks in depth at the collapse of Yugoslavia into seven independent countries, and the violence involved. And students will explore the European Union's history, including its expansion to include countries trying to leave Russia's sphere of influence.



EXPLORING SPACE

THE HIGH FRONTIER

Exploring Space: The High Frontier

Published by Jones and Bartlett

AS 300: Exploring Space: The High Frontier

This is a science course that includes the latest information available in space science and space exploration. The course begins with the study of the space environment from the earliest days of interest in astronomy and early ideas of the heavens, through the Renaissance, and on into modern astronomy. It provides an in-depth study of the Earth, Sun, stars, Moon, and solar system, including the terrestrial and the outer planets. It discusses issues critical to travel in the upper atmosphere such as orbits and trajectories unmanned satellites, and space probes. It investigates the importance of entering space and discusses manned and unmanned space flights, focusing on concepts surrounding spaceflight, space vehicles, launch systems, and space missions. The section on manned spaceflight focuses on the Space Shuttle, space stations and beyond, covering milestones in the endeavor to land on the Moon and to safely orbit humans and crafts for temporary and prolonged periods. The course covers the human aspect of spaceflight, focusing on the human experience in space. It also examines the latest advances in space technology, including robotics in space, the Mars Rover, and commercial uses of space.

All throughout the course are scenarios, video segments, “hands-on” activities and a technology enrichment activity is included in each lesson. As mentioned earlier, the content of this course is correlated using the *National Science Education Standards (NSES)* and the technology enrichment activities are correlated to the *National Educational Technology Standards for Students (NETS.S)* standards.

21st Century Skills as defined by the Partnership for 21st Century Skills are also integrated into this course as well. These also include learning and innovation (thinking) skills—critical thinking and problem solving, creativity and innovation, and communication and collaboration; information, media and technology skills—information literacy, media literacy, and ICT (information, communications and technology) literacy; and life and career skills—flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

The course objectives are:

1. Know the history of astronomy and the specific characteristics of the Earth, Moon, solar system, and the planets.
2. Comprehend the big picture of space exploration, including the history of spaceflight, organizations doing work in space, and the overall space environment.
3. Comprehend the importance of entering space, characteristics of manned and unmanned spaceflight, and how humans are affected during spaceflight.
4. Comprehend the key concepts for getting from the surface of the Earth into Earth orbit and to other planets and back again.
5. Comprehend how spacecraft, rockets, and launch vehicles are designed and built.
6. Comprehend the latest advances in space technology.

Exploring Space: The High Frontier

Course Units		Recommended Hours
Unit One	The Space Environment	18
Unit Two	Exploring Space	18
Unit Three	Manned and Unmanned Spaceflight	18
Unit Four	Space Technology	18

Unit One

The Space Environment

Chapter 1: The History of Astronomy

1. Chapter Objectives

- a. Know about the celestial sphere.
- b. Know about the Greek Earth-centered model.
- c. Know about Ptolemy's model.
- d. Know about Copernicus and the Sun-centered model.
- e. Know Kepler's Laws of Planetary Motion.
- f. Know about Galileo and the telescope.
- g. Comprehend Newton's Laws of motion and gravity.
- h. Know about Einstein and relativity.

2. Chapter In Brief

Chapter 1, "*The History of Astronomy*" discusses the vastness of the galaxy and the universe. Lesson 1, "Prehistoric and Classical Astronomy" focuses on constellations as patterns of stars, the Sun's motion among the stars and around the Earth, the Greek Earth-centered model and Ptolemy's model. Lesson 2, "Astronomy and the Renaissance" covers Copernicus and the Sun-centered model and Kepler's Laws of planetary motion. Lesson 3, "The Enlightenment and Modern Astronomy" talks about Galileo and the Telescope, Newton's Laws of Motion and Gravity, and Einstein and relativity.

Chapter 2: The Earth and Moon

1. Chapter Objectives

- a. Know about the Earth's interior.
- b. Know about Earth's atmosphere.
- c. Know about the Earth's Magnetic Field.
- d. Know the Moon's size and distance from the Earth.
- e. Comprehend the relationships between the Moon and the Earth.
- f. Know about the Moon's origin and surface.

2. Chapter In Brief

In Chapter 2, “*The Earth and Moon*” the Earth's interior is discussed in detail as well as the Earth's atmosphere and its magnetic field. From space we can see the Earth's beauty – blue seas, green jungles, red deserts, and white clouds. Much of our appreciation of the Earth comes from knowing that it is home for us and the billions of other living things that share this special and precious corner of the Universe. Lesson 1 covers Earth's interior and the special characteristics of the Earth and the Moon. The layers of the Earth's atmosphere are identified and the Van Allen Belts are explained as well as the Earth's magnetic field. Lesson 2 is titled “The Moon: Earth's Fellow Traveler”. The Moon is our nearest neighbor in space, a natural satellite orbiting the Earth. It is the frontier of direct human exploration, an outpost that we reached more than a quarter century ago but from which we have since drawn back. But despite our retreat from its surface, the Moon remains of great interest to astronomers. There is much discussion on the Moon's surface and why astronomers believe so many of its features were carved by impact. The Moon's size is discussed and the Moon's distance from the Earth. The relationships between the Moon and the Earth are described and also the Moon's origin and surface.

Chapter 3: The Sun and the Solar System

1. Chapter Objectives

- a. Know about the Sun's energy.
- b. Know about the Sun's core, atmosphere, and sunspots.
- c. Comprehend the Solar System's structure.
- d. Know about Mercury.
- e. Know about Venus.
- f. Know about Mars.
- g. Know about Jupiter.
- h. Know about Saturn.
- i. Know about Uranus.
- j. Know about Neptune.
- k. Know about Pluto.
- l. Know about the Asteroids.
- m. Know about comets.
- n. Comprehend the Oort Cloud and Kuiper Belt.

2. Chapter In Brief

Chapter 3 is titled "*The Sun and the Solar System*". Lesson 1 covers the "Sun and Its Domain" which focuses on the Sun's energy, the Sun's core, atmosphere and sunspots, and the Solar System's structure. There is also discussion on formation of the Solar System. Lesson 2 encompasses the terrestrial planets of Mercury, Venus, and Mars. Each planet is discussed in detail with significant facts given about each planet. In Lesson 3, the outer planets, Jupiter, Saturn, Uranus, and Neptune are discussed. Lesson 4 covers dwarf planets, comets, asteroids, and the Kuiper belt. Pluto's discovery is discussed in detail as well as its orbit, atmosphere, and moons. Asteroids as well as comets are discussed in detail. Finally, there is discussion of the Oort cloud and the observations that prompted Dutch astronomer, Jan Oort's hypothesis.

Chapter 4: Deep Space

1. Chapter Objectives

- a. Comprehend the Milky Way Galaxy and the Sun's place in it.
- b. Comprehend the four components of the Galaxy.
- c. Comprehend other planetary systems.
- d. Comprehend black holes.
- e. Comprehend the center of the Milky Way Galaxy.
- f. Comprehend the other galaxies and their classifications.
- g. Comprehend the five types of space objects.
- h. Comprehend the electromagnetic spectrum.
- i. Comprehend the Big Bang Theory.

2. Chapter In Brief

Chapter 4 “*Deep Space*” contains 2 lessons titled “*The Milky Way Galaxy*” and “*What Lies Beyond*”. The *Milky Way Galaxy*, talks about the makeup of the Milky Way and the shape of the galaxy. Andromeda, a galaxy similar to the Milky is discussed as well as the Sun's location in the Milky Way. This chapter also discusses scientists' new techniques for spotting exoplanets, also known as extrasolar planets. “Black Holes” are discussed with emphasis placed on what a black hole is, the measurements of a black hole, and how scientists detect them. In lesson 2 students will learn how scientists observe the Milky Way Galaxy's nucleus. We discover that scientists are a long way from understanding the center of the galaxy and need many more observations and much more data to get a clearer picture. There is also discussion about the electromagnetic spectrum and the Big Bang Theory.

Unit Two

Exploring Space

Chapter 5: Exploring, Living, and Working in Space

1. Chapter Objectives

- a. Comprehend the historical benefits of exploration.
- b. Comprehend the US strategic plan to explore space.
- c. Comprehend the current costs of exploring space.
- d. Comprehend the practical benefits of space exploration.
- e. Know how NASA plans and implements space missions.
- f. Comprehend the essential components of a space mission.
- g. Comprehend the selection and training of astronauts.
- h. Know the threat caused by high levels of radiation.
- i. Comprehend the hazard of impact damage to spacecraft.
- j. Comprehend the threats associated with surface landings.
- k. Comprehend fire hazards in space.
- l. Comprehend how microgravity of space travel affects the human body.
- m. Comprehend the threat of radiation to astronauts traveling in space.
- n. Comprehend the study of space biomedicine.

2. Chapter In Brief

Chapter 5 is titled “*Exploring, Living, and Working in Space*”. Lesson 1 focuses on “why explore space” with emphasis on the historical benefits of space exploration, the US strategic plan to explore space, the current costs of exploring space and the practical benefits of space exploration. The chapter addresses how space exploration strengthens nations. It is pointed out that space exploration exposes people to dangers, but the benefits offset the risks. The US vision for space exploration is addressed in detail with discussion on how the International Space Station will advance space exploration as well as the long-term goal of exploring Mars. NASA’s entire budget is discussed in great detail. Many medical breakthroughs have come about from exploring space; these are discussed. Finally, information is given on how the Hubble Space Telescope has aided in the fight against breast cancer.

Lesson 2 discusses NASA’s mission and how space missions are planned and implemented including how the missions and programs are funded. There is discussion on NASA’s four principal directorates and the duties of each. The components of a space mission are talked about with emphasis on the task of building a launch vehicle and the importance of ground support operations. Finally, the selection and training of astronauts is discussed.

Lesson 3 focuses on the hazards for spacecraft. Students will learn about the threat caused by high levels of radiation focusing on the threat of solar storms to spacecraft in high orbit and how radiation can damage machines and cause computer failure in space. The lesson talks about how NASA studies different materials to determine which ones hold out best against the radiation in space.

Lesson 4 explores how to make space people friendly with discussions on how microgravity of space travel affects the human body, the threat of radiation to astronauts traveling in space and the study of space biomedicine. There is discussion on how the microgravity of space travel affects the human body and the physiological challenges associated with space travel. A close look is given to the threat of radiation to astronauts traveling in space and the cancer risk from exposure to high levels of radiation in space and the risk of cataracts associated with space travel. The benefits of space biomedical research for health on Earth are discussed. There is focus on the many useful technologies that have already come from space exploration.

Unit Three

Manned and Unmanned Spaceflight

Chapter 6: Space Programs

1. Chapter Objectives:

- a. Comprehend the history and accomplishments of Project Mercury.
- b. Comprehend the history and accomplishments of Project Gemini.
- c. Comprehend the history and accomplishments of Project Apollo.
- d. Comprehend the history and accomplishments of the Russian Vostok project.
- e. Comprehend the history and accomplishments of the Russian Voskhod project.
- f. Comprehend the history and accomplishments of the Russian Soyuz project.
- g. Comprehend the history and accomplishments of the Chinese Space program.
- h. Comprehend the history and accomplishments of the Indian Space program.
- i. Comprehend the history and accomplishments of the European Space program.
- j. Comprehend the history and accomplishments of the Japanese Space program.

2. Chapter In Brief

In Chapter 6, lesson 1 “The US Manned Space Program” begins with discussion about the US manned space program including the history and accomplishments of Projects Mercury, Gemini, and Apollo. Special recognition is given to Alan B. Shepard, John Glenn, Ed White, and Neil Armstrong. The six manned missions of the *Mercury 7* are highlighted. In lesson 2, “The Soviet/Russian Manned Space Program”, the Soviet and Russian Manned Space programs are discussed in great detail including the history and accomplishments of the Russian Vostok project, the history and accomplishments of the Russian Voskhod project, and the history and accomplishments of the Russian Soyuz project. Finally in lesson 3 “Space Programs around the World”, there is discussion about space programs around the world to include the history and accomplishments of the Chinese, Indian, European, and Japanese space programs.

Chapter 7: The Space Shuttle

1. Chapter Objectives

- a. Comprehend why the space shuttle was developed.
- b. Comprehend the space shuttle's main features.
- c. Comprehend the shuttle's legacy.
- d. Comprehend the *Challenger* accident.
- e. Comprehend the *Columbia* accident.

2. Chapter In Brief

Chapter 7 will acquaint the students with the space shuttle and the lessons learned from the *Challenger* and *Columbia* accidents. Lesson 1, "The Space Shuttle" begins with an in-depth coverage of the space shuttle to include why the shuttle was developed and a discussion of the original six orbiters and how they came about. The main features of the space shuttle are covered in detail. Focus is placed on the shuttle's legacy. Several "shuttle firsts" are highlighted. The *Challenger* and *Columbia* accidents are discussed in Lesson 2. Highlighted are changes NASA has made to reduce the possibility of other accidents.

Chapter 8: Space Stations and Beyond

1. Chapter Objectives

- a. Comprehend the Salyut space station.
- b. Comprehend the Skylab space station.
- c. Comprehend the Mir space station.
- d. Comprehend the International Space Station.
- e. Comprehend the planned return trip to the Moon.
- f. Comprehend the plans for a Moon outpost.
- g. Comprehend the plans for a manned mission to Mars.

2. Chapter In Brief

Chapter 8 focuses on space stations and our future in space. Covered in lesson 1, “From Salyut to the International Space Station” are the *Salyut*, *Skylab*, *Mir*, and *International Space Stations*. The main purpose of each space station as well as experiments and research conducted from each are highlighted. Construction of the International Space Station (ISS) is covered and the lesson depicts how nations are working together to construct the space station. Several ISS astronauts are featured. Lesson 2 examines our future in space describing the planned return trip to the Moon, the plans for a Moon outpost, and the plans for a manned mission to Mars. Several benefits from *Lunar* exploration are given with an explanation of each benefit. New technologies to support missions to the Moon and Mars are discussed in detail.

Chapter 9: The Unmanned Missions of Space Probes

1. Chapter Objectives

- a. Comprehend the spacecraft that have studied the Sun.
- b. Comprehend the unmanned exploration of the Moon.
- c. Comprehend the unmanned exploration of Venus.
- d. Comprehend the unmanned exploration of Mars.
- e. Comprehend how the Hubble Space Telescope aids the exploration of space.
- f. Comprehend scientific discoveries among the outer planets.
- g. Comprehend the scientific investigation of comets and asteroids.

2. Chapter In Brief

Chapter 9 is titled “*The Unmanned Missions of Space Probes*”. Lesson 1 examines missions to the Sun, Moon, Venus, and Mars and the Hubble space telescope and missions to comets and the outer planets. There are discussions about spacecraft that have studied the Sun including focus on *Pioneer 7*, *Ulysses*, and *Hinode*. Before either a return to the Moon or a mission to Mars can become a reality, scientists need to learn more about the topography, resources, and varying temperatures on the Moon. To help in this quest, NASA has launched the Lunar Reconnaissance Orbiter and the Lunar Crater Observation and Sensing Satellite. Both are discussed along with their findings. There is detailed discussion about the unmanned explorations of Venus and Mars and their findings. In lesson 2 there is discussion about the Hubble Space Telescope (HST) and how it aids the exploration of space. Highlighted is the history and significant findings of the HST. Scientific discoveries among the outer planets are discussed. The missions to explore asteroids and comets are covered.

Unit Four

Space Technology

Chapter 10: Orbits and Trajectories

1. Chapter Objectives

- a. Comprehend how orbits work.
- b. Comprehend the different types of orbits used for different purposes.
- c. Comprehend trajectories in space travel.
- d. Comprehend maneuvering in space.
- e. Comprehend navigation data.

2. Chapter In Brief

Chapter 10 will acquaint students with orbits and trajectories. In lesson 1 “*Orbits and How They Work*” students will learn about orbits and how they work. Basic tools for analyzing orbits are explored. We have tried to keep this chapter simple so as not to confuse the students. But, understanding orbits can give a clear view into the future; that is, once an object’s position and speed are known, plus the features of the gravity field it is in, scientists can predict where the object will be minutes, hours, or even years from now. Such topics as momentum and gravitational force, orbital velocity, and how height, eccentricity, and inclination affect an orbit are discussed. In lesson 2 “*Maneuvering and Traveling in Space*”, there is discussion about the different types of orbits and the different purposes of each. This lesson looks at trajectories in space travel, the different types of trajectories maneuvering in space, and navigation data which includes a spacecraft’s velocity, distance, and angular measurements.

Chapter 11: Rockets and Launch Vehicles

1. Chapter Objectives

- a. Comprehend the history and principles of rocket science.
- b. Comprehend the different types of rockets.
- c. Comprehend the propulsion and flight of rockets.
- d. Comprehend the evolution of rocket technology.
- e. Comprehend the types of launch vehicles.
- f. Comprehend the factors and features of a rocket launch.

2. Chapter In Brief

In Chapter 11 “*Rockets and Launch Vehicles*” lesson 1, titled “*It is Rocket Science: How Rockets Work*” examines the history and principles of rocket science to include how rockets operate and how force, mass, and acceleration apply to rockets. The importance of thrust for rocket flight is illustrated. The different types of rockets are talked about to include air rockets, bottle rockets and model rockets. There is also information on how solid and liquid propellant rocket engines work. Lesson 2, “*Propulsion and Launch Vehicles*” explores the evolution of rocket technology and includes the study of the early use of rockets and the early rocket scientists. The students will get acquainted with the contributions of various modern rocket scientists. Students will study about the different types of launch vehicles for the United States and other countries. This lesson covers launch sites, launch windows, and how NASA prepares for a launch.

Chapter 12: Robotics in Space

1. Chapter Objectives

- a. Comprehend the purpose of using robots in space.
- b. Comprehend the history of robots in space.
- c. Comprehend the current robotic missions in space.
- d. Comprehend the history of the Mars Rover Expedition.
- e. Comprehend the results of the Mars Rover Expedition.
- f. Comprehend the goals for future rover expeditions.

2. Chapter In Brief

Chapter 12 lesson 1, “*Developing Robots for Space*”, examines the purpose of using robots in space. NASA uses robots to explore the Solar System in ways humans often cannot. There is in-depth discussion on the use of robotic arms in space and how robots help astronauts and scientists investigate new worlds. There is also discussion on how NASA is constantly working to improve its field of robots and at the same time keep up with new advances in technology. The history of robots in space is explained. More recent achievements of robots in space are examined as well as current robotic missions in space. This lesson ends with discussion on the advantages and disadvantages of using robots instead of humans in space. Lesson 2, “*The Mars Rover and Beyond*”, explores the history of the “Mars Rover Expedition”. There is discussion on *Spirit* and *Opportunity* and the challenges of the flight to Mars. Focus is given to the science goals of the Mars exploration program. The lesson concludes by calling attention to the goals of the future rover expeditions.

Chapter 13: Commercial Use of Space

1. Chapter Objectives

- a. Comprehend commercial satellites and launches.
- b. Comprehend the possibility of space tourism.
- c. Comprehend the potential of mining asteroids and moons.
- d. Comprehend how people use satellites everyday.
- e. Comprehend the uses of global positioning system.
- f. Comprehend how NASA shares its inventions with the private sector.

2. Chapter In Brief

Chapter 13, lesson 1 begins with discussion on commercial satellites and launches. It points out that when the earthquakes hit Haiti and Chile in 2010, people around the world instantly saw images of the destruction. Students will learn how satellites have changed the way much of the world operates which has in turn transformed the way the world communicates. The satellite development of RCA, AT&T, and the Hughes Aircraft company is discussed along with the commercial use of communications satellites. Students will become acquainted with NASA's commercial launches. Because of the growing interest in space travel, space tourism is talked about. The lesson concludes with discussion about the potential of mining asteroids and moons. Lesson 2, "*Space in Your Daily Life*", talks about space in your daily life and how satellite technology helps make it all possible including tweeting from space, the use of satellite images during evening weather reports and the use of direct-broadcast satellites. There is focus on the uses of a Global Positioning System. There is much discussion on how Global Positioning Systems (GPS) use space technology, how Internet mapping programs use GPS images, and how people use GPS technology while driving. Students will learn about the goals of NASA's innovative partnership program and the NASA publication "*Spinoff*". Students will learn about how products developed for NASA have benefited society.

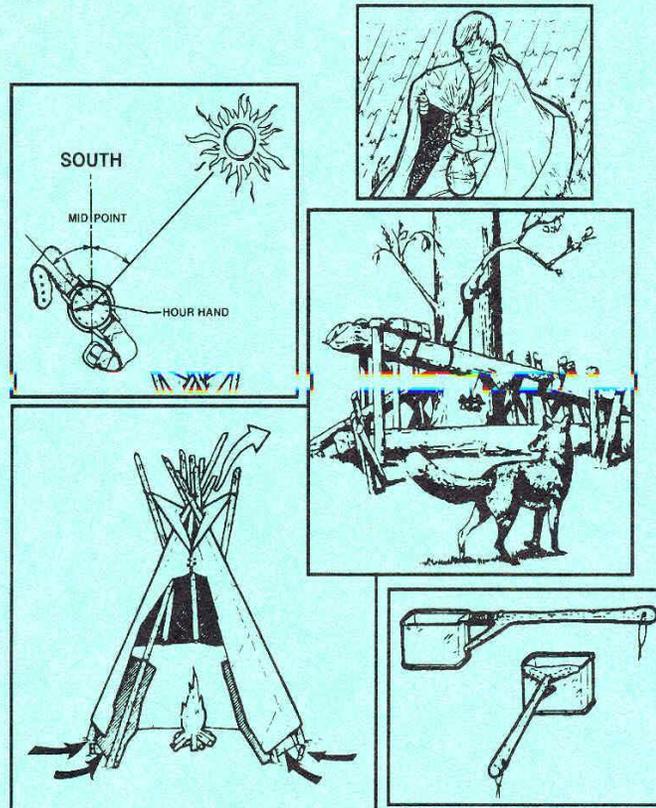
AS 400: Management of the Cadet Corps

The cadets manage the entire corps during their fourth year in the Air Force Junior ROTC program. This hands-on experience affords cadets the opportunity to put theories of previous leadership courses into practice. Planning, organizing, coordinating, directing, controlling, and decision-making will be done by cadets. They will put into practice their communication, decision-making, personal-interaction, managerial, and organizational skills.

The course objectives are:

1. Apply theories and techniques learned in previous leadership courses.
2. Analyze how to develop leadership and management competency through participation.
3. Analyze strengthened organizational skills through active incorporation.
4. Evaluate how to develop confidence in ability by exercising decision-making skills.
5. Evaluate Air Force standards, discipline, and conduct.

SURVIVAL



SURVIVE • RETURN

V-7027T

Survive • Return
By AFJROTC Curriculum

AS 410: Survival: Survive • Return

The *Survival* text is a synthesis of the basic survival information found in Air Force Regulation 64-4 *Survival Training*. The survival instruction will provide training in skills, knowledge, and attitudes necessary to successfully perform fundamental tasks needed for survival. Survival also presents “good to know” information that would be useful in any situation. The information is just as useful to an individual lost hunting or stranded in a snowstorm. Sample lesson plans and power point slides are located in WINGS/Published Files/Directory/JROTC/Curriculum/Survival.

The course objectives are:

1. Know the elements of surviving.
2. Know how medicine procedures, clothing, and shelter can provide personal protection for a survivor in a survival situation.
3. Know the necessities for maintaining life in a survival situation.
4. Know how to travel and prepare for recovery in a survival situation.

Survival: Survive • Return

Course Units		Recommended Hours
Unit One	The Elements of Surviving	18
Unit Two	Personal Protection	18
Unit Three	Necessities to Maintain Life	18
Unit Four	Orientation and Traveling	18

Unit One

The Elements of Surviving

Chapter 1-1: Survival Preparedness

Chapter Objective

Know how to survive in situations where your safety and life depends on your decisions.

Chapter 1-2: Conditions Affecting Survival

Chapter Objective

Know the three basic conditions affecting survival.

Chapter 1-3: The Survivor's Needs

Chapter Objective

Know that the two fundamental goals of a survivor are maintaining life and returning.

Chapter 1-4: Psychological Aspects of Survival

Chapter Objective

Know that coping with the psychological aspects of survival is a key ingredient in any survival situation.

Chapter 1-5: The Will to Survive

Chapter Objective

Know the importance of having the will to survive in hopeless situations.

Unit Two

Personal Protection

Chapter 2-1: Basic Survival Medicine

Chapter Objective

Know basic survival medicine procedures, treatments, and prevention measures when faced with medical encounters.

Chapter 2-2: Plants for Medicine

Chapter Objective

Know how to use plants for medicine.

Chapter 2-3: Proper Body Temperature

Chapter Objective

Know the proper body temperature.

Chapter 2-4: Clothing

Chapter Objective

Know that clothing is an important asset to survivors.

Chapter 2-5: Shelters

Chapter Objective

Know how the environment influences shelter sites and what factors to consider before constructing the shelter.

Unit Three

Necessities to Maintain Life

Chapter 3-1: Firecraft

Chapter Objective

Know how to build, design, and light a fire when in a survival situation.

Chapter 3-2: Equipment

Chapter Objective

Know how to care for and use issued equipment and improvise when the needed equipment is not available.

Chapter 3-3: Food

Chapter Objective

Know that a survivor must meet his body needs through the intake of food.

Chapter 3-4: Survival Use of Plants

Chapter Objective

Know the types of plants you can eat in a survival situation.

Chapter 3-5: Water

Chapter Objective

Know how to locate, procure, purify, and store water.

Unit Four

Orientation and Traveling

Chapter 4-1: Land Navigation

Chapter Objective

Know how to use a map and compass.

Chapter 4-2: Navigation Using the Sun and the Stars

Chapter Objective

Know how to use the Sun and the stars to determine direction.

Chapter 4-3: Land Travel

Chapter Objective

Know if land travel is or is not a necessity in a survival situation.

Chapter 4-4: Signaling Techniques

Chapter Objective

Know how survivors can assist in their own recovery with signaling techniques.

Chapter 4-5: Recovery Principles

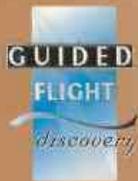
Chapter Objective

Know recovery principles.

P R I V A T E

P I L O T

M A N U A L



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Aviation Honors Ground School

Published by Jeppesen Sanderson

AS 500: Aviation Honors Ground School

This course is the foundation for students interested in receiving a private pilot's license. The material covered is an advanced, more in-depth study of aerospace topics. Aviation Ground Honors School (AHGS) is taught as the Aerospace Science component of an AFJROTC class or maybe presented as a standalone class. AHGS should only be taught by AFJROTC instructors who hold appropriate Basic Ground Instructor (BGI) or FAA Certified Flight Instructor (CFI) certificates, or Air Force Form 8's indicating aircrew instructor/evaluator experience. All JROTC programs wishing to teach AHGS program must request approval from Holm Center/CR in WINGS/Unit Waivers. AHGS requests are granted based on military and/or civilian experience. Qualified/certified instructors who are not AFJROTC staff members may teach ground school classes at an AFJROTC unit, if a waiver has been approved for the unit by Holm Center/CR.

The intent of the program is to provide AFJROTC an academically challenging course for top achievers in the AFJROTC program. Entry into ground school should be earned by high achievement in other AFJROTC courses and involvement in the cadet corps. The course should receive "honors" (i.e. advanced) credit and must have approval of principal. The student must have written approval from the SASI/ASI prior to registering and must be a junior or senior honor student who has demonstrated potential and aptitude; in addition the student must have successfully completed a minimum of 2 years of AFJROTC coursework (to include AS 200: *The Science of Flight: A Gateway to New Horizons* and maintained a grade of C or better.

When the course is completed students should be prepared to take and pass the Federal Aviation Administration (FAA) written examination per requirement of the Federal Aviation Regulations FAR 61-05 Section 61.3. Upon completion of the appropriate exam for the ground school course, the instructor will request Ground School Certificate badges from HQ Holm Center/JROL.

The *Private Pilot Manual* is the primary source for initial study and review. The text contains complete and concise explanations of the fundamental concepts and ideas that every private pilot needs to know. The subjects are organized in a logical manner to build upon previously introduced topics. Subjects are often expanded upon through the use of Discovery Insets, which are strategically placed throughout the chapters. Periodically, human factor principles are presented in Human Element Insets to help you understand how your mind and body function while you fly. Throughout the manual, concepts that directly relate to FAA test questions are highlighted by FAA Question Insets. Additionally, you can evaluate your understanding of material introduced in a particular section by completing the associated review questions.

The course objectives are:

1. Comprehend the fundamentals of flight.
2. Comprehend flight operations.
3. Comprehend the atmosphere and its effect on aircraft operations.
4. Comprehend the basics of navigation using charts and radio aids.
5. Apply the principles of aeronautical decision-making and flight-related physiological factors.

Part I

Fundamentals of Flight

Chapter 1: Discovering Aviation

1. Chapter Objectives

- a. Recall the pilot training process.
- b. Describe aviation careers that available.
- c. Analyze the different pilot ratings and certificates that may be added to a basic private pilot certificate.
- d. Evaluate the role of crew resource management (CRM) in safe aircraft operation.
- e. Recall how human factors affect aircraft operation.

2. Academic Content

Section A – Pilot Training

Section B – Aviation Opportunities

Section C – Introduction to Human Factors

3. Completion Standards

The student will demonstrate, through written or oral assessment, understanding of pilot training programs and policies, opportunities in aviation, and human factors and flight operations.

4. Part I Overview

Although we have never been able to duplicate the skill of birds, we have mastered the art of flying in our own unique way. We have built flying vehicles to transport us from town to town, coast to coast, around the world, and into space. As you explore Part I, you will begin to understand not only why we endeavor to fly, but also how the goal of flight is achieved. Discovering Aviation answers your questions about the pilot training process and introduces you to the world of aviation. You will discover how the components of the airplane operate in Airplane Systems, and as you examine Aerodynamic Principles, you will gain knowledge of the forces acting on an airplane in flight.

Chapter 2: Airplane Systems

1. Chapter Objectives

- a. Describe the aircraft components and their purpose.
- b. Examine aircraft powerplant and related systems.
- c. Describe flight instrument functions and operating characteristics, including errors and common malfunctions.

2. Academic Content

Section A – Airplanes

Section B – The Powerplant and Related Systems

Section C – Flight Instruments

3. Completion Standards

The student must demonstrate satisfactory understanding during oral assessment administered by the instructor at completion of lesson.

Student will also complete Chapter 2 questions for Section A, B, and C with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progression to Chapter 3.

Chapter 3: Aerodynamic Principles

1. Chapter Objectives

- a. Define the four forces of flight, aerodynamic laws of motion, and principles of airfoil design.
- b. Describe the effect of the three axes of flight on aircraft controllability and stability.
- c. Analyze the interaction of lateral and directional stability in safe aircraft operation.
- d. Examine stall/spin variable as they relate to takeoff, flight, and landing.
- e. Describe the importance of prompt recognition of stall indications.

2. Academic Content

Section A – Four Forces of Flight

Section B – Stability

Section C – Aerodynamics of Maneuvering Flight

3. Completion Standards

The student must demonstrate satisfactory understanding during oral assessment administered by the instructor at completion of lesson.

Student will also complete Chapter 3 questions for Sections A, B, and C with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progression to Chapter 4.

Part II

Flight Operations

Chapter 4: The Flight Environment

1. Chapter Objectives

- a. Describe important safety considerations, including collision avoidance precautions, right-of-way rules, and minimum safe altitudes.
- b. Identify airport runway marking and lighting, aeronautical charts, and types of airspace.
- c. Recall collision avoidance procedures and runway incursion avoidance.

2. Academic Content

Section A – Safety of Flight

Section B – Airports

Section C – Aeronautical Charts

Section D – Airspace

3. Completion Standards

The student must demonstrate understanding during oral quizzing by the instructor at completion of lesson.

Student completes Chapter 4 question for Sections A, B, C, and D with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progression to Chapter 5.

4. Part II Overview

In the early days of aviation, there were few airplanes and even fewer airports. At the busiest airports, the amount of air traffic was negligible compared to today. As air traffic grew, pilots became aware of the increased potential for midair collisions; airports evolved to manage many aircraft at once; airspace designations were created to govern the operation of aircraft; and common radio procedures were established to enhance communication. Part II contains a broad range of information that you need to operate safely in today's complex flight environment. The rules and procedures, which make it possible for thousands of aircraft to efficiently takeoff and land each day are examined in Chapter 4, The Flight Environment. As you explore Chapter 5, Communication and Flight Information you will discover how to effectively communicate with air traffic control and you will learn about the various sources, which provide you with information essential to flight operations.

Chapter 5: Communication and Flight Information

1. Chapter Objectives

- a. Recall radar, transponder operations, and FAA radar equipment, and services for VFR aircraft.
- b. Describe types of services provided by Flight Service Stations (FSS).
- c. Demonstrate how to use the aircraft radio for effective communication.
- d. Describe sources of flight information, particularly the *Aeronautical Information Manual* and FAA advisory circulars.

2. Academic Content

Section A – Radar and ATC Services

Section B – Radio Procedures

Section C – Sources of Flight Information

3. Completion Standards

The student must demonstrate understanding during oral quizzing by the instructor at completion of lesson. Student completes Chapter 5 questions for Sections A, B, and C with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progression to the Stage Exam in Ground Lesson 6.

Part III

Aviation Weather

Chapter 6: Meteorology for Pilots

1. Chapter Objectives

- a. Analyze the causes of various weather conditions, frontal systems, and hazardous weather phenomena.
- b. Recall how to recognize critical weather situations from the ground and during flight, including hazards associated with thunderstorms.
- c. Describe recognition and avoidance of wind shear and wake turbulence.

2. Academic Content

Section A – Basic Weather Theory

Section B – Weather Patterns

Section C – Weather Hazards

3. Completion Standards

The student must demonstrate understanding during oral quizzing by the instructor at completion of the lesson. Student completes Chapter 6 questions for Sections A, B, and C with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progression to Ground Lesson 8.

4. Part III Overview

It is one of the largest variables affecting any flight yet its fickle nature is one of the things that make flying so challenging and exciting. It, of course, is the atmosphere and the weather, which occurs within it. The information in Part III will provide you with the tools necessary to ensure that your flights in the ever-changing atmosphere are safe and enjoyable. In Chapter 6, Meteorology for Pilots, you will discover how weather forms and how its hazards can affect aircraft operations. In Chapter 7, you will analyze Graphic Reports and Forecasts and you will unlock the mystery of how meteorologists formulate weather forecasts. Then, you will see how those forecasts, and the current weather on which they are based, is presented and disseminated to pilots.

Chapter 7: Interpreting Weather Data Ground

1. Chapter Objectives

- a. Describe how to obtain and interpret weather reports, formats, and graphic charts.
- b. Recall sources of weather information during preflight planning and while in flight.
- c. Recognize critical weather situations described by weather reports and forecasts.

2. Academic Content

Section A – The Forecasting Process

Section B – Printed Reports and Forecasts

Section C – Graphic Weather Products

Section D – Sources of Weather Information

3. Completion Standards

The student must demonstrate understanding during oral quizzing by the instructor at completion of lesson. Student completes Chapter 7 questions for Sections A, B, C, and D with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progressing to the Stage II Exam.

Part IV

Performance and Navigation

Chapter 8: Airplane Performance

1. Chapter Objectives

- a. Describe how to use data supplied by the manufacturer to predict airplane performance, including takeoff and landing distances and fuel requirements.
- b. Analyze the effects of density altitude on takeoff and climb performance.
- c. Compute and control the weight and balance condition of a typical training airplane.
- d. Demonstrate basic functions of flight computers.

2. Academic Content

Section A – Predicting Performance

Section B – Weight and Balance

Section C – Flight Computers

3. Completion Standards

The student must demonstrate understanding during oral quizzing by the instructor at completion of lesson. Student completes Chapter 8 questions for Sections A, B, and C with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progressing to Ground Lesson 12.

4. Part IV Overview

The preflight preparations for a space mission are complex and detailed. Without dozens of technicians and engineers calculating performance and navigation data, successful spaceflight would be virtually impossible. While the preflight preparations of general aviation pilots are less visible, they are no less important. Part IV introduces techniques, which not only reduce your workload in the air, but also result in a safer, more enjoyable flight. Chapter 8, Airplane Performance will show you how to get the most out of your airplane, whether that means the most speed or the most economy, the shortest takeoffs or the longest range. In Chapter 9, Navigation you will learn to find your way from place to place using some of the latest technology, as well as the old and reliable techniques that will never go out of date.

Chapter 9: Navigation

1. Chapter Objectives

- a. Demonstrate basic concepts for VFR navigation using pilotage, dead reckoning, and aircraft navigation systems.
- b. Describe guidelines and recommended procedures related to flight planning, use of an FAA Flight Plan, VFR cruising altitudes, and lost procedures.
- c. Recall advanced navigation using area, long range, and global navigation systems.

2. Academic Content

Section A – Pilotage and Dead Reckoning

Section B – VOR Navigation

Section C – ADF Navigation

Section D – Advanced Navigation

3. Completion Standards

The student must demonstrate understanding during oral quizzing by the instructor at completion of lesson. Student completes Chapter 9 questions for Sections A, B, C, and D with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progressing to Ground Lesson 13.

Part V

Integrating Pilot Knowledge and Skills

Chapter 10: Applying Human Factor Principles

1. Chapter Objectives

- a. Examine important aviation physiological factors as they relate to private pilot operations.
- b. Analyze accepted procedures and concepts pertaining to aeronautical decision making and judgment, including cockpit resource management and human factors training.

2. Academic Content

Section A – Aviation Physiology

Section B – Aeronautical Decision Making

3. Completion Standards

The student must demonstrate understanding during oral quizzing by the instructor at completion of lesson. Student completes Chapter 10 questions for Section A and B with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progressing to Ground Lesson 14.

4. Part V Overview

Without knowledge and skill, the art of flying can never truly be mastered. You must apply the knowledge you have gained while exploring this manual with the skills you have acquired in the cockpit. Part V is designed to help you complete the journey toward your private pilot certificate by integrating the various elements you have already learned. Chapter 10, Applying Human Factors Principles, helps you to improve your judgment as pilot in command by increasing your knowledge of human factors concepts, such as aviation physiology and aeronautical decision-making. Chapter 11, Flying Cross-Country, presents a flight scenario, which provides a unique opportunity to examine pilot decision-making.

Chapter 11: Flying Cross-Country

1. Chapter Objectives

- a. Describe the planning process for a cross-country flight.
- b. Examine flying a typical cross-country flight, including evaluation of in-flight weather and decisions for alternative actions, such as a diversion.
- c. Demonstrate how to evaluate and plan for alternatives.

2. Academic Content

Section A – The Flight Planning Process

Section B – The Flight

3. Completion Standards

The student must demonstrate understanding during oral quizzing by the instructor at completion of lesson. Student completes Chapter 11 questions for Section A and B with a minimum passing score of 80%. Instructor reviews incorrect responses to ensure complete student understanding prior to progressing to the Stage III Exam.

AS 510: AFJROTC Honors Senior Project

This project is provided for those units who have students that want to continue on in AFJROTC during their senior year and receive honors credit. It will allow top cadets to earn Honors Credit for a more demanding version of “Management of the Cadet Corps” allowing cadets the opportunity to improve their leadership, management, and organizational skills.

This culminating honors project is designed for cadets to demonstrate essential skills through reading, writing, speaking, production, and/or performance. Cadet skills in analysis, logic, and creativity will also be showcased through successful completion of this project.

The Honors Senior Project is primarily targeted for senior cadets in a three- or four-year program. However, it is not uncommon for other academically successful cadets enrolled in Advanced Placement, other Honors, or in an International Baccalaureate program to successfully complete this project.

In order to retain these cadets in the unit’s AFJROTC program and to continue to improve their critical thinking and research skills, selected cadets with demonstrated academic capabilities may also enroll in this class with SASI approval. Successful completion of the Honors Project will allow cadets to receive honors credit while maintaining their enrollment in the AFJROTC program. For cadets to receive honors credit, they must meet state/district/school honors course criteria.

Recommended subject material must come from HQ-Curriculum approved curriculum materials. All materials including the grading rubric for the Honors Senior Project is posted at:

- [WINGS](#) | [Menu](#) | [Published Files](#) | [Directory](#) | [JROTC](#) | [Curriculum](#) | [Honors Project](#).

Part III – Leadership Education Courses

Leadership Education is an integral part of each year’s instruction. There are separate course materials for the Leadership Education and Aerospace Science academics program, however in practice, the overlap is considerable. The development of writing and speaking skills are categorized as “leadership education topics,” yet when used to present subject matter related to what is being taught in the “aerospace science” area, the results are twofold. Additionally, many after-school activities provide the proving ground for newly learned leadership skills. Activities such as drill teams, model rocketry clubs, and the formal cadet corps’ operation all require students to accomplish considerable responsibilities.

Goals for Leadership Education Courses

Students will learn about:

1. The program heritage, organization, and traditions; individual self-control; wellness, health, and fitness; US citizenship and government; and other systems of government.
2. Effective communication; increased awareness of self and others; values of personal integrity, service, and excellence; and improved leadership.
3. College and career readiness; and how to prepare for life after high school in the high-tech, globally oriented, and diverse workplace of the 21st century.
4. Management basics, theories, and approaches; planning and decision making; organizing to manage change, stress, and innovation; and leading individuals and groups.
5. Drill and ceremonies execution and performance, and how drill helps the individual, builds the team, and develops leaders.

<i>Leadership Education Courses</i>	
Course Title	Recommended Hours
Leadership Education 100: Citizenship, Character, and Air Force Tradition	36
Leadership Education 200: Communication, Awareness, and Leadership	36
Leadership Education 300: Life Skills and Career Opportunities	36
Leadership Education 400: Principles of Management	36
Leadership Education 500: Drill and Ceremonies	36

*Citizenship
Character
& Air Force
Tradition*

LEADERSHIP EDUCATION I



***Leadership Education 100:
Citizenship, Character, & Air Force Tradition***

Published by the McGraw-Hill Companies, Inc.

Leadership Education 100: Citizenship, Character, & Air Force Tradition

The LE-100 textbook introduces cadets to the Air Force Junior Reserve Officer Training Corps (AFJROTC) program providing a basis for progression through the rest of the AFJROTC program while instilling elements of good citizenship. It contains sections on cadet and Air Force organizational structure; uniform wear; customs, courtesies, and other military traditions; health and wellness; fitness; individual self-control; and citizenship.

The course objectives are:

After successfully completing the *Leadership Education I: Citizenship, Character & Air Force Tradition* textbook the student will:

1. Know the importance of AFJROTC history, mission, purpose, goals, and objectives.
2. Know military traditions and the importance of maintaining a high standard of dress and personal appearance.
3. Know the importance of attitude, discipline, and respect, and why values and ethics are so important.
4. Know the importance of individual self-control, common courtesies and etiquette.
5. Know that an effective stress management program improves the quality of life.
6. Know why courtesies are rendered to the United States flag and the National Anthem.
7. Know why it is important to be a good democratic citizen and to be familiar with the different forms of government.
8. Know the importance of keeping yourself well and helping others stay well.

Leadership Education I: Citizenship, Character, & Air Force Tradition

Course Units		Recommended Hours
Unit One	Heritage, Organization, and Tradition	9
Unit Two	Individual Self-Control	9
Unit Three	Wellness and Fitness	9
Unit Four	Citizenship in the United States	9

****Note:*** This course is currently under revision; notification will be sent when the new course is available to order. This 2005 version is authorized through the next academic year, but effective ***fall 2015*** all units must be teaching the new course.

Unit One

Heritage, Organization, and Tradition

Chapter 1: Introduction to Air Force Junior ROTC

1. Chapter Objectives

- a. Know the purpose of the Air Force Junior ROTC program.
- b. Know the structure of the Air Force Junior ROTC program.
- c. Know the history of the military uniform.
- d. Know Air Force Junior ROTC uniform and standards for dress and personal appearance.
- e. Know Air Force and Air Force Junior ROTC insignia.
- f. Know Air Force Junior ROTC and historic customs and courtesies.
- g. Know when and how to salute.
- h. Know how to address military personnel using the correct title.
- i. Know the meaning and purpose of attitude and discipline.
- j. Know the roles of respect and integrity in the Air Force Junior ROTC program.
- k. Know how values and ethics are formed and how they affect both individuals and society.
- l. Know the United States Air Force core values.
- m. Know how to make ethical decisions.

2. Chapter In Brief

The purpose of this chapter is to give the students a basic introduction to AFJROTC and the history of AFJROTC. Chapter One includes five lessons entitled: “Organization of the AFJROTC Program”, “The Military Uniform and Appearance Standards”, “Customs and Courtesies for Air Force Junior ROTC”, “Attitude, Discipline, and Respect”, and “Ethics”. The mission of the AFJROTC program is covered. The mission informs the students they are going to learn something that they can use throughout their lifetime. To help students understand the concept of a unit's mission, the instructor might relate it to the mission of a local business. It is emphasized that the cadet corps is a structure that will help the students learn the importance of organization and the importance of being able to work together. Students are introduced to the military uniform and appearance standards, as well as customs and courtesies for AFJROTC. Cadets will learn how their dependence on one another and how their attitudes affect the entire unit. Finally, they will learn to understand the importance of ethics and that ethics may be different in different cultures and may also change over time.

Unit Two

Individual Self-Control

Chapter 2: Personal Behavior

1. Chapter Objectives

- a. Know how to behave in social settings.
- b. Know how to maintain appropriate personal hygiene and grooming.
- c. Know the main causes and effects of stress.
- e. Know how to manage stress.
- f. Know how to make healthful decisions.
- g. Know how to set and achieve personal goals.
- h. Know how to communicate effectively.
- i. Know suicide risk factors and signs.
- j. Know when and how to seek professional mental health care.
- k. Know how to predict and prevent violence.
- l. Know how to protect yourself from violence.

2. Chapter In Brief

This chapter consists of five lessons. Lesson One, “Common Courtesies and Etiquette”, discusses such topics as common courtesies and etiquette. In Lesson Two, “Managing Stress”, cadets will learn about stress and how to recognize the causes of stress in their own lives. The lesson offers many practical suggestions for dealing with stress. In Lesson Three, “Behaving Positively”, students will learn how the decisions they make can affect their health for the rest of their lives. Emphasis is placed on the importance of good decision-making skills and goal-setting. Lesson Four “Mental and Emotional Health Care” stresses that mental and emotional health, like physical health, are important for a person’s well-being; students will learn to better understand their emotions and express them in healthy ways. Lastly, Lesson Five, “Avoiding and Preventing Violence” covers things cadets need to know in order to reduce the risk of becoming a victim of violence.

Unit Three

Wellness and Fitness

Chapter 3: Be Health Smart

1. Chapter Objectives

- a. Know why and how to seek preventative health care services.
- b. Know the roles of various health organizations, including government agencies.
- c. Know how to choose and maintain a healthful diet.
- d. Know how to use resources to make healthful dietary decisions.
- e. Know how to prepare for a medical emergency.
- f. Know what to do in a medical emergency.

2. Chapter In Brief

This chapter includes three lessons. Lesson One, “Health Care”, stresses that everyone needs and should get health care. Students learn about accessing and paying for health care; nutrition and choosing and maintaining a healthful diet are discussed. In Lesson Two, “Nutrition”, facts are presented on wise food choices that will improve and protect their health. Finally, in Lesson Three, “First Aid”, there is discussion on knowing that how to help someone who is injured or ill can aid in recovery or even save a life.

Chapter 4: Physical Activity and Fitness

1. Chapter Objectives

- a. Know the importance of physical fitness.
- b. Know the measures of physical fitness.
- c. Know how to plan and execute a physical fitness plan.
- d. Know how to eat healthfully.
- e. Know the health risks of eating disorders.
- f. Know how to seek help for an eating disorder.

2. Chapter In Brief

In Lesson One of this chapter, “The Benefits of Physical Activity” cadets will study about the importance of physical activity and fitness. The study of this lesson will help students plan a physical fitness program that will work for them. In Lesson Two entitled “Your Body Image”, students will learn that a person who feels good about the way he or she looks is more likely to have a positive self-image. This lesson also informs students about what they can do to reach and maintain their appropriate weight.

Chapter 5: Making Safe, Drug-Free Decisions

1. Chapter Objectives

- a. Know the difference between medicine and drugs.
- b. Know the dangers of drug abuse.
- c. Know how to avoid drugs.
- d. Know when and how to seek help for drug-related issues.
- e. Know the dangers of tobacco.
- f. Know how to avoid tobacco use.
- g. Know how to seek help in quitting tobacco use.
- h. Know the dangers of alcohol.
- i. Know how to avoid using alcohol.
- j. Know when and how to seek help for alcohol-related issues.

2. Chapter In Brief

Study of Lesson One, “Medicines and Drugs” will make students better informed about medicines and drugs and give the information they need to make healthful decisions for themselves. Students will learn in Lesson Two, “Tobacco”, that tobacco is a dangerous and addictive substance; this lesson tells about the dangers of tobacco use and the benefits of being “smoke free”. Lesson Three entitled “Alcohol”, covers the dangers of alcohol use so students can protect their health and achieve their goals.

Unit Four

Citizenship in the United States

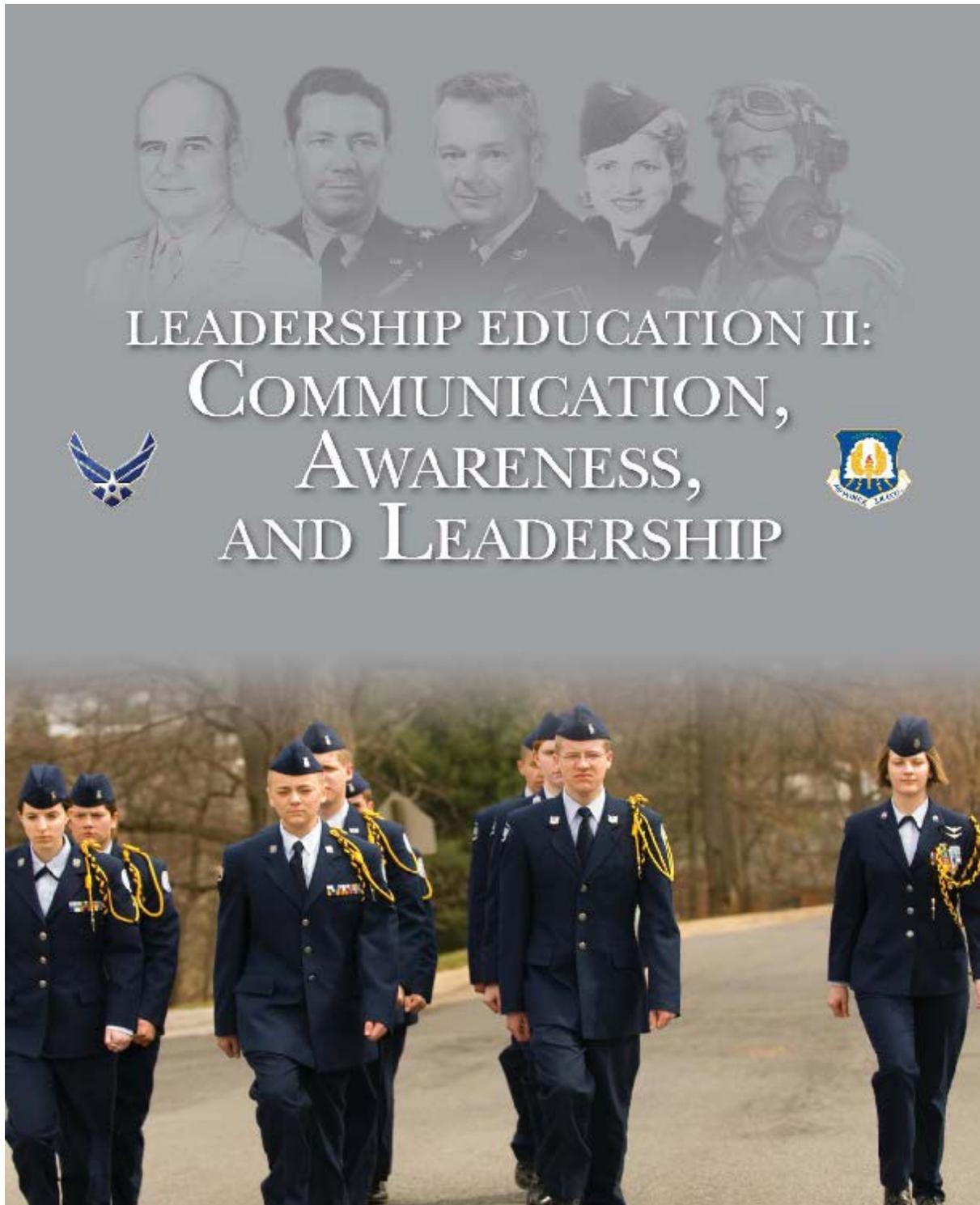
Chapter 6: Foundations of United States Citizenship

1. Chapter Objectives

- a. Know the history and courtesies rendered to the flag of the United States and the National Anthem.
- b. Know about the Great Seal of the United States and the Air Force Seal.
- c. Know the Pledge of Allegiance and the American's Creed.
- d. Know the role and functions of government.
- e. Know the citizenship and naturalization process.
- f. Know the duties and responsibilities of citizenship.
- g. Know the content of the United States Constitution.
- h. Know how the United States Constitution is amended and interpreted.
- i. Know the content of the Bill of Rights.
- j. Know how citizens can protect their rights and freedoms.
- k. Know the structure of the three branches of government.
- l. Know the duties and responsibilities of the three branches of government.
- m. Know the defining characteristics of authoritarian governments.
- n. Know the salient features of current non-democratic governments and nations.
- o. Know the defining characteristics of democratic governments.

2. Chapter In Brief

Chapter Six, Lesson One, "The American Flag and Other Symbols" contains discussion about the American flag, the National Anthem, and other patriotic symbols that reveal a lot about our nation and the ideals that we uphold. Lesson One describes the history of those symbols and the proper way to show them respect. In Lesson Two, "Civics", cadets learn that as citizens who enjoy the benefits of living in the United States, they need to be aware of the responsibilities that go along with these benefits. In Lesson Three, "The Constitution of the United States", emphasis is placed on the fact that our country's Constitution is a symbol of pride and a force for national unity. Students review the Constitution and understand how important it is to our way of life. Students learn in Lesson Four, "The Bill of Rights", that an important part of being informed citizens is to know the rights and protections we have. Their study about the "Bill of Rights" will help them become more knowledgeable about these rights. Lesson Five, "US National Government" discusses that being a responsible citizen involves understanding the basic functions of the national government. The U.S. Congress, the presidency, and the judicial system are discussed. In conclusion, Lesson Six, "Comparing Systems of Government", emphasis is placed on instant communication and how it makes each of us a citizen of the world. Cadets learn that they will need to know how other people in the world live and are governed as they take their places as adults in this new world.



***Leadership Education 200:
Communication, Awareness, and Leadership***
Published by Pearson Custom Publishing, Inc.

Leadership Education 200: Communication, Awareness, and Leadership

Leadership Education 200 stresses communications skills and cadet corps activities. Much information is provided on communicating effectively, understanding groups and teams, preparing for leadership, solving conflicts and problems, and personal development. Written reports and speeches compliment the academic materials. Cadet corps activities include holding positions of greater responsibility in the planning and execution of corps projects.

The course objectives are:

After successfully completing the *Leadership Education II: Communication, Awareness, and Leadership* course the student will:

1. Apply the key factors of effective communications.
2. Know the ways in which personal awareness affects individual actions.
3. Know the key elements of building and encouraging effective teams.
4. Apply the key behaviors for becoming a credible and competent leader.

<i>Leadership Education II: Communication, Awareness, and Leadership</i>		
Course Units		Recommended Hours
Unit One	Learning, Communication, and Personal Development	9
Unit Two	Building Personal Awareness	9
Unit Three	Understanding Groups and Teams	9
Unit Four	Preparing for Leadership	9

Unit One

Learning, Communication, and Personal Development

Chapter 1: Learning and Communication

1. Chapter Objectives

- a. Know how the communication process works.
- b. Know the definitions of encoding and decoding.
- c. Know verbal and nonverbal communication cues.
- d. Know barriers to effective communication.
- e. Know the importance of feedback.
- f. Know the difference between listening and hearing.
- g. Know the types of listening.
- h. Know the importance of listening.
- i. Know the importance of learning to think.
- j. Know the parts of thinking.
- k. Know the standards for critical thinking.
- l. Know how to ask good questions.

2. Chapter In Brief

Chapter 1 consists of three lessons. In the first lesson of Chapter 1, “Learning to Communicate”, students will learn how to learn and how to communicate. The need for lifelong learning is explained. If learning is to take place, students must learn to communicate well. Students also learn that understanding the foundations of communication will prepare them to listen to others, think critically, write and speak effectively, and apply what they have learned to their personal development.

In Lesson Two, “Learning to Listen”, students will learn how to listen effectively and that the ability to listen well affects one’s communication skills, learning, and personal development. They will also understand the difference between hearing and active listening. Knowing the importance of listening and how the listening process works will prepare students to become better communicators.

Finally, in Lesson Three, “Learning to Think Critically”, it is suggested that this lesson be approached from the point of view that learning to think critically – like learning to listen – takes practice and effort. The importance of critical thinking, particularly the ways it supports effective communication and personal development is emphasized.

Chapter 2: Communicating Effectively

1. Chapter Objectives

- a. Know the purpose of the basic checklist.
- b. Know the six steps in the basic checklist for communication.
- c. Know the organizational patterns.
- d. Know the importance of feedback.
- e. Know the elements of effective writing.
- f. Know the three-part structure of a draft paper.
- g. Know how to recognize active voice in writing.
- h. Know the rules of subject-verb agreement.
- i. Know the rules for the use of personal pronouns.
- j. Know the basics of e-mail protocol.
- k. Apply the elements of effective writing.
- l. Know the steps for preparing to speak effectively.
- m. Know the steps for organizing a presentation.
- n. Know the techniques for presenting a talk.
- o. Apply the elements of effective speaking.

2. Chapter In Brief

Chapter 2 also consists of three lessons. In Lesson 1, “The Basic Checklist”, students will be taught how to communicate effectively. The importance of the organization of communication is explained, and emphasis is placed on the fact that writing is a process. Students learn that the basic checklist for communication will prepare them to develop into better writers and better speakers.

Lesson Two, “Writing Effectively”, emphasizes to students that they need to know how to write effectively, whether they are writing papers or composing e-mails. The ability to write effectively will help them in their course work, in their personal communication, and in their future jobs. In this lesson, students will be required to write a short letter or article using the effective writing style that should include an introduction, body, conclusion, and transitions. Suggested topics should include items relating to the leadership education or aerospace science curriculum, school or community activities, or current events.

In Lesson Three, entitled “Speaking Effectively”, students will learn how to speak in front of groups and strategies for giving effective presentations. This lesson emphasizes the importance of learning to speak effectively and explains the impact this skill will have on students’ course work and their ability to get a good job and succeed in other areas. Students will prepare a speech using the effective speaking format. The speech should include an introduction, body, conclusion, and transitions. Suggested topics will include items relating to the leadership education or aerospace science curriculum, school or community activities, or current events.

Unit Two

Building Personal Awareness

Chapter 3: Understanding Your Attitude

1. Chapter Objectives

- a. Know Maslow's hierarchy of needs.
- b. Know the elements of an attitude.
- c. Know how goals influence actions.
- d. Know the ways that attitudes affect actions.
- e. Know common defense mechanisms.
- f. Know the key elements of a positive attitude.
- g. Know the priority of task completion and people.
- h. Know the qualities of perseverance in a leader.
- i. Know the qualities of courage in a leader.
- j. Know the qualities of patience in a leader.

2. Chapter In Brief

Chapter 3 contains three lessons. In lesson 1 entitled “Interpreting Events and Experiences”, students will be taught how to interpret events and experiences and how to understand underlying perspectives and attitudes. They will learn that our perspectives drive the way in which we interpret the events of our lives, and that our perspectives also drive the purposes we adopt, the passions we develop, and the practices we apply. They will also learn that our actions (practices and behaviors) reveal our attitudes and perspectives (thoughts, feelings, and beliefs). Our personalities influence our perspectives and motivations as individuals. Discussing these issues will help students become more self-aware. A basic assumption is that a leader who is self-aware is more effective than one who is not.

Lesson Two “Building a Positive Attitude”, teaches that students need to know how to develop and exhibit positive attitudes. Emphasis is placed on the ways attitudes affect actions. Students are made aware of the importance of a positive attitude and of the tools they can use to build a positive attitude.

Lesson Three, “Overcoming Challenging Experiences”, informs students that they need to know how to recognize and define leadership, and moreover they need to know the qualities of a good leader and to understand how these qualities relate to overcoming challenging experiences and hardships. The value of good leadership is emphasized. Case studies are provided for student's use to help them learn from example – they should be reinforced. It is suggested for the case studies, that students be broken up into groups with each group reviewing one leadership example from the text. Each group should write down answers to questions provided and then present their discussion to the class.

Chapter 4: Understanding Your Action

1. Chapter Objectives

- a. Know the traits of integrity in good citizens.
- b. Know what it means to be a positive role model.
- c. Know the impact of character on behavior.
- d. Know the eight basic elements of personality types described in the Myers-Briggs Type Indicator® (MBTI®).
- e. Know the ways in which personality influences actions.
- f. Know the strengths and weaknesses of different personality types and styles.
- g. Know the consequences of taking or avoiding responsibility.
- h. Know the common ways in which people use defense mechanisms to avoid responsibility.
- i. Know the consequences of actions and decisions.

2. Chapter In Brief

Chapter 4 contains three lessons. Lesson 1 “Integrity and Character” stresses that students need to know how to value and exhibit integrity and character. Unless they understand the importance of integrity and the ways in which character affects behavior, however, they will not be inspired to strive after integrity and character. This lesson examines issues related to credibility and personal congruence – how well do our actions match our stated beliefs and values? The value of integrity and what it means to be a positive role model and the impact of character on behavior are all emphasized.

In Lesson 2, “Personality, Style, and Interactions”, students study about the characteristics of their personalities. This lesson uses the Myers-Briggs Type Indicator® (MBTI®) as the basis. By students understanding their personality type, they will be better prepared to explore decisions about their futures. Emphasis is placed on the value of a basic personality model as a means of helping students better understand their personalities. Emphasis is placed on the value of different kinds of personalities and styles.

Lesson 3 is entitled “Consequences and Responsibilities”. In this lesson, students are taught to demonstrate responsibility and to anticipate the consequences of their actions. They learn to recognize common defense mechanisms and how to avoid using them. Students are taught that they must learn to admit and benefit from mistakes. Finally, they are taught they should know about the advantages of taking responsibility.

Unit Three

Understanding Groups and Teams

Chapter 5: Developing Vision and Teams

1. Chapter Objectives

- a. Know how to work as a team.
- b. Know the characteristics of effective teams.
- c. Know the four stages of team development.
- d. Know how to plan for and run an effective meeting.
- e. Know the dimensions of respect.
- f. Know the values of tolerance and understanding.
- g. Know how to improve group effectiveness.
- h. Know the elements of a common vision.
- i. Know how to write a team charter.
- j. Know how to enlist others to work toward a common vision.

3. Chapter In Brief

Lesson 1, “Group and Team Dynamics”, emphasizes that students need to know how to work in groups and teams and what is expected of them as team members and how to get along with their teammates. They also learn to know how teams develop and to recognize the importance of team rules and roles. Learning how to be an effective member of a group will serve students well in life.

Lesson 2, “Building Mutual Respect”, deals with how to demonstrate mutual respect. Students need to know how to avoid expressions of prejudice, discrimination, and stereotyping, and how to get along in groups. These skills are important not only in school, but also in life. Emphasis is placed on the importance of mutual respect and its impact on relationships and groups.

Lesson 3, “Establishing a Common Vision” informs students on how to be part of a team with a common vision and how to develop a common vision. Students are taught how to write a team charter and enlist others to work toward a common vision. Emphasis is placed on the high return for a team that pursues a common vision.

Chapter 6: Solving Conflicts and Problems

1. Chapter Objectives

- a. Know about solving problems and conflicts.
- b. Know types of problems in groups.
- c. Know levels of conflict in groups.
- d. Know patterns of reacting to conflict.
- e. Know common group problems.
- f. Know common indicators of group problems.
- g. Know the six steps of problem solving.
- h. Know the nature of consensus.
- i. Know methods of building consensus.

2. Chapter In Brief

The first lesson in Chapter 6, “Identifying Levels of Conflict”, informs students that they need to know how to identify levels of conflict. Students are also informed in this lesson that they need to know about types of problems in groups, levels of conflict in groups, and patterns of reacting to conflict. Emphasis is placed on the importance of handling conflict appropriately in groups and teams. As a team member, students are taught to understand how to handle conflict individually and how to help the team handle it as a group.

Lesson 2, “Steps for Problem Solving” teaches students how to solve problems and informs them about common group problems, common indicators of group problems, and the six steps of problem solving. Emphasis is placed on the importance of problem solving and that it is a skill that will help students not only in school, but in all aspects of their lives.

In Lesson 3, entitled “Building Consensus”, such topics as the nature of consensus and the methods of building consensus among group and team members are covered. Students will learn that building consensus is essential for group effectiveness because it provides a way to solve disagreements. Emphasis is placed on the importance of building consensus when members of a group disagree or have other problems.

Unit Four

Preparing for Leadership

Chapter 7: A Leadership Model

1. Chapter Objectives

- a. Know the basic elements of leadership.
- b. Know the Air Force core values.
- c. Know the reasons for recognizing the core values.
- d. Know the traits of effective leaders.
- e. Know the importance of competence in a leader.
- f. Know the importance of commitment in a leader.
- g. Know the key principles of leadership.
- h. Know the importance of setting an example.
- i. Know the importance of caring for your people.
- j. Know the importance of accepting responsibility.

2. Chapter In Brief

Chapter 7, Lesson 1 entitled “Leadership Factors”, includes discussion on what students need to know about the basic elements of leadership, the Air Force core values, and reasons for recognizing the core values. Emphasis is placed on the importance of leadership in the Air Force and in society as a whole.

Lesson 2, “Leadership Traits”, covers what students need to know and understand about the traits of effective leaders and the importance of competence and commitment. Instructors are encouraged to emphasize the significance of effective leadership.

Lesson 3, “Leadership Principles”, emphasizes that students need to know how to demonstrate effective leadership. Students will learn principles of leadership and the importance of certain behaviors such as setting the example, caring for their people, and accepting responsibility. It is suggested that this lesson be approached by emphasizing the examples of good leaders as described in the text. By reading about and discussing models of good leadership, students will be able to grasp sound leadership principles.

Chapter 8: Adaptive Leadership

1. Chapter Objectives

- a. Know the two orientations to leadership behavior.
- b. Know the four leadership styles.
- c. Know the primary factors of the leadership situation.
- d. Know the readiness factors of followers.
- e. Know effective ways to relate to leaders.
- f. Know the ways to prepare for leadership.
- g. Know the key elements of effective coaching and mentoring.
- h. Apply ways to practice leadership.

2. Chapter In Brief

Lesson 1 “Leadership Styles and Mission Demands”, emphasizes what students need to know in order to lead and meet mission demands. They are taught the two orientations of leadership behavior, the four leadership styles, and the primary factors of the leadership situation. Emphasis is placed on the importance of a leader’s behavior and style in meeting the demands of the situation.

In Lesson 2, entitled “Situations and Team Capabilities”, students will learn how to be effective followers. Emphasis is placed on the readiness factors of followers and the link between good followership and good leadership and the importance of good followers with respect to a team’s capabilities.

Lesson 3, “Leadership Preparation”, stresses that students need to know how to lead effectively. All previous lessons on leadership build up to this lesson. Emphasis is placed on the importance of leadership and of putting into practice the leadership principles this unit has taught.

LEADERSHIP EDUCATION 300 LIFE SKILLS & CAREER OPPORTUNITIES



Second Edition

Leadership Education 300: Life Skills & Career Opportunities

Published by Pearson Learning Solutions

Leadership Education 300: Life Skills and Career Opportunities

Life Skills and Career Opportunities, Second Edition provides an essential component of leadership education for today's high school students. This course is designed to prepare students for life after high school in the high-tech, globally oriented, and diverse workplace of the 21st century.

Students will learn how to become a more confident financial planner and to save, invest, and spend money wisely, as well as how to avoid the credit trap. They will learn about real-life issues such as understanding contracts, leases, warranties, legal notices, personal bills, practical and money-saving strategies for grocery shopping, apartment selection, and life with roommates. The Holland Interest Inventory and other self-assessments will help them to reveal their attitudes, aptitudes, and personal skills. This self-understanding will allow them to explore career paths and understand requirements that they will need to be successful at work and in life.

To help students increase their potential for success through education, they will learn how to select a school that is right for them; how to apply for admission to a vocational or technical school, community college, or college/university; and how to succeed in these learning environments. Information is provided on how to conduct the job search for students who wish to enter the workforce right after high school or after additional education and training. They will learn how to prepare a winning résumé, and how to develop effective interviewing skills. Students will become more skilled at using the Internet for career research and learn how to network safely using social media. The text also provides information on working for the federal government to include careers in the military, aerospace industry, and public service. Finally, students will consider the most important elements of life skills for all Americans: civic responsibilities, such as volunteering, registering to vote, jury duty, and draft registration.

The course outcomes are:

1. Analyze the elements of successful financial management skills.
2. Create a plan to safeguard personal resources.
3. Analyze the different ways of pursuing a career path.
4. Analyze the requirements for applying to a college or university.
5. Analyze positive and negative impact of college life in meeting career goals.
6. Evaluate the essential process for successfully pursuing desired career or job.
7. Evaluate the benefits of working for the Federal Government.
8. Create a plan for successful career development.

Leadership Education 300: Life Skills and Career Opportunities

Course Chapters	Recommended Hours
Chapter 1 Charting Your Financial Course	4.5
Chapter 2 Managing Your Resources	4.5
Chapter 3 Career Opportunities	4.5
Chapter 4 Aiming Towards a College Degree	4.5
Chapter 5 Charting Your Course	4.5
Chapter 6 Applying for Jobs	4.5
Chapter 7 Working for the Federal Government	4.5
Chapter 8 Developing Your Career Skills	4.5

Chapter 1: Charting Your Financial Course

1. Learning Outcomes

- a. Create a personal budget and financial plan.
- b. Analyze services when choosing a bank.
- c. Evaluate the buying and selling issues that occur in real life.

2. Chapter in Brief

“Chapter 1: Charting Your Financial Course” explains important concepts in building financial stability and wealth. Students will learn how to make a plan for earning money, saving it, and spending it. A personal financial plan can be the difference between the ability to do the things each of them wants and the feeling that they’ll never reach their financial goals in life. This chapter will provide them with an overall picture of how to create a budget before the text moves on to examine the specifics of savings, bank accounts, and the real-life issues students will face when buying and selling.

Chapter 2: Managing Your Resources

1. Learning Outcomes

- a. Construct a plan for building your credit history.
- b. Evaluate the advantages of having property protected.

2. Chapter in Brief

“Chapter 2: Managing Your Resources” describes the types of credit and discusses positive and negative aspects of using credit, along with monitoring credit to build a positive credit history. By evaluating the types of insurance options available to protect resources, students will learn the importance of insurance and tips for protecting their personal and financial information.

Chapter 3: Career Opportunities

1. Learning Outcomes

- a. Create a career path strategy to assist in making career decisions.
- b. Evaluate the types of career paths as related to interests/aptitude/attitude.
- c. Analyze the requirements needed to pursue the career that best fits personal skills and interests.

2. Chapter in Brief

“Chapter 3: Career Opportunities” examines career opportunities students may pursue. It is designed to provide them with an overview of the high-tech, globally oriented, and diverse 21st-century workplace. The chapter discusses the importance of charting a career path, comparing career options, and evaluating key factors when choosing a career path. They will explore who they are by examining their own interests, values, attitudes, and abilities. Students self-discovery will help them choose careers based on each of them as a unique individual, and help them consider which work environments are best suited for their personal preferences. Finally, they will analyze different career paths available to them immediately after high school graduation or post-secondary vocational training or college education. By linking technical and educational career paths in this chapter, the intent is to communicate that both choices are worthwhile options.

Chapter 4: Aiming Towards a College Degree

1. Learning Outcomes

- a. Create a personal plan for financing college.
- b. Analyze the criteria for selecting a college based on your personal goals.
- c. Create test-taking strategies to promote success on college placement exams.
- d. Create a college application essay.

2. Chapter in Brief

“Chapter 4: Aiming Towards a College Degree” focuses on selecting and applying for college. Students will examine the financial costs of attending college, explore sources of funding, and learn about the criteria, or standards, all students should consider when choosing a college. This chapter also covers college entrance exams and college placement tests; how to write an application essay; how to prepare for an admissions interview; and what to look for during a campus visit.

Chapter 5: Charting Your Course

1. Learning Outcomes

- a. Evaluate the importance of personal accountability.
- b. Analyze careers associated with possible majors.
- c. Create a plan for managing your college schedule.

2. Chapter in Brief

“Chapter 5: Charting Your Course” examines aspects of preparing to attend college and charting the student’s course of study. They will explore aspects of campus life, including resources, organizations, and policies. They will also cover ways to ensure success in the college environment, including how to make healthy choices. Students will take the information they learned about themselves from Chapter 3 and examine the decision process for choosing a college major. This chapter will also explain the importance of effective time management and explains how they can avoid procrastination.

Chapter 6: Applying for Jobs

1. Learning Outcomes

- a. Evaluate multiple sources for finding job openings.
- b. Create a personal resume and cover letter specific to a job opening.
- c. Evaluate how employers interview prospective employees.

2. Chapter in Brief

“Chapter 6: Applying for Jobs” evaluates the process of successfully pursuing a desired career. By examining what employers are looking for, the students—the career seekers, will be employing the most effective tool needed to sell their skills. They will learn how to organize the job search. They will also consider different résumé types, and be able to prepare a persuasive cover letter and résumé. Students will learn about different types of interviews, how an interview is conducted, and effective tips for interview preparation.

Chapter 7: Working for the Federal Government

1. Learning Outcomes

- a. Analyze military service as a career.
- b. Differentiate between different careers in the aerospace industry.
- c. Evaluate careers in public service.

2. Chapter in Brief

“Chapter 7: Working for the Federal Government” evaluates the benefits of working for the federal government. This chapter provides the requirements needed to enlist in the military or to enter as a member of the officer corps. The text also compares educational opportunities for enlisted members from each military service, making military service a career option, and describes how military training is useful when seeking a civilian career. Educational requirements are examined for careers in aerospace and explore specific career examples in aerospace. Finally, this chapter will provide information for selection and training in careers in criminal justice, fire science, and homeland security.

Chapter 8: Developing Your Career Skills

1. Learning Outcomes

- a. Analyze personal values that contribute to professional success.
- b. Evaluate barriers to effective collaboration and teamwork.
- c. Generate a career path strategy.
- d. Evaluate the positive aspects of civic responsibility.

2. Chapter in Brief

“Chapter 8: Developing Your Career Skills” will help students create a plan for successful career development. Students will summarize the process of successfully planning for professional development in the workplace. They will learn to create a professional portfolio, organize personal and organizational values, and maintain effective verbal and nonverbal communication. They will also learn how to seek and receive constructive feedback and identify successful tips for earning a promotion. Finally, the text will cover civic responsibilities. It will review the Selective Draft system, why it is important to vote, work as a volunteer, and be a productive member in the community.

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LEADERSHIP EDUCATION 400:



PRINCIPLES OF MANAGEMENT



Leadership Education 400: Principles of Management

Published by Pearson Custom Publishing, Inc.

Leadership Education 400: Principles of Management

This is the fourth textbook in the Leadership Education series. This course provides exposure to the fundamentals of management. The text contains many leadership topics that will benefit students as well as provide them with some of the necessary skills needed to put into practice what they have learned during their time in AFJROTC. We are confident this course, coupled with what cadets have already learned during their time in AFJROTC, will equip them with the qualities needed to serve in leadership positions within the corps. Throughout the text are many ethical dilemmas, case studies, and role play activities built into the lessons. These activities are based on real life experiences and will allow students the opportunity to practice what they learn by getting involved in discussions and expressing their opinions.

The course objectives are:

After successfully completing the *Leadership Education 400: Principles of Management* course the student will:

1. Know the history and the importance of management.
2. Know the techniques and skills involved in planning and decision making.
3. Know the importance of managing change, stress, and innovation.
4. Know the key elements of individual and group behavior, the importance of the communication process, and the characteristics of a good leader.

Leadership Education 400: Principles of Management

Course Units		Recommended Hours
Unit One	Introduction to Management	9
Unit Two	Planning	9
Unit Three	Organizing	9
Unit Four	Leading	9

Unit One

Introduction to Management

Chapter 1: Managers and Management

1. Chapter Objectives

- a. Know who managers are.
- b. Know where managers work.
- c. Know what management is.
- d. Know what managers do.

2. Chapter In Brief

Chapter 1 consists of two lessons. Lesson 1 “Management Basics” begins by addressing who managers are, where they work, what management is, and what managers do. Management is defined as well as the titles of top managers. Management processes are covered and defined. Students will learn why people perform better when managers work well with team members. Students will also learn about making decisions and dealing with change.

Lesson 2 “Management in the Marketplace” covers such topics as the skills and competencies successful managers possess; the importance the marketplace puts on managers; why management is worth studying, and how management relates to other disciplines. Emphasis is placed on specific skills and competencies managers need to possess in order to be effective. There is discussion on the results good managers produce and the pay associated with management positions which will convey to students why management is worth studying. Lastly, students will learn how management skills relate to other disciplines of study such as political science, psychology, anthropology, economics, philosophy, and sociology, etc.

Chapter 2: The Historical Roots of Contemporary Management Practice

1. Chapter Objectives

- a. Know the history of management before the modern era.
- b. Know the classical contributions to modern management.
- c. Know the human resources approach to management.
- d. Know the quantitative approach to management.
- e. Know how social events shape management approaches.
- f. Know management approaches today.

2. Chapter In Brief

Chapter 2 contains two lessons. Lesson 1 is titled “Management Theories”. The ways that historical theories currently influence what managers do today is discussed. Students will see the important links between past theories, present actions, and future innovations. They will learn that today’s innovations have many of their roots in the past. There is information on the contributions that Adam Smith, Henri Fayol, Frederick Taylor, and Max Weber made to the field of management. Students will learn about the influence the industrial revolution had on management practice as well as classical contributions to modern management and how classical writings are applied today.

Lesson 2 is titled “Management Approaches” and places emphasis on the various approaches to management used today to include the process approach, systems approach, and the contingency approach, and the different points of view that people have toward management. Students will learn that some approaches are more oriented to treating people well and others are more oriented to structured practices and processes. Emphasis is placed on the importance of considering both the satisfaction of workers and the efficiency and effectiveness of work. There are discussions on the contributions and views of Hugo Munsterberg, Mary Parker Follett, Chester Barnard, Dale Carnegie, Abraham Maslow, Douglas McGregor, and Robert McNamara, etc.

Chapter 3: The Management Environment

1. Chapter Objectives

- a. Know about management and the changing economy.
- b. Know about the global marketplace.
- c. Know about management and technology.
- d. Know what society expects from organizations and managers.
- e. Know how entrepreneurship impacts society.
- f. Know about the workforce and labor.

2. Chapter In Brief

Lesson 1 “Management and the Economy” makes students aware of management and the changing economy, the global marketplace, and management and technology. Students will learn that the effects of globalization and technology are absolutely critical. The lesson discusses Alvin Toffler’s argument that modern civilization has come in three waves: agriculture, industrial, and information. The global marketplace is discussed with emphasis on the globalization of business and how globalization affects organizations and managers. Management and technology are discussed as well as how an organization benefits from information technology and how technology alters a manager’s job.

In Lesson 2, “Management and Society”, students will learn about the way in which society impacts the work of managers. They will also learn that the social issues managers face are complicated due to the influence of a variety of social factors. They will also learn what society expects from organizations and managers, how organizations demonstrate socially responsible actions, and how managers become more socially responsible. Three views of ethics are discussed: the utilitarian view, the rights view and the theory-of-justice view. There is discussion on entrepreneurship, the entrepreneurial process, what entrepreneurs do, and entrepreneurs within large organizations. Students will learn about the workforce and labor and what today’s workforce looks like. Students will learn how diversity affects organizations and how organizations help employees with work/life balance. Finally, there is information on a pending labor shortage in the United States and two factors that contribute to that labor shortage.

Unit Two

Planning

Chapter 4: Foundations of Planning

1. Chapter Objectives

- a. Know what planning is.
- b. Know about planning in uncertain environments.
- c. Know types of plans.
- d. Know about management by objectives.
- e. Know approaches to establishing goals.
- f. Know about developing plans.
- g. Know about contemporary issues in planning.

2. Chapter In Brief

Lesson 1 “Planning Basics” defines planning. Students will learn about planning and what it involves. They will read about the arguments for and against formal planning and about the different kinds of plans – strategic versus tactical; directional versus specific; short term versus long-term; and single-use versus standing plans. Students will study about management by objectives and why many businesses today involve their employees in setting performance objectives to meet organizational goals. They will learn how to set employee objectives and how a manager helps employees set work goals. Students will also learn how an influential thinker in the quality-management field thinks goal-setting may do more harm than good.

Lesson 2, “Establishing Goals and Developing Plans”, places emphasis on the different approaches to establishing goals, characteristics of well-thought-out goals, and steps in goal setting. Students will learn the three contingency factors managers must consider as they plan. The last topic covered is “contemporary issues in planning” and includes criticisms of planning. Students are given steps they can take now toward becoming a manager.

Chapter 5: Foundations of Decision Making

1. Chapter Objectives

- a. Know what defines a decision problem.
- b. Know the rational model for decision making.
- c. Know about modification of the rational model.
- d. Know the contingency approach to decision making.
- e. Know decision-making styles.
- f. Know about making decisions in groups.
- g. Know about culture and decision making.

2. Chapter In Brief

In Lesson 1 “The Decision-Making Process” students will learn that the decision-making process is a set of eight steps. They will learn that decision making is a critical skill for life. They will learn the definition of a decision problem and the eight steps used to define a decision problem. Focus is given on what is relevant in the decision-making process and how the decision maker weighs the criteria. The lesson further places emphasis on the rational model for decision making, why creativity is important in decision making and common errors in the decision-making process.

Lesson 2 is titled “Decision-Making Challenges” and stresses the different types of problems we have to solve and the different ways we approach decision making when we are working to solve those problems. There is discussion on how problems differ and the different levels in the organization. Students will learn how technology aids in decision making. They will also learn the four basic decision-making styles. Lastly, the students will learn about culture and decision making.

Unit Three

Organizing

Chapter 6: Managing Change, Stress, and Innovation

1. Chapter Objectives

- a. Know the forces for change.
- b. Know two views of the change process.
- c. Know about employee resistance to change.
- d. Know about changing the organization.
- e. Know about change and stress.
- f. Know how to stimulate innovation.
- g. Know about handling personal stress.
- h. Know about time management.
- i. Know about time management and meetings.

2. Chapter In Brief

Chapter 6, Lesson 1 titled “Managers and Change” emphasizes forces for change and external forces that create a need for change. Students will be allowed to think through the causes of change and respond to the changes they have experienced. Discussion of the different approaches to change should help students understand the ways in which people resist change. Emphasis is placed on the two views of the change process, why people resist change, and some techniques for reducing resistance to organizational change.

Lesson 2 “Change and the Organization” explains the connections between change, stress, and innovations in organizations. Emphasis is placed on the necessity of change for organizations to stay competitive and shows how this makes it necessary to address stress and encourage innovation in organizations. There is discussion on change and stress, common causes of stress, symptoms of stress, and how managers can act to reduce stress. Lastly, students will learn how to stimulate innovation and how creativity and innovation are related.

Lesson 3 “Managing Yourself, Stress, and Time Management” stresses the importance of self-management. Emphasis is placed on the fact that stress cannot be avoided, but it can be managed. There is discussion on how to handle personal stress, how to survive stress, and how to make stress work for you. Students will learn that time management can be a positive or a negative stressor and how to set priorities on their time. There is discussion on time management and meetings and tips are given on how to conduct effective meetings.

Unit Four

Leading

Chapter 7: Foundations of Individual and Group Behavior

1. Chapter Objectives

- a. Know about explaining and predicting behavior.
- b. Know about personality theories.
- c. Know about perception.
- d. Know how people learn.
- e. Know about foundations of group behavior.

3. Chapter In Brief

The first lesson in Chapter 7 “Behavior and Personality”, talks about how to explain and predict behavior and the goals of organizational behavior. The students will learn how attitudes and actions impact the way we approach work. Specific examples are given of personality traits and how these traits impact our productivity, absenteeism and turnover, attitudes, and organizational citizenship. The students will learn if an individual’s attitude and behavior must be consistent and how understanding attitudes helps managers be more effective. They will also take a look at several personality theories including The Myers-Briggs Type Indicator® and The Big Five Model®. Students will also take a look at five specific personality traits that have proven most powerful in explaining individual behavior in organizations. Lastly, students will learn about the various basic employee personality types and how to match these personalities with jobs.

Lesson 2 “Managers and Group Behavior” reinforces the point that you cannot judge people simply by their appearance. Emphasis is placed on how learning, setting a good example, reinforcing positive contributions, and establishing appropriate group norms are critical to managing groups. In addition, students will study about perception and what influences it; and shortcuts managers use in judging employees. Lastly, students will focus their attention on the basic concepts of group behavior and how norms and conformity and group size affect group behavior.

Chapter 8: Understanding Work Teams

1. Chapter Objectives

- a. Know about the popularity of work teams.
- b. Know the types of work teams.
- c. Know the characteristics of high-performance teams.
- d. Know about turning individuals into team players.
- e. Know contemporary team issues.

2. Chapter In Brief

Lesson 1 of Chapter 8 “Work Teams” informs students about the popularity of work teams and the stages of team development. Emphasis is placed on the increasing use of teams due to changes in the market place. Students will learn that as more and more organizations are faced with rapidly changing environments, the need for people to work together effectively to solve problems and respond to changes is more and more important. Students will also learn how teams differ from work groups. They will cover how teams work and what kinds of skills team members need to have as well as the different types of work teams. Virtual teams in the 21st Century are covered which includes conference calls, videoconferencing, and email to solve problems across the time zones.

Lesson 2 “Managing Teams” highlights the importance of teams in our culture as well as the challenges we face in working as team members in an individualistic culture. Emphasis is placed on the necessity of managing teams, turning individuals into team players, and the roles team members play. Contemporary team issues such as “how workforce diversity affects teams” is also covered. Students will study about ways to reward team contributions over and above individual contributions.

Chapter 9: Communication and Interpersonal Skills

1. Chapter Objectives

- a. Know the communication process.
- b. Know about communications and information technology.
- f. Know about listening and feedback skills.
- g. Know about delegation skills.
- h. Know about managing conflict.
- i. Know about negotiating skills.
- j. Know about writing evaluations.

2. Chapter In Brief

The first lesson in Chapter 9 is entitled “Communication Skills and Challenges”. This lesson focuses on communications skills and challenges by emphasizing the importance of communication in almost everything we do. The communication process is discussed in detail to include barriers to effective communications and why you should listen actively. Communication and information technology is also discussed.

Lesson 2 of Chapter 9 “Developing Interpersonal Skills”, explains the importance of interpersonal skills for success. Emphasis is placed on the need to listen to more than just the opinions people have, but to listen to the attitudes and emotions that influence those opinions. Listening and feedback skills as well as the difference between positive and negative feedback are discussed. Tips on how to give effective feedback are also discussed. Students will learn why active listening skills are important. Delegation skills and how to delegate effectively are discussed; and managing conflict is also covered. Students will learn that conflict is normal and can be positive and negative. They will learn that they cannot resolve all their conflicts, but that they can learn to manage conflict in constructive ways. Negotiating skills are discussed and writing evaluations is covered. There is focus on the purposes of performance evaluations and the appraisal interview.

Chapter 10: Leadership and Trust

1. Chapter Objectives

- a. Know about managers versus leaders.
- b. Know the trait theories of leadership.
- c. Know the behavioral theories of leadership.
- d. Know the contingency theories of leadership.
- e. Know the emerging approaches to leadership.
- f. Know about leadership today.
- g. Know about building trust: the essence of leadership.
- h. Know the definition of coaching and mentoring.
- i. Know about goal setting.
- j. Know about giving feedback.
- k. Know about developing protégés.

2. Chapter In Brief

Lesson 1 “Leadership Theory” focuses on managers versus leaders and leadership theory by explaining how the traits and behaviors of a leader as well as the situation the leader faces all impact how well a leader performs. Emphasis is placed on the fact that some leaders who may be very effective in one situation would not be nearly so effective in a different situation and how leadership style should generally be adapted to the demands of different circumstances. Finally there is discussion on emerging approaches to leadership.

In Lesson 2 “Leadership Issues”, emphasis is placed on leadership today and how leading teams is more and more important in today’s workplace. There is discussion on how national culture and emotional intelligence affects leadership. Building trust and the five dimensions of trust are discussed with emphasis on the essential nature of trust for effective leadership and explanations on how expectations of leaders differ from one culture to the next.

In Lesson 3 “Effective Coaching and Mentoring”, the differences between the role of a coach and the role of a mentor are explained. Mentoring the Air Force way is covered. Emphasis is placed on the importance of setting goals and providing feedback as a means for helping people improve performance and enhance their ability to succeed.

HQ Holm Center



AIR FORCE JUNIOR RESERVE OFFICER TRAINING CORPS (AFJROTC)

**A
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AFMAN 36-2203
Personnel DRILL AND CEREMONIES

Leadership Education 500: Drill and Ceremonies

The Drill and Ceremonies course provides an in-depth introduction to drill and ceremonies. The course concentrates on the elements of military drill, and describes individual and group precision movements, procedures for saluting, drill, ceremonies, reviews, parades, and development of the command voice. Students are provided detailed instruction on ceremonial performances and protocol for civilian and military events and have the opportunity to personally learn drill. Though each class will follow an established lesson plan, most of the work is to be hands-on. Instructors are provided AFM 36-2203 to teach the Drill and Ceremonies course. In addition, instructors may order the Army Field Manual 3-21.5 and the Interservice Cross-Index Drill Manual to supplement the teaching of Drill and Ceremonies. There is also a Drill and Ceremonies Instructional DVD available to aid you in teaching drill.

The course objectives are:

After successfully completing *AFM 36-2203: Personnel Drill and Ceremonies*, the student will:

1. Know the importance of drill and ceremonies.
2. Know basic commands and characteristics of the command voice.
3. Apply and execute the concepts and principles of basic drill positions and movements.
4. Know when and how to salute.
5. Apply the principles and procedures of drill movements used with smaller units to the movement of a squadron.
6. Know the function of the group and the wing.
7. Know how groups and wings are formed.
8. Know the purpose and definition of ceremonies and parades.

Chapter 1: Introduction to Drill and Ceremonies

1. Chapter Objective

Know the importance of drill and ceremonies.

2. Samples of Behavior/Main Points

- a. State the importance of drill and ceremonies.
- b. List the symbols that represent the leaders of the flight and squadron.
- c. List all the basic military drill terms.

Chapter 2: Commands and the Command Voice

1. Chapter Objective

Know basic commands and characteristics of the command voice.

2. Samples of Behavior/Main Points

- a. Identify the types of commands used during the basic military drill movements.
- b. Identify the necessary qualities of the command voice.
- c. Define cadence.

Chapter 3: Individual Instruction

1. Chapter Objective

Perform basic drill positions and movements.

2. Sample of Behavior/Main Point

Execute various movements and positions of basic drill when given the command to do so.

Chapter 4: Drill of the Flight

1. Chapter Objective

Perform parade movements as a flight.

2. Samples of Behavior/Main Points

- a. Execute the various marching movements.
- b. Execute proper military position and place prior to parade.
- c. Respond with proper military procedures for entire parade sequence.

Chapter 5: Drill of the Squadron

1. Chapter Objective

Perform drill movements as a squadron.

2. Samples of Behavior/Main Points

- a. Execute basic drill commands as a squadron.
- b. Execute guidon bearer position.

Chapter 6: Group and Wing Formations

1. Chapter Objective

Demonstrate a group and wing formation.

2. Sample of Behavior/Main Point

Perform group and wing formations when given the command to do so.

Chapter 7: Ceremonies

1. Chapter Objective

Know the purpose and definition of ceremonies and parades.

2. Samples of Behavior/Main Points

- a. Define ceremony and parade.
- b. State the purpose of ceremonies and parades.
- c. Identify the different types of ceremonies and parades.
- d. Define reveille and retreat.
- e. State when it is appropriate to raise and lower the flag.

WELLNESS PROGRAM

Wellness is an official and integral part of the Air Force Junior ROTC program. It consists of two exercise programs focused upon individual base line improvements with the goal of achieving a national standard as calculated by age and gender. The Wellness curriculum is instrumental in developing citizens of character dedicated to serving our nation and communities. The program is provided as a tool to help you develop individualized training programs for your cadets. Cadets will be given the opportunity to put into practice the wellness concepts that are taught in Leadership Education 100. Instructors are free to include other activities cadets enjoy such as team sports in order to keep the Wellness Program fun and motivating. Instructors are also encouraged to utilize sites such as PE Central to help develop lesson plans and fitness activities. The Wellness Program also provides a list of 19 exercises with examples that may be utilized in a 36-week program modifiable to meet individual and district/state goals. Instructors should utilize fitness programs that best fit the requirements within their district/county/state. HQ AFJROTC offers suggested fitness programs that may meet these requirements that will allow for tracking through WINGS. Cadet fitness improvement should also be rewarded, either by earning the Wellness Ribbon, Presidential Fitness Challenge certificate, or both.

The course objective for the Wellness Program is to:

Motivate AFJROTC cadets to lead active, healthy lifestyles beyond program requirements and into their adult lives.

The goals of the Wellness Program are to:

1. Create an individualized training program based on national standards by age and gender.
2. Identify areas of improvements for each cadet and provide guidance for improvement.
3. Incorporate a physical training program to reach fitness goals.

The following is a brief description of the fitness programs for AFJROTC units, each has its own merit and each may be utilized or personalized with unit developed lesson plans to help build a foundation from which to implement a program that promotes lifelong fitness programs.

The President's Fitness Challenge

The U.S. Department of Health and Human Services (HHS) released the 2008 Physical Activity Guidelines for Americans on October 7, 2008. The comprehensive, science-based guidelines were developed to inform policymakers and health providers about the amounts, types, and intensity of physical activity needed to help Americans aged 6 and older, and of all abilities, improve their health and reduce their risk of chronic diseases. Regular physical activity in adolescents promotes health and fitness. Compared to those who are inactive, physically active youth have higher levels of cardio respiratory fitness and stronger muscles. Their bones are stronger, and they may have reduced symptoms of anxiety and depression. Youth who are regularly active also have a better chance of a healthy adulthood. They also typically have a lower Body Mass Index (BMI). With higher BMI's, an increased risk for certain diseases such as heart disease, high blood pressure, type 2 diabetes, gallstones, breathing problems, and certain cancers may develop. Adolescents don't usually develop chronic diseases; however, risk factors for these diseases can begin to develop early in life. Regular physical activity makes it less likely that these risk factors will develop and more likely that adolescents will remain healthy as adults.

Youth Physical Activity Guidelines:

- Adolescents should have 60 minutes (1 hour) or more of physical activity daily.
 - **Aerobic:** Most of the 60 or more minutes a day should be either moderate- or vigorous-intensity physical activity, and should include vigorous-intensity physical activity at least 3 days a week.
 - **Muscle-strengthening:** As part of their 60 or more minutes of daily physical activity, adolescents should include muscle-strengthening physical activity on at least 3 days of the week.
 - **Bone-strengthening:** As part of their 60 or more minutes of daily physical activity, adolescents should include bone-strengthening physical activity on at least 3 days of the week.
- It is important to encourage young people to participate in physical activities that are appropriate for their age, that are enjoyable, and that offer variety.

For more information about the Physical Activity Guidelines and associated toolkit, visit the President's Challenge web site.

Key Exercises for Adolescents

The Physical Fitness Test recognizes students for their level of physical fitness in five activities:

- Curl-ups (or partial curl-ups)
- Shuttle run
- Endurance run/walk
- Pull-ups (or right angle push-ups or flexed-arm hang)
- V-sit reach (or sit and reach)

AFJROTC Wellness Program Exercises

This program is comprised of 19 exercises which can be conducted with minimal space and with minimal climate dependency (e.g., the 1-mile run). The exercises develop all muscle groups and provide sufficient anaerobic and aerobic intensity. They require no equipment and use only body weight and common objects (e.g., chairs).

The 19 exercises are:

- V-Sit Reach • Lunges
- Bent-Knee Push-ups • Arm Extended Lunges
- Feet Elevated Push-ups • Reverse Extended Lunges
- Hindu Push-ups • Mountain Climbers
- Plank • Hindu Squats
- Left Arm and Right Arm Planks • Body Builders
- Sit-Ups • Squat Leaps
- Extended Side Push-ups • Side Lateral Jumps
- Flutter Kicks • One-Mile Run
- Push-ups

Descriptions for these exercises are located in WINGS.

A typical exercise class may go as follows:

- Warm-up/Stretch
- Pick 6 or more exercises to perform depending on time
- Ensure proper form and technique
- Students will strive to complete the number of repetitions indicated on their personal workout plan
- Cool/down/Stretch

During the next class periods, students should perform six different exercises.

Cadet Fitness Assessments

The Presidential Fitness Challenge Program is a yearlong program designed to establish a baseline for each cadet and when required, provide a program of improvement throughout a 36-week school year. Instructors should conduct periodic assessments throughout the school year and provide feedback to cadets concerning improvement. This feedback will allow cadets and instructors to modify fitness programs to meet individual needs that provide progressive improvement towards a healthy, active lifestyle.

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Part IV – Supplemental Materials and Resources

SUPPLEMENTAL MATERIALS

The Complete Guide to College Financing & Admissions

Supplemental materials are provided to enhance the learning experience for cadets in the content area you are teaching. Instructors choosing to include supplemental material to reinforce HQs' provided curriculum must include this material when defining the unit course in WINGS. Support/supplemental material included on a recurring basis during daily classroom instruction must be defined by going to WINGS | Unit Management | Curriculum | JROTC Unit Defined Curriculum and then added to Define Unit Courses. Supplemental materials must not exceed 10% of instruction time without a waiver approved by Holm Center/CR.

The Complete Guide to College Financing & Admissions, 2009 is a step-by-step approach to college financing and admissions. This revolutionary program provides critical information and hundreds of web links that connect students directly to everything they need to know to save thousands of dollars in college costs and get them into the college of their choice. *Zero Hour Threat* is an SAT and ACT Test prep game and *The Studyworks Complete Guide to SAT Preparation* is an essential guide to the SAT.

The Complete Guide to College Financing & Admissions is a powerful tool to support the Leadership 300: Life Skills and Career Opportunities course. Over the past several years, the packaging has changed, but the content remains consistent. The program is:

- Comprised of four CDs that cover college financial aid and packaging, scholarships, creative and military options for college financing, and contains a college planning guide
- Developed and hosted by Terry Wilfong, one of the nation's top experts on admissions and obtaining financing for college
- Endorsed by the US Department of Education
- In 6,000+ high schools nationwide

The 2011 version—*College Options Foundation: Total College Solution* DVD combined the CDs into one DVD and contains the following:

- *The Complete Guide to College Financing & Admissions*
- *The Successful Student Guides to the SAT-ACT* eBooks (e.g., *The Essential Guide to the SAT* and *The Essential Guide to the ACT*)
- *Understanding Athletic Recruiting* eBook
- *ZERO Hour Threat I and II* —SAT and ACT Prep Game
- *College Options Foundation's Student Planning Guide*

Another program available is the *The Studyworks Complete Guide to SAT Preparation*. This teaches students how to reach their target score; how to write an SAT essay; and how to improve their critical reading, writing, and math scores using the knowledge they already possess.

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Edge Learning Institute Presents

Leader's Guide

UNLOCKING YOUR POTENTIAL

*Inspiring and Preparing
Young Adults for Success*

Unlocking Your Potential

Unit 1: You've Always Had the Potential

Learning Objectives:

1. Define potential.
2. Explain the difference between the “I can’t” attitude and the “I haven’t learned yet” attitude.
3. Discuss the statement: “It is not what I have, it’s what I do with what I have that determines my performance.”
4. Identify areas of their lives where they believe they are allowing “being good” to get in the way of “being great.”

Unit 2: You're Born to Win

Learning Objectives:

1. Define conditioning.
2. Define motivation.
3. Identify habits that may be keeping them from trying something new or attaining success in certain areas of their lives.
4. Explain the “Potential V” diagram.

Unit 3: The Most Amazing Computer of All

Learning Objectives:

1. Describe the thought process (how our minds store information) and how it affects our behavior.
2. Define attitude.
3. Identify habits that may be keeping them from trying something new or attaining success in certain areas of their lives.
4. Explain how attitudes are formed.
5. Discuss the statement: *Words are tools that predict and perpetuate performance.*

Unit 4: Changing from the Inside Out

Learning Objectives:

1. Define self-image.
2. Explain how self-talk and self-image affect performance.
3. List three steps for successful change.
4. Define affirmative reminders.
5. List the conditions for writing effective affirmative reminders.
6. Discuss the statement: *All meaningful and lasting change starts on the inside with self-image and works its way out.*

Unit 5: You'll See It When You Believe It

Learning Objectives:

1. Explain what *Imagination x Vividness = Reality* in the *Subconscious* means and how it relates to performance.
2. Use affirmative reminders to rehearse the desired outcome of a goal or event.
3. Discuss the statement: *You move toward and become like the image of your world that you hold uppermost in your mind.*

Unit 6: How to Increase Self-Confidence

Learning Objectives:

1. Explain the “Flick back, Flick up” technique (Visual Motor Behavior Rehearsal).
2. Discuss the statement: *I will not be remembered by how few mistakes I make, but by how many successes I have.*

Unit 7: Know You're Good...And Wear It Well

Learning Objectives:

1. Define self-esteem – what it is and what it isn't.
2. Explain what happens in a low self-esteem environment.
3. List seven steps for building sound self-esteem.
4. Discuss the question: *Can you have too much self-esteem?*

Unit 8: Success is a Journey...Not a Destination

Learning Objectives:

1. Define success.
2. Explain the difference between values and goals.
3. Identify their five uppermost values in life.
4. Make a list of personal goals.
5. List seven principles for successful goal-setting.

Unit 9: If You Fail to Plan, You're Planning to Fail

Learning Objectives:

1. Develop and use a plan of action.
2. Discuss the statement: *Seldom do we exceed our expectations. Even if the opportunity arises, we generally fail to capitalize on it.*

Unit 10: How to Motivate Yourself and Others

Learning Objectives:

1. Define and give examples of three types of motivation.
2. Explain why it is important to catch people in the act of doing things right.
3. Discuss the statement: *Treat people as they are and they will remain that way.*

Unit 11: What Employers Expect from a Great Employee

Learning Objectives:

1. Explain why attitude is the key to employment success.
2. List three ways to develop and maintain good employee attitudes.
3. Complete an employment application.
4. Discuss the statement: *We hire attitudes. We train for skills.*

Unit 12: You Never Get A Second Chance to Make a First Impression

Learning Objectives:

1. List what percentage of our communication is verbal, nonverbal, and extra-verbal.
2. Define understanding.
3. Demonstrate two techniques for improving communication skills.

STUDENT GUIDE



NEFE High School Financial Planning Program



National Endowment for Financial Education (NEFE) High School Financial Planning Program (HSFPP)[®]

The NEFE HSFPP is a six-unit classroom curriculum that consists of six modules. The student guides are to be used as a workbook for the student. The NEFE High School Financial Planning Program[®] was designed for the 11th and 12th grade level, though the curriculum text is written at the 5th to 8th grade level. The high school program specifically focuses on basic personal finance skills that are relevant to the lives of pre-teens, teens, and young adults to lay a solid foundation for financial independence and future financial decisions.

The NEFE High School Financial Planning Program[®] has been correlated to educational standards in every state with financial literacy standards. In addition, it has been benchmarked against seven national educational standards in specific subject-matter areas. The HSFPP is the only financial literacy education program to have done this. The HSFPP curriculum is built around seven target competencies, forty-three learning objectives and fifty-three learning outcomes. The target competencies and learning objectives are used in the standards cross-walks which can be found at <http://www.nefe.org/HighSchoolProgram>. The files are in PDF format and can be downloaded for your use.

Program Goals

As a result of taking part in the NEFE High School Financial Planning Program, students will build confidence, apply practical skills, and exhibit sensible behaviors related to money management. Specifically, they will:

- **Build confidence to make financial decisions** related to managing personal financial resources, building earning capacity, protecting assets, and adapting to unexpected events.
- **Apply sound foundational financial decision making principles** immediately after completing the program and in the future.
- **Exhibit mindful money management behaviors** that will be of immediate and future benefit to themselves and their families.

Program Outcomes

Mastery of lesson competencies will lead to varying degrees of mastery of the High School Financial Planning program outcomes.

- Manage personal spending to meet financial goals and minimize the impact of financial obstacles [Money Management]
- Control personal credit and debt [Borrowing]
- Boost personal earning capability [Earnings]
- Put personal assets to work to build personal wealth [Saving, Investing]
- Use financial services in sensible and wary manner [Financial Services]
- Protect personal property and financial resources [Insurance]

Throughout the program students will reinforce skills that relate to multiple program outcomes. These skills are:

- Set SMART financial goals
- Use a decision making process to weigh the options and consequences when making spending decisions
- Analyze how personal values impact spending, saving, and planning behaviors
- Utilize resources that are credible and timely
- Manage personal financial records

Module Competencies

Module 1: Money Management

- 1-1 Explore how spending, saving and values impact your finances
- 1-2 Set SMART money goals
- 1-3 DECIDE to make better money choices
- 1-4 Create a spending plan to reach your goals
- 1-5 Figure out ways to maintain a positive cash flow

Module 2: Borrowing

- 2-1 Weigh the benefits and risks of borrowing
- 2-2 Compare the costs and terms of borrowing options
- 2-3 Start the journey to establishing a good credit rating
- 2-4 Explore the rights and responsibilities of borrowers and lenders
- 2-5 Protect yourself from identity fraud

Module 3: Earning Power

- 3-1 Explore the payoffs of investing in yourself
- 3-2 Measure the value of employee benefits
- 3-3 Assess factors that impact personal tax liability and take-home pay
- 3-4 Start down the path to achieving your lifestyle and financial goals
- 3-5 Prepare to deal with life and work changes

Module 4: Investing

- 4-1 Explore how investing works
- 4-2 Summarize basic investment principles
- 4-3 Weigh the risks and rewards of investing options
- 4-4 DECIDE how saving and investing fit into your financial planning
- 4-5 Set saving and investing goals

Module 5: Financial Services

- 5-1 Explain how services are used to handle business transactions
- 5-2 Select a financial service provider
- 5-3 Use financial services to manage your spending and saving
- 5-4 Explore trends in automated banking
- 5-5 Protect your personal account information

Module 6: Insurance

- 6-1 Justify reasons to be insured
- 6-2 Investigate how insurance works
- 6-3 Choose insurance for specific needs and situations
- 6-4 Compare auto insurance options
- 6-5 Plan ahead to minimize insurance costs and costs of unexpected events

OTHER MATERIALS

Other Materials are considered supplemental educational materials provided to enhance the learning experience for cadets in the content area you are teaching. Instructors choosing to include supplemental material to reinforce HQs' provided curriculum must include this material when defining the unit course in WINGS. Support/supplemental material included on a recurring basis during daily classroom instruction must be defined by going to WINGS | Unit Management | Curriculum | JROTC Unit Defined Curriculum and then added to Define Unit Courses. Supplemental materials must not exceed 10% of instruction time without a waiver approved by Holm Center/CR.

1. **Microsoft Flight Simulator** is a series of flight simulation programs. The programs include generated scenery and detailed visual effects, various weather systems, cities and airports, air traffic control functions, interactive cockpits, and a variety of aircraft. Use this to supplement *The Science of Flight: A Gateway to New Horizons*, the *Aviation Honors Ground School*, or as an extra activity. It is provided by the HQ AFJROTC/JROSL—the Logistics Branch.

The supplemental materials listed below are no longer part of the AFJROTC provided curriculum. However, if your unit has these materials and you are able to enhance your learning environment by using them, please feel free to continue using the material. If you do not have any of these materials, we apologize that we will not be able to furnish them to you because some of the items are obsolete and/or have been replaced with more current material.

2. **Smithsonian Frontiers of Flight Series:** This is a 13-part television series examining the history of aviation and early space flight. The series was produced by the National Air and Space Museum and premiered on the Discovery Channel 27 September 1992. The series includes:
1. Powered Flight, 2. Coast To Coast, 3. The Atlantic and the World, 4. USA Europe Non-Stop, 5. Air Transport for All, 6. Golden Age Frontiers, 7. Rocket Power, 8. Jet Power, 9. The Sound Barrier, 10. The Jet Airliner, 11. The Threshold of Space, 12. To Space and Back, and 13. The Last Great World Record.

3. **Basic Aviation Physiology.** Can you recognize the onset of hypoxia? Do you know how to compensate for visual illusions that can put you in a dangerous situation? These are just two of the many things you will learn by viewing this videotape. It describes how the different sensory organs give you inputs in flight and how to analyze those inputs. It continues with sections on spatial disorientation, the effects of altitude on the human body, and the reduction in your performance caused by alcohol or drugs.

4. **Weather Hazards.** Thunderstorms, wind shear, and microbursts can present serious hazards to your flight operations. This *FlighTime* video program helps you understand the forces behind these phenomena. It shows you the inner workings of a thunderstorm, the varied sources of wind shear, and the tremendous destructive power of microbursts. By increasing your understanding of these subjects, you will improve your ability to avoid the associated hazards.

5. **Weather Flight Planning and the Pilot.** Today, you have more options than ever before for obtaining a weather briefing. This video shows the various weather sources and services available and covers some of the common errors in the briefing process.
6. **Final Approach Fix Inbound.** The final approach is a crucial phase of any flight, especially in instrument conditions. This video helps you analyze how obstacles, clearance, and protected airspace vary for different types of approaches. It discusses the unique considerations of various kinds of procedures, and it also gives you practical tips for flying the final approach segment.
7. **Mountain Flying.** Flying in the mountains presents its own unique challenges and rewards. This video provides information and techniques for flying in the mountains and how to avoid the associated hazards. You can use this video as an introduction to mountain flying before you get a checkout, as a review of mountain flying, or just to broaden your knowledge of different types of flying.
8. **Aircraft Icing** can present serious hazards to both ground and flight operations. Aircraft Icing emphasizes the many forms of icing and provides effective techniques for avoiding or dealing with the associated hazards. It presents valuable information for both VFR and IFR pilots.
9. **NASA. . . The 25th Year.** This is a 25th Anniversary video of the National Aeronautics and Space Administration's accomplishments.
10. The **Flight Kit** symbolizes our commitment to math and science education, preparing today's youth for life in the 21st century. It was produced by McGraw-Hill's Aviation Week & Space Technology magazine and School Publishing Company and made possible by a group of leading aerospace companies.
11. **Where There's A Will, There's An "A".** This package contains two VHS videotapes and manual. The course guides students to better learning. It is a step-by-step training program to help students achieve higher grades with less effort, less pressure, and less anxiety. It may supplement any of the leadership courses and apply to any of the aerospace courses.
12. **Consumer Economics** is a 3-part series designed to educate students about the basics of earning, spending, and saving money.
 - a. *Addicted to Debt* takes a serious look at debt and features information and tips on how to avoid and manage debt.
 - b. *Money: Save It, Use It, or Lose It* discusses savings, credit, and debt and how they relate to needs and wants.
 - c. *Credit: Friend or Foe?* teaches students how to establish credit and manage it effectively. This series is one of the best and most informative tape series available anywhere.

13. **Violence To-Go** consists of a 12-minute video story and an easy-to-use Resource Guide with factual information and student activities to reinforce key topics. The video story, *Violence To-Go* contains no violent scenes or inappropriate language but will have students sitting on the tips of their seats. The Resource Guide contains 7 Student Activities with sample lesson plans.

14. **Physics of Flight** offers an exciting new way to teach and learn physics. *Physics of Flight* teaches basic physics concepts as they relate to flight, as well as highlights the relationship between science, research, and engineering design. Students will enjoy *Physics of Flight's* visual approach to learning physics as they look inside the cockpit of jets and gliders, reading real flight instruments to study physical forces.

15. **NASA 25 Years: The Greatest Show in Space** is an award winning video series. It is a 10-volume series.

16. **Focus on the SAT** informs the students What's On the SAT, How to Prepare, and What Colleges Look For. This enjoyable program features an exploration from the student perspective of how to prepare for the new SAT and PSAT/NMSQT. The video also covers test-taking tips, sample questions from the test, and the inside story of how the SAT is developed and used.

17. **ACT Prep.**

18. **Visual Information Libraries.** Additional supplementary materials may be obtained from the following:

- a. Air Force films listed in AFP 700-34, Air Force Catalog of Visual Information Production, may be ordered from, Joint Visual Information Activity, Toby Hana, PA 18466-5102.
- b. FAA films are listed in the FAA Film Catalog. Order from Film Library, AC44-15, Film Service, c/o Modern Talking Picture Service, Inc., Park Street North, St. Petersburg FL 33709-2800.
- c. NASA films are listed in the NASA Film and Video List. Order from the NASA Regional Film Library that serves your state or territory.

19. **Finding Your Way in the Working World.**

20. **Honor and Glory.** Their elegant drills are as precise as a Swiss clock. Their rhythmic cadences evoke 200 years of order and unity. Their music stirs a nation's pride. They are the honor guard units of America's military; soldiers whose skills dazzle the world. Get a rare look inside these elite teams, from the rigorously selective acceptance process through the notoriously intense training. Watch in awe as the Marine's famed Silent Drill Platoon spins and tosses bayoneted M1 rifles for 10 minutes without a word. Work escort duty with the legendary Old Guard, the oldest active unit in the Army and march with the prestigious 144-piece Marine Band, known as "The President's Own."

21. **People, Power, and Mission (Air Force History).** The stirring, visually-rich history of the United States Air Force is presented in compelling style, featuring rarely seen footage. The Air Force Association has joined the Emmy Award-winning production team of Russ Hodge and Tim White and a production staff with more than a half dozen Emmys to commemorate the 50th anniversary of the USAF. This video features interviews with General Brent Scowcroft, General Michael Dugan, Senator Ted Stevens, and Air Force Historian Richard Hallion, as well as more than a dozen interviews with the everyday men and women who have made the USAF the best in the world.

22. **Wings Over Europe.** Relive the history of the air war over Europe. Blitzkrieg: Screaming Stuka dive-bombers rain destruction on Allied troops. In the sky above Europe, Spitfires, Messerschmitts, Mustangs, and Focke-Wulfs fight it out. Over Britain, the RAF, with a few brave fighters, stands off the concentrated might of the Luftwaffe. It was a time of great deeds and great planes. Now The Discovery Channel brings you the story of those great planes, and the men who flew them.

23. **Wings Over The Gulf** is a new technology; and a new kind of war. Some of the most important aircraft that flew in Operation Desert Storm are profiled stem-to-stem. Wings Over The Gulf features recently de-classified military combat footage. You will see all the hardware, the tacticians, the high-risk missions, and the men who flew them. In Harm's Way: Tornado – The sleek, sophisticated, European strike plane. A-6 Intruder – The backbone of the Navy's air campaign. The Final Assault: F-16 Falcon – The multi-role work horse of the Gulf War. A-10 Thunderbolt II – The deadly "warthog" built for punishment.

24. **Nighthawk: Secrets of the Stealth Fighter** is an unprecedented look at America's super weapon. After years of secrecy, rumors, lies and controversy, the F-117 Nighthawk proved itself in battle during the Gulf War. Now this action-packed video gives you total access to the Stealth's classified history – and an exclusive chance to see it in action.

FREE EDUCATIONAL RESOURCES

Aerospace Education Member of the Civil Air Patrol

Educators can receive free supplemental aerospace resources from the Civil Air Patrol (CAP) by joining as an Aerospace Education Member. This unique CAP membership category is designed for educators or others involved in promoting aerospace education in classroom, home schools, museums, or other youth organizations. Resources include national standards-based aerospace education materials to promote STEM subjects and careers, eligibility to apply for grants, STEM kits, and Teacher Orientation Program (TOP) Flights in CAP aircraft.

Instructors choosing to include supplemental resources to reinforce HQs' provided curriculum must include this material when defining the unit course in WINGS. Supporting material included during daily classroom instruction that exceeds 30 minutes in length will be defined by going to WINGS | Unit Management | Curriculum | JROTC Unit Defined Curriculum. Supplemental materials must not exceed 10% of instruction time without a waiver approved by Holm Center/CR.

For AFJROTC instructors, the membership is free of charge. Additionally, CAP is offering a free STEM kit to eligible applicants. Refer to the "AEM Flyer for AFJROTC & STEM Kit Info" on WINGS in the Curriculum folder for information and the free coupon code.

Congressional Medal of Honor Foundation

The Congressional Medal of Honor Foundation provides supplemental teacher resources/DVDs free of charge. *Medal of Honor: Lessons of Personal Bravery and Self-Sacrifice* is a resource designed by teachers to provide students with opportunities to explore the important concepts of courage, commitment, sacrifice, patriotism, integrity, and citizenship and how these values can be exemplified in daily life. Contact them directly to obtain the materials (see the CMPF).

The Pennsylvania Veterans Museum

The Pennsylvania Veterans Museum provides supplemental teacher resources/ DVDs free of charge. The museum is dedicated to preserving, protecting, and promoting the legacy and dignity of all veterans of the U.S. military. Their focus is to tell the stories of America's conflicts through the eyes of those who served in them. See the section on curriculum videos for complete descriptions of the DVDs. Contact them directly to obtain the materials (see the CMPF).

- *On Freedom's Wings: Bound for Glory* (Legacy of the Tuskegee Airmen)
- *The American Humanitarian Effort: Out-takes from Vietnam*
- *Their Sacrifice, Our Freedom: WWII in the Pacific*
- *Their Sacrifice, Our Freedom: WWII in Europe*
- *In The Company of Heroes* (101st Airborne: Screaming Eagles)
- *Women in the Military: Willing - Able - Essential*

Veterans National Education Program

This organization provides supplemental educational materials *free of charge* teaching U.S. modern history through the understanding of the humanistic and cultural aspects of America's military conflicts and how they have influenced the fabric of our global society. Contact them directly to obtain the materials (see the CMPF).

NASA Educator Resource Centers by State

The purpose of the NASA Educator Resource Centers is to help teachers learn about and use NASA's educational resources. Personnel at ERCs located throughout the United States work with teachers to find out what they need and to share NASA's expertise. The ERCs provide educators with demonstrations of educational technologies such as NASA educational Web sites and NASA Television. ERCs provide in-service and pre-service training utilizing NASA instructional products. Educators also have the opportunity to preview, copy, and receive NASA instructional products.

The Field Center ERCs are located on or near NASA centers. These ERCs service educators from states within their geographical region. These ERCs have a close association with NASA specialists, scientist, and engineers who often act as resources for workshops and special events.

The Educator Resource Centers by State listing include the Field Center ERCs, along with ones that are located in planetariums, museums, on college or university campuses, or other nonprofit organizations. These ERCs often have partnerships with their state's education department or regional educational organizations. They also may be part of a resource center that offers educational resources in addition to NASA related ones. Most states have one ERC, but a few have more than one. Additionally, you can find NASA teaching materials at <http://search.nasa.gov/search/edFilterSearch.jsp?empty=true>

To locate an Educator Resource Center by state, go to:

http://www.nasa.gov/offices/education/programs/national/ercn/home/ERCN_State_Listing.html

ALABAMA: NASA's MSFC Educator Resource Center, U.S. Space & Rocket Center; Huntsville, AL
ALASKA: NASA Educators Resource Center for Alaska; Anchorage, AK
ARIZONA (*currently served by the following location*): NASA's Dryden Flight Research Center Educator Resource Center; Palmdale, CA
ARKANSAS: Center for Mathematics and Science Education NASA RERC; Fayetteville, AR
CALIFORNIA:
NASA Ames Research Center Educator Resource Center; Moffett Field, CA
NASA Dryden Flight Research Center Educator Resource Center; Palmdale, CA
NASA Jet Propulsion Laboratory JPL Educator Resource Center Village at Indian Hill; Pomona, CA
California Science Center Amgen Center for Science Learning; Los Angeles, CA
California State University, Fresno Instructional Technology and Resource Center; Fresno, CA
Endeavour Center Maple High School; Vandenberg Air Force Base, CA
COLORADO: Space Foundation Discovery Institute NASA RERC; Colorado Springs, CO
CONNECTICUT: Eastern Connecticut State University NASA ERC; Willimantic, CT
DELAWARE: Delaware Aerospace Center; Bear, DE
DISTRICT OF COLUMBIA: University of the District of Columbia Science & Engineering Center; Washington, DC 20008

FLORIDA: NASA Kennedy Space Center Educator Resource Center; J.F. Kennedy Space Center, FL

GEORGIA: Museum of Aviation NASA Regional Educator Resource Center; Warner Robins, GA

HAWAII: State of Hawaii Department of Education Barbers Point Elementary School; Kapolei, HI

IDAHO: University of Idaho College of Education—IMTC NASA RERC; Moscow, ID

ILLINOIS: Museum of Science and Industry NASA Educator Resource Center; Chicago, IL

INDIANA: Science Central; Fort Wayne, IN

IOWA: Science Center of Iowa; Des Moines, Iowa

KANSAS: Kansas Cosmosphere and Space Center NASA Educator Resource Center; Hutchinson, KS

KENTUCKY: Murray State University NASA ERC; Murray, KY

LOUISIANA: Louisiana Tech University NASA Educator Resource Center; Ruston, LA

MAINE: Challenger Learning Center of Maine NASA Educator Resource Center; Bangor, ME

MARYLAND: NASA Goddard Space Flight Center Education Resource Center; Greenbelt, MD

MASSACHUSETTS: Framingham State University Henry Whittemore Library, NASA ERC; Framingham, Mass.

MICHIGAN:
Central Michigan University SMTC/NASA RERC; Mount Pleasant, MI
Northern Michigan University – The Seaborg Center NASA ERC; Marquette, MI

MINNESOTA: St. Cloud State University Learning Resources and Technology Services Miller Center; St. Cloud, MN

MISSISSIPPI:
NASA Stennis Space Center Educator Resource Center; Stennis Space Center, MS
Jackson State University Joseph E. Jackson School of Education; Jackson, MS
Mississippi Band of Choctaw Indians Choctaw Tribal Schools; Choctaw, MS

MISSOURI: (*currently served by the following location*): NASA’s MSFC Educator Resource Center U.S. Space & Rocket Center; Huntsville, AL

MONTANA: The University of Montana, Western Lucy Carson Library, NASA RERC; Dillon, MT

NEBRASKA: University of Nebraska at Omaha Mallory Kountze Planetarium Durham Science Center; Omaha, NE

NEVADA: College of Southern Nevada Planetarium/NASA RERC CSN; N. Las Vegas, NV

NEW HAMPSHIRE: McAuliffe-Shepard Discovery Center; Concord, NH

NEW JERSEY: Georgian Court University Sister Mary Joseph Cunningham Library NASA ERC; Lakewood, NJ

NEW MEXICO: New Mexico State University NASA ERC Ed & Harold Foreman Engineering Complex; Las Cruces, NM

NEW YORK: (*currently served by the following location*): NASA Goddard Space Flight Center Education Office; Greenbelt, MD

NORTH CAROLINA: University of North Carolina-Charlotte NASA RERC/Atkins Library Charlotte, NC

NORTH DAKOTA: University of North Dakota Department of Space Studies Regional Educator Resource Center; Grand Forks, ND

OHIO:

NASA Glenn Research Center NASA Educator Resource Center; Cleveland, OH
University of Cincinnati College of Education, Criminal Justice and Human Services (CECH)
Library; Cincinnati, OH

OKLAHOMA: Oklahoma State University NASA APDC; Stillwater, OK

OREGON: Oregon Museum of Science and Industry NASA RERC; Portland, OR

PENNSYLVANIA: University of Pittsburgh NASA ERC; Pittsburgh, PA

PUERTO RICO: NASA Regional Educator Resource Center University of Puerto Rico
Resource Center for Science and Engineering; Mayaguez, PR

RHODE ISLAND: Rhode Island College Physical Science Department; Providence, RI

SOUTH CAROLINA: Stanback Planetarium South Carolina State University; Orangeburg, SC

SOUTH DAKOTA:

Black Hills State University Center for the Advancement of Math and Science Education;
Spearfish, SD

Washington Pavilion of Arts & Science The Dept. of Community Education and Learning
Sioux Falls, SD

TENNESSEE: The Millard Oakley STEM Center for Teaching and Learning of STEM
Tennessee Technological University ERC; Cookeville, TN

TEXAS:

Educator Resource Center for NASA Johnson Space Center Space Center Houston
Houston, TX

University of Texas at Brownsville Library NASA ERC East Library; Brownsville, TX

U.S. VIRGIN ISLANDS: U.S. Virgin Islands Department of Education St. Croix Curriculum
Center; Kingshill, USVI

UTAH:

Utah State University Adele & Dale Young Education Technology Center Logan, UT

Weber State University NASA ERC; Ogden, UT

VERMONT (*currently served by the following location*): NASA Goddard Space Flight
Center Education Office; Greenbelt, MD

VIRGINIA:

Educator Resource Center for NASA Langley Research Center Virginia Air and Space Center;
Hampton, VA

GSFC/Wallops Flight Facility Visitor Center RERC; Wallops Island, VA

Radford University Teaching Resources Center; Radford, VA

WASHINGTON (*currently is served by the following location*): NASA Ames Research
Center; Moffett Field, CA

WEST VIRGINIA:

NASA (IV & V) Facility Goddard Space Flight Center; Fairmont, WV

Wheeling Jesuit University Classroom of the Future; Wheeling, WV

WISCONSIN (*currently served by the following location*): NASA Glenn Research Center
Educator Resource Center; Cleveland, OH

WYOMING: University of Wyoming Learning Resource Center; Laramie, WY