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**PROGRAM CONCENTRATION:** Government & Public Safety  
**CAREER PATHWAY:** JROTC – Navy  
**COURSE TITLE:** Naval Science III Naval Orientation and Skills

**Course Description:** The purpose of this course is to further the foundation in citizenship and leadership established in Naval Science One and Two and to provide classroom and practical application in Naval and Ship Organization. Minimum performance requirements of this course are in accordance with current Chief of Naval Education Training Instruction, NAVEDTRA 37128. The performance standards in this course are based on the performance standards identified in the curriculum for the United States Navy Junior Reserve Officer Training Corps. Successful completion of three courses of credit will qualify the student for advanced placement in a college ROTC program or accelerated promotion in the military service.

### **SHIPBOARD ORGANIZATION AND WATCHSTANDING**

**PS- NSIINOS-1: Students will expand their understanding and knowledge of Navy ships, their construction, operation, mission, and objectives of damage control through shipboard organization.**

- a. State the administrative organization of a typical Navy fighting ship, to include the responsibilities of key personnel.
- b. List the responsibilities of department heads and division officers aboard Navy vessels.
- c. Describe the publications that establish the functional shipboard organization.

**Academic Standard(s):**

**SSEPF6 The student will describe how the earnings of workers are determined in the marketplace.**

- a. Identify skills which are required to be successful in the workplace.
- b. Explain the significance of investment in education, training and skill development.

### **WATCHES**

**PS- NSIINOS -2: Students will recognize and learn the organizational elements of and relationships within a typical Navy shipboard organization.**

- a. Describe the watch structure used in the U.S. Navy.
- b. Cite the duties and responsibilities of shipboard watch-standers.
- c. Illustrate the duties performed by crewmen during in-port and underway watches.
- d. Assess the duties of Navy personnel performing watches ashore.

**Academic Standard(s): SSEF3 The student will explain how specialization and voluntary exchange between buyers and sellers increase the satisfaction of both parties.**

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- a. Give examples of how individuals and businesses specialize.
- b. Explain that both parties gain as a result of voluntary, non-fraudulent exchange.

**SSEPF6 The student will describe how the earnings of workers are determined in the marketplace.**

- a. Identify skills which are required to be successful in the workplace.
- b. Explain the significance of investment in education, training and skill development.

### **GENERAL BILLS**

**PS- NSIINOS -3: Students will recognize and learn the organizational elements of and relationships within a typical Navy shipboard organization.**

- a. Describe the specific duties associated with each assigned watch.

**Academic Standard(s): SSEF3 The student will explain how specialization and voluntary exchange between buyers and sellers increase the satisfaction of both parties.**

- a. Give examples of how individuals and businesses specialize.
- b. Explain that both parties gain as a result of voluntary, non-fraudulent exchange.

**SSEPF6 The student will describe how the earnings of workers are determined in the marketplace.**

- a. Identify skills which are required to be successful in the workplace.
- b. Explain the significance of investment in education, training and skill development.

### **SEAMANSHIP**

**PS- NSIINOS -4: Students will exhibit an understanding of the various types of equipment and terminology used in marlinspike seamanship. Students will:**

- a. Evaluate the duties and responsibilities of deck personnel department.
- b. Describe the types and makeup of ropes used in the Navy.
- c. List the proper procedure for handling, stowing, and caring for fiber rope.
- d. Demonstrate how to tie knots, bends, and hitches.
- e. Explain the importance of securing at sea.

**Academic Standard(s): SPS8 Students will determine relationships among force, mass, and motion.**

- a. Calculate velocity and acceleration.
- b. Apply Newton's three laws to everyday situations by explaining the following:
  - Inertia
  - Relationship between force, mass and acceleration
  - Equal and opposite forces

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- c. Relate falling objects to gravitational force
- d. Explain the difference in mass and weight.
- e. Calculate amounts of work and mechanical advantage using simple machines.

**PS- NSIINOS -5: Students will exhibit an understanding of ground tackle and deck equipment used in basic seamanship. Students will:**

- a. Discuss the terms associated with and the use of ground tackle, anchors, and chains.
- b. Describe the operation of an anchor windlass.
- c. State the terms associated with and the use of deck and pier fittings used in mooring.
- d. Cite the equipment and the basic procedures used in towing.
- e. List the equipment used and explain the terms associated with cargo handling.

**Academic Standard(s):**

**SPS8 Students will determine relationships among force, mass, and motion.**

- a. Calculate velocity and acceleration.
- b. Apply Newton's three laws to everyday situations by explaining the following:
  - Inertia
  - Relationship between force, mass and acceleration
  - Equal and opposite forces
- c. Relate falling objects to gravitational force
- d. Explain the difference in mass and weight.
- e. Calculate amounts of work and mechanical advantage using simple machines.

**PS- NSIINOS -6: Students will exhibit an understanding of the various types of equipment and terminology used in small boat seamanship. Students will:**

- a. State the purpose of small boat seamanship.
- b. Identify nomenclature that applies to small boat parts and structure.
- c. Describe small types of craft as they apply to the NJROTC program.
- d. Explain the procedures for small boat handling.
- e. Discuss boat etiquette as practiced by the United States Navy.

**Academic Standard(s):**

**SP1 Students will analyze the relationships between force, mass, gravity, and the motion of objects.**

- a. Calculate average velocity, instantaneous velocity, and acceleration in a given frame of reference.
- b. Compare and contrast scalar and vector quantities.
- c. Compare graphically and algebraically the relationships among position, velocity, acceleration, and time.
- d. Measure and calculate the magnitude of frictional forces and Newton's three Laws of Motion.
- e. Measure and calculate the magnitude of gravitational forces.
- f. Measure and calculate two-dimensional motion (projectile and circular) by using component

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vectors.

g. Measure and calculate centripetal force.

h. Determine the conditions required to maintain a body in a state of static equilibrium.

### **RULES of the NAUTICAL ROAD**

**PS- NSIINOS -7: Students will demonstrate knowledge of basic theory of the nautical rules of the road and be skilled in the many uses of the maneuvering board. Students will:**

- a. Describe the two main sets of nautical rules.
- b. Explain the rules for shipboard lights in inland and international waters.
- c. Describe those sound signals used on large vessels.
- d. List the inland and international rules for steering and sailing vessels.
- e. Assess three principal characteristics of navigational lights.
- f. Describe the eight types of buoys used along waterways.
- g. Cite how day beacons and ranges are used as navigational aids.

**Academic Standard(s):**

**SCSh3 Students will identify and investigate problems scientifically.**

- a. Suggest reasonable hypotheses for identified problems.
- b. Develop procedures for solving scientific problems.
- c. Collect, organize and record appropriate data.
- d. Graphically compare and analyze data points and/or summary statistics.
- e. Develop reasonable conclusions based on data collected.
- f. Evaluate whether conclusions are reasonable by reviewing the process and checking against other available information.

**SP1 Students will analyze the relationships between force, mass, gravity, and the motion of objects.**

- a. Calculate average velocity, instantaneous velocity, and acceleration in a given frame of reference.
- b. Compare and contrast scalar and vector quantities.
- c. Compare graphically and algebraically the relationships among position, velocity, acceleration, and time.
- d. Measure and calculate the magnitude of frictional forces and Newton's three Laws of Motion.
- e. Measure and calculate the magnitude of gravitational forces.
- f. Measure and calculate two-dimensional motion (projectile and circular) by using component vectors.
- g. Measure and calculate centripetal force.
- h. Determine the conditions required to maintain a body in a state of static equilibrium.

### **INTRODUCTION TO NAVIGATION AND TIME**

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**PS- NSIINOS -8: Students will become familiar with the tools and terminology of navigation and do basic navigational plotting.**

- a. Express the terrestrial sphere as it relates to navigation.
- b. Infer the relationship of meridians as it pertains to measurement.
- c. Explain how latitude and longitude are used to locate places on a map.
- d. Describe the use of navigational charts.
- e. Express how mercator projection is used by navigators.
- f. State the purpose for the basic types of charts listed in the text.

**Academic Standard(s):**

**SP1 Students will analyze the relationships between force, mass, gravity, and the motion of objects.**

- a. Calculate average velocity, instantaneous velocity, and acceleration in a given frame of reference.
- b. Compare and contrast scalar and vector quantities.
- c. Compare graphically and algebraically the relationships among position, velocity, acceleration, and time.
- d. Measure and calculate the magnitude of frictional forces and Newton's three Laws of Motion.
- e. Measure and calculate the magnitude of gravitational forces.
- f. Measure and calculate two-dimensional motion (projectile and circular) by using component vectors.
- g. Measure and calculate centripetal force.
- h. Determine the conditions required to maintain a body in a state of static equilibrium.

**PS- NSIINOS -9: Students will become familiar with the tools and terminology of navigation and time, and do basic navigational plotting.**

- a. Relate the basic timekeeping instruments used in the U.S. Navy.
- b. Evaluate the purpose of the ship's bell system on board a Navy vessel.
- c. Derive how time is measured by the sun with the use of special instruments.
- d. State the importance of Greenwich Time for navigational purposes.

**Academic Standard(s):**

**SCSh7 Students will analyze how scientific knowledge is developed. Students will recognize that:**

- a. The universe is a vast single system in which the basic principles are the same everywhere.
- b. Universal principles are discovered through observation and experimental verification.
- c. From time to time, major shifts occur in the scientific view of how the world works. More often, however, the changes that take place in the body of scientific knowledge are small modifications of prior knowledge. Major shifts in scientific views typically occur after the observation of a new phenomenon or an insightful interpretation of existing data by an individual or research group.
- d. Hypotheses often cause scientists to develop new experiments that produce additional data.
- e. Testing, revising, and occasionally rejecting new and old theories never ends.

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**SP1 Students will analyze the relationships between force, mass, gravity, and the motion of objects.**

- a. Calculate average velocity, instantaneous velocity, and acceleration in a given frame of reference.
- b. Compare and contrast scalar and vector quantities.
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- d. Measure and calculate the magnitude of frictional forces and Newton's three Laws of Motion.
- e. Measure and calculate the magnitude of gravitational forces.
- f. Measure and calculate two-dimensional motion (projectile and circular) by using component vectors.
- g. Measure and calculate centripetal force.
- h. Determine the conditions required to maintain a body in a state of static equilibrium

### **INTRODUCTION TO MANUEVERING BOARD**

**PS- NSIINOS -10: Students will demonstrate knowledge of basic theory of the nautical rules of the road and be skilled in the many uses of the maneuvering board.**

- a. State the purpose and use of the maneuvering board.
- b. Describe the relationship between relative motion and reference point.
- c. Cite the major steps for plotting directions with the use of a maneuvering board.
- d. Demonstrate the major concepts of maneuvering a vessel.
- e. Describe the wind's effect on maneuvering a vessel.

**Academic Standard(s):**

**SP1 Students will analyze the relationships between force, mass, gravity, and the motion of objects.**

- a. Calculate average velocity, instantaneous velocity, and acceleration in a given frame of reference.
- b. Compare and contrast scalar and vector quantities.
- c. Compare graphically and algebraically the relationships among position, velocity, acceleration, and time.
- d. Measure and calculate the magnitude of frictional forces and Newton's three Laws of Motion.
- e. Measure and calculate the magnitude of gravitational forces.
- f. Measure and calculate two-dimensional motion (projectile and circular) by using component vectors.
- g. Measure and calculate centripetal force.
- h. Determine the conditions required to maintain a body in a state of static equilibrium.

**SCSh4 Students will use tools and instruments for observing, measuring, and manipulating scientific equipment and materials.**

- a. Develop and use systematic procedures for recording and organizing information.

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- b. Use technology to produce tables and graphs.
- c. Use technology to develop, test, and revise experimental or mathematical models.

## **NAVAL SHIPS: MISSIONS, CONSTRUCTION, AND DAMAGE CONTROL**

**PS- NSIINOS -11: Students will recognize and learn the organizational elements of and relationships within a typical Navy shipboard organization, and learn the different types of naval ships and their missions.**

- a. Identify U.S. Navy vessels by name, designation, and hull number.
- b. Describe the Navy's major combatant ships and their missions.
- c. Describe the Navy's major auxiliary ships and their missions.

**Academic Standard(s):**

**SSUSH19 The student will identify the origins, major developments, and the domestic impact of World War II, especially the growth of the federal government.**

- a. Explain A. Philip Randolph's proposed march on Washington, D.C. and President Franklin D. Roosevelt's response.
- b. Explain the Japanese attack on Pearl Harbor and the internment of Japanese-Americans.
- c. Explain major events including the lend-lease program, the Battle of Midway, D-Day, and the fall of Berlin.
- d. Describe war mobilization, as indicated by rationing, war-time conversion, and the role of women in war industries.
- e. Describe Los Alamos and the scientific, economic, and military implications of developing the atomic bomb.

**SSUSH25 The student will describe changes in national politics since 1968.**

- a. Describe President Richard M. Nixon's opening of China, his resignation due to the Watergate scandal, changing attitudes toward government, and the Presidency of Gerald Ford.
- b. Explain the impact of Supreme Court decisions on ideas about civil liberties and civil rights including such decisions as Roe v. Wade (1973 and the Bakke decision on affirmative action).
- c. Explain the Carter administration's efforts in the Middle East including the Camp David Accords, his response to the 1979 Iranian Revolution and Iranian hostage crisis.
- c. Describe domestic and international events of Ronald Reagan's presidency including Reaganomics, the Iran-contra scandal and the collapse of the Soviet Union.
- d. Explain the relationship between Congress and President Bill Clinton including the North American Free Trade Agreement and his impeachment and acquittal.
- e. Analyze the 2000 presidential election and its outcome emphasizing the role of the electoral college.
- f. Analyze the response of President George W. Bush to the attacks of September 11, 2001 on the United States, the war against terrorism, and the subsequent American interventions in Afghanistan and Iraq.

## **SHIP CONSTRUCTION**

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**PS- NSIINOS -12: Students will recognize and learn the different types of naval ships and their construction.**

- a. State the eight major factors used in the construction of any U.S. Navy ship.
- b. Define those terms that characterize a ship's structure.
- c. Describe the decks of a U.S. Navy vessel by their names.
- d. Cite the three types of propulsion plants used in Navy vessels.
- e. List the classifications and designations of U.S. Navy ships.

**Academic Standard(s):**

**SCSh3 Students will identify and investigate problems scientifically.**

- a. Suggest reasonable hypotheses for identified problems.
- b. Develop procedures for solving scientific problems.
- c. Collect, organize and record appropriate data.
- d. Graphically compare and analyze data points and/or summary statistics.
- e. Develop reasonable conclusions based on data collected.
- f. Evaluate whether conclusions are reasonable by reviewing the process and checking against other available information.

**DAMAGE CONTROL AND FIREFIGHTING**

**PS- NSIINOS -13: Students will expand their understanding and knowledge of damage control and firefighting onboard a vessel.**

- a. Describe the functions and responsibilities of key personnel assigned to the damage control organization.
- b. Explain the material condition of readiness.
- c. Determine the methods and materials used by repair parties to make emergency repairs.
- d. List the systems used to communicate throughout the damage control organization.
- e. Cite the three physical requirements for a fire to occur and the four classes of fires.
- f. State the procedures for fighting fires.

**Academic Standard(s):**

**SCSh5 Students will demonstrate the computation and estimation skills necessary for analyzing data and developing reasonable scientific explanations.**

- a. Trace the source on any large disparity between estimated and calculated answers to problems.
- b. Consider possible effects of measurement errors on calculations.
- c. Recognize the relationship between accuracy and precision.
- d. Express appropriate numbers of significant figures for calculated data, using scientific notation where appropriate.
- e. Solve scientific problems by substituting quantitative values, using dimensional analysis and/or simple algebraic formulas as appropriate.

**NAVAL GUNNERY and WEAPONS**

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**PS- NSIINOS -14: Students will demonstrate knowledge of naval gunnery and weapons.**

- a. State the evolution of naval weapons from 1453 to the present.
- b. Discuss basic weapons terminology as it applies to the Navy.
- c. Describe the Navy weapons organization.
- d. Discuss the range of weapons used by the Navy.
- e. Describe the major considerations used to select ship weapons systems.
- f. State shipboard weapons control systems used by the Navy.
- g. Cite the major characteristics and nomenclature of naval guns.
- h. Evaluate the principal components of gun ammunition.
- i. Relate the techniques used by the Navy to provide gunfire support.

**Academic Standard(s):**

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**NAVAL AIRCRAFT and GUIDED MISSILES**

**PS- NSIINOS -15: Students will demonstrate knowledge of naval aviation in terms of their aircraft and their weapons.**

- a. Identify the types of naval aircraft.
- b. Explain the military aircraft designation system.
- c. Cite the evolution of naval aircraft weapons systems.
- d. Describe naval aircraft guns.
- e. List the general types of guided missiles.
- f. Describe the four basic component parts of guided missile systems.
- g. Define the types of usage of guided missiles used in the Navy.
- h. Illustrate the Navy's submarine-launched ballistic missile program.
- i. Make sense of the Navy's air-to-air missiles used in front line defense of naval task force.
- j. Induce the second line of fleet defense with the use of the Navy's surface-to-air missiles.
- k. Imagine the Navy's current under sea warfare weapons.
- l. Determine the physics affecting missile and aircraft flight.
- m. Explain the two basic types of guided missile trajectories.

**Academic Standard(s):**

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- e. Measure and calculate the magnitude of gravitational forces.
- f. Measure and calculate two-dimensional motion (projectile and circular) by using component vectors.
- g. Measure and calculate centripetal force.
- h. Determine the conditions required to maintain a body in a state of static equilibrium.

**SPS10 Students will investigate the properties of electricity and magnetism.**

- a. Investigate static electricity in terms of
  - friction
  - induction
  - conduction
- b. Explain the flow of electrons in terms of
  - alternating and direct current.
  - the relationship among voltage, resistance and current.
  - simple series and parallel circuits.
- c. Investigate applications of magnetism and/or its relationship to the movement of electrical charge as it relates to
  - electromagnets
  - simple motors
  - permanent magnets

**MINE WARFARE**

**PS- NSIINOS -16: Students will demonstrate knowledge of mine warfare.**

- a. Explain the principals used in mine warfare from the American Revolution to the present.
- b. Identify the four systems of mine classification.
- c. Cite the three major types of mine countermeasures, to include ship treatment against magnetic and acoustic mines, minesweeping, and mine hunting.
- d. Explain the major attributes of mine warfare.
- e. Define the key elements of mine warfare strategy.

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**Academic Standard(s):**

**SCSh5 Students will demonstrate the computation and estimation skills necessary for analyzing data and developing reasonable scientific explanations.**

- a. Trace the source on any large disparity between estimated and calculated answers to problems.
- b. Consider possible effects of measurement errors on calculations.
- c. Recognize the relationship between accuracy and precision.
- d. Express appropriate numbers of significant figures for calculated data, using scientific notation where appropriate.
- e. Solve scientific problems by substituting quantitative values, using dimensional analysis and/or simple algebraic formulas as appropriate.

**SPS10 Students will investigate the properties of electricity and magnetism.**

- a. Investigate static electricity in terms of
  - friction
  - induction
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- b. Explain the flow of electrons in terms of
  - alternating and direct current.
  - the relationship among voltage, resistance and current.
  - simple series and parallel circuits.
- c. Investigate applications of magnetism and/or its relationship to the movement of electrical charge as it relates to
  - electromagnets
  - simple motors
  - permanent magnets

**CHEMICAL, BIOLOGICAL, and NUCLEAR WEAPONS**

**PS- NSIINOS -17: Students will demonstrate knowledge in chemical, biological, and nuclear weapons.**

- a. Define conventional weapons.
- b. State examples of the use of chemical and biological warfare in earlier times.
- c. Describe chemical warfare and explain the common types of CW agents found in the weapons stockpiles of most major nations today.
- d. Explain biological warfare.
- e. Make meaning of nuclear warfare and imagine the possible effects of a nuclear warhead explosion.
- f. Cite the three types of nuclear bursts to which a ship may be exposed.
- g. Show the physiological effects of radiation exposure on personnel.

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- h. State CBR damage control procedures, including pre-attack countermeasures and post-attack shipboard decontamination.

**Academic Standard(s):**

**SCSh5 Students will demonstrate the computation and estimation skills necessary for analyzing data and developing reasonable scientific explanations.**

- a. Trace the source on any large disparity between estimated and calculated answers to problems.
- b. Consider possible effects of measurement errors on calculations.
- c. Recognize the relationship between accuracy and precision.
- d. Express appropriate numbers of significant figures for calculated data, using scientific notation where appropriate.
- e. Solve scientific problems by substituting quantitative values, using dimensional analysis and/or simple algebraic formulas as appropriate.

**SAP3 Students will assess the integration and coordination of body functions and their dependence on the endocrine and nervous systems to regulate physiological activities.**

- a. Interpret interactions among hormones, senses, and nerves which make possible the coordination of functions of the body.
- b. Investigate the physiology of electrochemical impulses and neural integration and trace the pathway of an impulse, relating biochemical changes involved in the conduction of the impulse.
- c. Describe how the body perceives internal and external stimuli and responds to maintain a stable internal environment, as it relates to biofeedback

**SPS3 Students will distinguish the characteristics and components of radioactivity.**

- a. Differentiate between alpha and beta particles and gamma radiation.
- b. Differentiate between fission and fusion.
- c. Explain the process half-life as related to radioactive decay.
- d. Describe nuclear energy, its practical application as an alternative energy source, and its potential problems.

## Reading Across the Curriculum

**Reading Standard Comment**

After the elementary years, students engage in reading for learning. This process sweeps across all disciplinary domains, extending even to the area of personal they experience text in all genres and modes of discourse. In the study of various disciplines of learning (language arts, mathematics, science, social studies), students must learn through reading the communities of discourse of each of those disciplines. Each subject has its own specific vocabulary, and for students to excel in all subjects, they must learn the specific vocabulary of those subject areas in context.

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Beginning with the middle grades years, students begin to self-select reading materials based on personal interests established through classroom learning. Students become curious about science, mathematics, history, and literature as they form contexts for those subjects related to their personal and classroom experiences. As students explore academic areas through reading, they develop favorite subjects and become confident in their verbal discourse about those subjects.

Reading across curriculum content develops both academic and personal interests in students. As students read, they develop both content and contextual vocabulary. They also build good habits for reading, researching, and learning. The Reading Across the Curriculum standard focuses on the academic and personal skills students acquire as they read in all areas of learning.

Students will enhance reading in all curriculum areas by:

- a. Reading in all curriculum areas
  - Read a minimum of 25 grade-level appropriate books per year from a variety of subject disciplines and participate in discussions related to curricular learning in all areas.
  - Read both informational and fictional texts in a variety of genres and modes of discourse.
  - Read technical texts related to various subject areas.
- b. Discussing books
  - Discuss messages and themes from books in all subject areas.
  - Respond to a variety of texts in multiple modes of discourse.
  - Relate messages and themes from one subject area to messages and themes in another area.
  - Evaluate the merit of texts in every subject discipline.
  - Examine author's purpose in writing.
  - Recognize the features of disciplinary texts.
- c. Building vocabulary knowledge
  - Demonstrate an understanding of contextual vocabulary in various subjects.
  - Use content vocabulary in writing and speaking.
  - Explore understanding of new words found in subject area texts.
- d. Establishing context
  - Explore life experiences related to subject area content.
  - Discuss in both writing and speaking how certain words are subject area related.
  - Determine strategies for finding content and contextual meaning for unknown words.

### **CTAE Foundation Skills**

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The Foundation Skills for Career, Technical and Agricultural Education (CTAE) are critical competencies that students pursuing any career pathway should exhibit to be successful. As core standards for all career pathways in all program concentrations, these skills link career, technical and agricultural education to the state's academic performance standards.

The CTAE Foundation Skills are aligned to the foundation of the U. S. Department of Education's 16 Career Clusters. Endorsed by the National Career Technical Education Foundation (NCTEF) and the National Association of State Directors of Career Technical Education Consortium (NASDCTEc), the foundation skills were developed from an analysis of all pathways in the sixteen occupational areas. These standards were identified and validated by a national advisory group of employers, secondary and postsecondary educators, labor associations, and other stakeholders. The Knowledge and Skills provide learners a broad foundation for managing lifelong learning and career transitions in a rapidly changing economy.

**CTAE-FS-1 Technical Skills:** Learners achieve technical content skills necessary to pursue the full range of careers for all pathways in the program concentration.

**CTAE-FS-2 Academic Foundations:** Learners achieve state academic standards at or above grade level.

**CTAE-FS-3 Communications:** Learners use various communication skills in expressing and interpreting information.

**CTAE-FS-4 Problem Solving and Critical Thinking:** Learners define and solve problems, and use problem-solving and improvement methods and tools.

**CTAE-FS-5 Information Technology Applications:** Learners use multiple information technology devices to access, organize, process, transmit, and communicate information.

**CTAE-FS-6 Systems:** Learners understand a variety of organizational structures and functions.

**CTAE-FS-7 Safety, Health and Environment:** Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

**CTAE-FS-8 Leadership and Teamwork:** Learners apply leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.

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**CTAE-FS-9 Ethics and Legal Responsibilities:** Learners commit to work ethics, behavior, and legal responsibilities in the workplace.

**CTAE-FS-10 Career Development:** Learners plan and manage academic-career plans and employment relations.

**CTAE-FS-11 Entrepreneurship:** Learners demonstrate understanding of concepts, processes, and behaviors associated with successful entrepreneurial performance.