

FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT

Aerospace Science & Leadership 2 Air Force Junior ROTC

Date: March 2014

Subject Area: Career Technical Education

Proposed Grade Level(s): 9 - 12

Course Length: One Year

Grading: A-F

Number of Credits: 5 per Semester

Prerequisites: None

COURSE DESCRIPTION:

Aerospace Science 2: A Gateway to new Horizons

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 compliment 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; 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.

Leadership Education 2:

Leadership Education 2 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.

Each unit of instruction and the associated student learning activities will include a multicultural perspective representative of the demographic makeup of Cordova High School. Field trips will also be arranged for students to visit industry experts in the various aerospace industry sectors.

GENERAL GOALS / ESSENTIAL QUESTIONS:

By the end of the Aerospace Science Course, each student will be able to:

- Analyze the elements of flight
- Evaluate how atmospheric conditions affect flight
- Evaluate how flight affects the human body
- Analyze flight navigation and the purpose of aerial navigation aids

By the end of the Leadership Education course, each student will be able to:

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

CCSS READING COMPONENT:

Students will be required to:

- Read articles related to flight and aviation physiology
- Read the required texts.
- Read and comprehend test questions and answers.
- Use the Internet to research leadership-related topics.
- Read articles related to Health and Well Being.

CCSS WRITING COMPONENT:

Students will be required to:

- State their responses to questions in complete sentences.
- Develop a personal health plan and set career goals for five years.
- Complete a notebook that includes note taking from class lectures.
- Develop Power Point presentations on a variety of topics for group presentations.

CCSS SPEAKING AND LISTENING COMPONENT:

Students will be required to:

- Participate as a member of a group in leadership situation.
- Respond to questions directed to them during class discussion.
- Participate in question/answer sessions with guest speakers.

DETAILED UNITS OF INSTRUCTION:

All Units of Instruction will include:

- Introductory class discussion and teacher presentation.
- Appropriate audio-visual media.
- Hands on learning activities.
- Evaluation of student learning.
- Student reading, writing, and oral component.

Aerospace Science:

AS-2: The Science of Flight

Unit One: The Aerospace Environment
Unit Three: Principles of Aircraft Flight

Unit Two: Human Requirements of Flight
Unit Four: Principles of Navigation

Leadership Education:

LE 2: Communication, Awareness, and Leadership

Unit One: Learning, Communication,
Unit Three: Understanding Groups/Teams

Unit Two: Building Personal Awareness/Development
Unit Four: Preparing for Leadership

Drill and Ceremonies

Unit One: Intro. to Drill and Ceremonies
Unit Three: Conduct basic drill movements
Unit Five: Expanding Drill Techniques
Unit Seven: Formation of Groups & Wings

Unit Two: Commands and the Command Voice
Unit Four: Saluting
Unit Six: Functions of Group and a Wing
Unit Eight: Purpose of Ceremonies and Parades

TEXTBOOKS and RESOURCE MATERIALS:

Communication, Awareness, and Leadership, Pearson Custom Publishing, 2005

The Science of Flight, Library of Congress Catalog Data, Jones & Bartlett Learning, 2012

Drill and Ceremonies, Air Force Manual 36-2203

COMMON CORE STANDARDS TO BE ADDRESSED:

Reading: Informational Text

Integration of Knowledge and Ideas

CCSS.ELA-Literacy.RI.11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

Writing

Text Types and Purposes

CCSS.ELA-Literacy.W.11-12.1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

CCSS.ELA-Literacy.W.11-12.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

Production and Distribution of Writing

CCSS.ELA-Literacy.W.11-12.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

Research to Build and Present Knowledge

CCSS.ELA-Literacy.W.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

Speaking and Listening

Comprehension and Collaboration

CCSS.ELA-Literacy.SL.11-12.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

CCSS.ELA-Literacy.SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

Presentation of Knowledge and Ideas

CCSS.ELA-Literacy.SL.11-12.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Literacy in Technical Subjects

Key Ideas and Details

CCSS.ELA-Literacy.RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Integration of Knowledge and Ideas

CCSS.ELA-Literacy.RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

DISTRICT ESLRs TO BE ADDRESSED:

Students will be:

- **Self –Directed learners** – students will work independently to determine positive and collaborative outcomes to group problems
- **Effective communicators** – students will communicate through both written and oral presentations made in class and to local middle schools.
- **Quality Producers/Performers** – student work will be held to a high standard as set by the Air Force Junior ROTC worldwide program.
- **Constructive Thinkers** – students will be able to deconstruct, organize, plan and implement group projects and intramural events, document activities, and apply project management skills.
- **Collaborative Workers** – students will understand the importance of teamwork and complete various projects as a member of a team.
- **Responsible Citizens** – students will participate in community service activities

Appendix

Transportation Knowledge and Performance Anchor Standards

1.0 Academics

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the Transportation academic alignment matrix for identification of standards.

2.0 Communications

Acquire and accurately use Transportation sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats. (Direct alignment with LS 9-10, 11-12.6)

2.1 Recognize the elements of communication using a sender–receiver model.

2.2 Identify barriers to accurate and appropriate communication.

2.3 Interpret verbal and nonverbal communications and respond appropriately.

2.4 Demonstrate elements of written and electronic communication such as accurate spelling, grammar, and format.

2.5 Communicate information and ideas effectively to multiple audiences using a variety of media and formats.

2.6 Advocate and practice safe, legal, and responsible use of digital media information and communications technologies.

3.0 Career Planning and Management

Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans. (Direct alignment with SLS 11-12.2)

3.1 Identify personal interests, aptitudes, information, and skills necessary for informed career decision making.

3.2 Evaluate personal character traits such as trust, respect, and responsibility and understand the impact they can have on career success.

3.3 Explore how information and communication technologies are used in career planning and decision making.

3.4 Research the scope of career opportunities available and the requirements for education, training, certification, and licensure.

3.5 Integrate changing employment trends, societal needs, and economic conditions into career planning.

3.9 Develop a career plan that reflects career interests, pathways, and postsecondary options.

4.0 Technology

Use existing and emerging technology to investigate, research, and produce products and services, including new information, as required in the workplace environment. (Direct alignment with WS 11-12.6)

4.1 Use electronic reference materials to gather information and produce products and services.

4.3 Use information and communication technologies to synthesize, summarize, compare, and contrast information from multiple sources.

4.5 Research past, present, and projected technological advances as they impact a particular pathway.

5.0 Problem Solving and Critical Thinking

Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Transportation sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques. (Direct alignment with WS 11-12.7)

5.1 Identify and ask significant questions that clarify various points of view to solve problems.

5.2 Solve predictable and unpredictable work-related problems using various types of reasoning (inductive, deductive) as appropriate.

5.3 Use systems thinking to analyze how various components interact with each other to produce outcomes in a complex work environment.

5.4 Interpret information and draw conclusions, based on the best analysis, to make informed decisions.

6.0 Health and Safety

Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Transportation sector workplace environment. (Direct alignment with RSTS 9-10, 11-12.4)

6.2 Interpret policies, procedures, and regulations for the workplace environment, including employer and employee responsibilities.

6.3 Use health and safety practices for storing, cleaning, and maintaining tools, equipment, and supplies.

6.4 Practice personal safety when lifting, bending, or moving equipment and supplies.

9.0 Leadership and Teamwork

Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution.

9.1 Define leadership and identify the responsibilities, competencies, and behaviors of successful leaders.

9.2 Identify the characteristics of successful teams, including leadership, cooperation, collaboration, and effective decision-making skills as applied in groups, teams, and career technical student organization activities.

9.3 Understand the characteristics and benefits of teamwork, leadership, and citizenship in the school, community, and workplace setting.

9.5 Understand that the modern world is an international community and requires an expanded global view.

9.6 Respect individual and cultural differences and recognize the importance of diversity in the workplace.

9.7 Participate in interactive teamwork to solve real world issues and problems

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