

2012 – 2013

**Arkansas Department of Career Education
Model Framework**

Course Title: Survey of Agriculture Systems

Career Cluster: Agriculture, Food & Natural Resources

Secondary – Agriculture Science and Technology	
Course Number	491150
CIP Number	Agriculture, General 01.00
Grade Level	9-12
Course Type	Foundation
Teacher Certification	Agri Sci & Tech Standard Teacher License (217,218)
CTSO	FFA
Facility Requirements	http://arkansasfacilities.arkansas.gov/SchoolFacManual.aspx
Industry Certifications	

Purpose

A foundation course for all agriculture programs of study. Topics covered include general agriculture, FFA, leadership, supervised agricultural experience, animal systems, plant systems, agribusiness systems, food products & processing systems, biotechnology, natural resources systems, environmental service systems & power, structural & technical systems.

Program Structure

The FFA Organization is an integral part of the total Agriculture Education program along with classroom instruction and student supervised agricultural experiences.

Career and Technical Student Organization (CTSO)

FFA

Standards

- 1.0 Introduction to Agriculture
- 2.0 FFA and Leadership
- 3.0 Supervised Agricultural Experiences
- 4.0 Agribusiness Systems
- 5.0 Animal Systems
- 6.0 Plant Systems
- 7.0 Food Products and Processing Systems
- 8.0 Biotechnology Systems
- 9.0 Natural Resources Systems
- 10.0 Environmental Service Systems
- 11.0 Power, Structural & Technical Systems

Common Core State Standards Grades 9-12

ELA Speaking and Listening Standards Grades 9-10

- 1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. **SL9-10.1**
 - a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. **SL9-10.1a**
 - b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed. **SL9-10.1b**
 - c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions. **SL9-10.1c**
 - d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented. **SL9-10.1d**
- 2. Integrate multiple sources of information presented in diverse media or format(e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source. **SL9-10.2**

3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence. **SL9-10.3**
4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task. **SL9-10.4**
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. **SL9-10.5**

ELA Speaking and Listening Standards Grades 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. **SL11-12.1**
 - a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. **SL11-12.1a**
 - b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed. **SL11-12.1b**
 - c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives. **SL11-12.1c**
 - d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task. **SL11-12.1d**
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. **SL11-12.2**
3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used. **SL11-12.3**
4. Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks. **SL11-12.4**
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. **SL11-12.5**

ELA Language Grades 9-10

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies. **L9-10.4**
 - a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. **L9-10.4a**
 - b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy). **L9-10.4b**
 - c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. **L9-10.4c**
 - d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary). **L9-10.4d**
6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. **L9-10.6**

ELA Language Grades 11-12

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies. **L11-12.4**
 - a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. **L11-12.4a**
 - b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable). **L11-12.4b**
 - c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage. **L11-12.4c**
 - d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary) **L11-12.4d**
6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. **L11-12.6**

Reading Standards for Literacy in Science and Technical Subjects Grades 9-10

1. Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions. **R9-10.1**
2. Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text. **R9-10.2**
3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. **R9-10.3**
4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics. **R9-10.4**
5. Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy). **R9-10.5**
6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address. **R9-10.6**
7. Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words. **R9-10.7**
8. Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem. **R9-10.8**
9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts. **R9-10.9**
10. By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently. **R9-10.10**

Reading Standards for Literacy in Science and Technical Subjects Grades 11-12

1. Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account. **R11-12.1**
2. Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. **R11-12.2**
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. **R11-12.3**
4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics. **R11-12.4**
5. Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. **R11-12.5**
6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved. **R11-12.6**
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. **R11-12.7**

8. Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information. **R11-12.8**
9. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **R11-12.9**
10. By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently. **R11-12.10**

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects Grades 9-10

1. Write arguments focused on discipline-specific content. **W9-10.1**
 - a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. **W9-10.1a**
 - b. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. **W9-10.1b**
 - c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. **W9-10.1c**
 - d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. **W9-10.1d**
 - e. Provide a concluding statement or section that follows from or supports the argument presented. **W9-10.1e**
2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. **W9-10.2**
 - a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. **W9-10.2a**
 - b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. **W9-10.2b**
 - c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. **W9-10.2c**
 - d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers. **W9-10.2d**
 - e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. **W9-10.2e**
 - f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic). **W9-10.2f**
3. Write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results. **W9-10.3**
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. **W9-10.4**
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. **W9-10.5**
6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically. **W9-10.6**

7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. **W9-10.7**
8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation. **W9-10.8**
9. Draw evidence from informational texts to support analysis, reflection, and research. **W9-10.9**
10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. **W9-10.10**

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects Grades 11-12

1. Write arguments focused on discipline-specific content. **W11-12.1**
 - a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence. **W11-12.1a**
 - b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases. **W11-12.1b**
 - c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. **W11-12.1c**
 - d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. **W11-12.1d**
 - e. Provide a concluding statement or section that follows from or supports the argument presented. **W11-12.1e**
2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. **W11-12.2**
 - a. Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. **W11-12.2a**
 - b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. **W11-12.2b**
 - c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. **W11-12.2c**
 - d. Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers. **W11-12.2d**

- e. Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic). **W11-12.2e**
- 3. Write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results. **W11-12.3**
- 4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
W11-12.4
- 5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. **W11-12.5**
- 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. **W11-12.6**
- 7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. **W11-12.7**
- 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 specific 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. **W11-12.8**
- 9. Draw evidence from informational texts to support analysis, reflection, and research. **W11-12.9**
- 10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences. **W11-12.10**

Common Career and Technical Core Standards

Agriculture, Food, and Natural Resources Cluster

Agriculture, Food, & Natural Resources Career Cluster Standards (AG)

- 1. Analyze how issues, trends, technologies, and public policies impact systems in the Agriculture, Food, & Natural Resources (AFNR) Career Cluster. **AG1**
- 2. Evaluate the nature and scope of the AFNR cluster and the role AFNR plays in society and the economy. **AG2**
- 3. Examine and summarize importance of health, safety, and environmental management systems in AFNR organizations. **AG3**
- 4. Demonstrate stewardship of natural resources in AFNR activities. **AG4**
- 5. Describe career opportunities and means to achieve those opportunities in each of the AFNR career pathways. **AG5**
- 6. Analyze the interaction among ANFR systems in the production, processing and management of food, fiber, and fuel and sustainable use of natural resources. **AG6**

Agribusiness Systems Career Pathway (AG-BIZ)

1. Apply management planning principles in AFNR business enterprises. **AG-BIZ1**
2. Use record keeping to accomplish AFNR business objectives, manage budgets, and comply with laws and regulations. **AG-BIZ2**
3. Manage cash budgets, credit budgets, and credit for an AFNR business using generally accepted accounting principles. **AG-BIZ3**
4. Develop a business plan for an AFNR enterprise or business unit. **AG-BIZ4**
5. Use sales and marketing principles common to agribusiness systems to accomplish AFNR business objectives. **AG-BIZ5**

Animal Systems Career Pathway (AG-ANI)

1. Analyze historic and current trends impacting the animal systems industry. **AG-ANI1**
2. Utilize best practice protocols for husbandry and welfare based upon animal behaviors. **AG-ANI2**
3. Design and provide proper animal nutrition given desired outcomes for performance, development, reproduction, and/or economic production. **AG-ANI3**
4. Apply principles of animal reproduction given desired outcomes for performance, development, and/or economic production. **AG-ANI4**
5. Evaluate environmental factors affecting animal performance and implement procedures for enhancing performance and animal health. **AG-ANI5**
6. Classify, evaluate and select animals based on anatomical and physiological characteristics. **AG-ANI6**
7. Apply principles of effective animal health care. **AG-ANI7**

Environmental Service Systems Career Pathway (AG-ENV)

1. Use analytical procedures and instruments to manage environmental service systems. **AG-ENV1**
2. Evaluate the impact of public policies and regulations on environmental service system operations. **AG-ENV2**
3. Develop proposed solutions to environmental issues, problems, and applications using scientific principles of meteorology, soil science, hydrology, microbiology, chemistry, and ecology. **AG-ENV3**
4. Demonstrate the operation of environmental service systems (e.g., pollution control, water treatment, wastewater treatment, solid waste management, and energy conservation). **AG-ENV4**
5. Use tools, equipment, machinery, and technology common to tasks in environmental service systems. **AG-ENV5**

Food Products and Processing Systems Career Pathway (AG-FD)

1. Develop and implement procedures to ensure safety, sanitation, and quality in the food product and processing facilities. **AG-FD1**
2. Apply principles of nutrition, biology, microbiology, chemistry, and human behavior to development of food products. **AG-FD2**
3. Select and process food products for storage, distribution, and consumption. **AG-FD3**
4. Explain the scope of the food industry and the historical and current developments of food products and processing. **AG-FD4**

Natural Resources Systems Career Pathway (AG-NR)

1. Plan and conduct natural resource management activities that apply logical, reasoned, and scientifically based solutions to natural resource issues and goals. **AG-NR1**
2. Analyze the interrelationships between natural resources and humans. **AG-NR2**
3. Develop plans to ensure responsible and sustainable production and processing of natural resources. **AG-NR3**
4. Demonstrate responsible control and management procedures and techniques to protect or maintain natural resources. **AG-NR4**

Plant Systems Career Pathway (AG-PL)

1. Develop and implement a crop management plan for a given production goal that accounts for environmental factors. **AG-PL1**
2. Apply the principles of classification, plant anatomy, and plant physiology to plant production and management. **AG-PL2**
3. Propagate, culture, and harvest plants and plant products based on current industry standards. **AG-PL3**
4. Apply principles of design in plant systems to enhance an environment (e.g., floral, forest, landscape, and farm). **AG-PL4**

Power, Structural and Technical Systems Career Pathway (AG-PST)

1. Apply physical science principles and engineering applications related to mechanical equipment, structures, and biological systems to solve problems and improve performance in AFNR power, structural, and technical systems. **AG-PST1**
2. Operate and maintain AFNR mechanical equipment and power systems. **AG-PST2**
3. Service and repair AFNR mechanical equipment and power systems. **AG-PST3**
4. Plan, build, and maintain AFNR structures. **AG-PST4**
5. Use control, monitoring, geospatial, and other technologies in AFNR power, structural, and technical systems. **AG-PST5**

Common Career and Technical Core Career Ready Practices (CCTC CRP)

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| <ol style="list-style-type: none"> 1. Act as a responsible and contributing citizen and employee. CRP1 2. Apply appropriate academic and technical skills. CRP2 3. Attend to personal health and financial well-being. CRP3 4. Communicate clearly, effectively, and with reason. CRP4 5. Consider the environmental, social and economic impacts of decisions. CRP5 6. Demonstrate creativity and innovation. CRP6 7. Employ valid and reliable research strategies. CRP7 8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP8 | <ol style="list-style-type: none"> 9. Model integrity, ethical leadership, and effective management. CRP9 10. Plan education and career path aligned to personal goals. CRP10 11. Use technology to enhance productivity. CRP11 12. Work productively in teams while using cultural/global competence. CRP12 |
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2012 – 2013

**Arkansas Department of Career Education
Student Performance Standards**

Course Title: Survey of Agriculture Systems

Course Number: 491150

Course Credit: 1

Course Description: At the completion of the course the student will be able to:

Understand topics including general agriculture, FFA, leadership, supervised agricultural experience, animal systems, plant systems, agribusiness systems, food products & processing systems, biotechnology, natural resources systems, environmental service systems & power, structural & technical systems.

Standard 1.0 Introduction to Agriculture		
Performance Indicator 1.1 Importance of Agriculture	Recommended Application/Activity	CCSS ELA
1.1.1 Explain the importance of agriculture in meeting basic human needs. (food, fiber and shelter)	<ul style="list-style-type: none"> Students make a poster/collage/web showing agricultural products used in their daily lives that meet their needs. 	R9-10.7 SL9-10.5
1.1.2 Determine the impact of agriculture on Arkansas' economy. (rice, soybeans, broilers, forest products and jobs)	<ul style="list-style-type: none"> Identify careers related to agriculture and research the career to determine educational requirements, working conditions and salary and report to class. (i.e. Agriculture Educator) Working in groups, students develop a map showing the location of major agriculture products in Arkansas. Access marketing and commodity information at (www.arfb.com) 	R11-12.2 R9-10.7
Performance Indicator 1.2 The Agriculture Industry	Recommended Application/Activity	CCSS ELA
1.2.1 List and describe the three major areas of the agriculture industry. (supplies & services, production agriculture, and marketing & processing)	<ul style="list-style-type: none"> Students choose a product (paper, steak, vegetable, etc.) and label the steps that it takes to get from production agriculture to supplies and services. Have students classify sample agricultural jobs and determine which of the three areas the job is classified. Identify local agricultural industries in each area. 	W9-10.3 R9-10.2 R9-10.5
1.2.2 Discuss the changes that have come about in agriculture due to technology. (genetic engineering, GPS and computerized equipment)	<ul style="list-style-type: none"> Compare and Contrast farming 100 years ago and farming today. Identify how modern farming impacts students' daily lives. 	R9-10.5

Standard 2.0 FFA and Leadership		
Performance Indicator 2.1 FFA Basics	Recommended Application/Activity	CCSS ELA
2.1.1 Explain the three parts to agriculture education. (FFA, SAE and Classroom/Laboratory)	<ul style="list-style-type: none"> • Become familiar with the chapter's constitution and by-laws. • Compile a list of agriculture courses offered at your school. 	R9-10.1 R9-10.1
2.1.2 Identify and explain the meaning of the symbols of the official FFA emblem, the official FFA colors and the official FFA dress.	<ul style="list-style-type: none"> • Label the parts of the FFA emblem. • Explain the significance of national blue and corn gold. • Demonstrate the official FFA dress and proper use of the FFA jacket as described in the Official FFA Manual. • Identify sources of the FFA jacket and other official items. • Determine sizes and ordering costs of an FFA jacket and official items. 	W9-10.2d SL9-10.5 R9-10.3
2.1.3 Explain the significance of these dates in the history of the FFA: 1917, 1928, 1965, 1969, 1988.	<ul style="list-style-type: none"> • Outline the history of the FFA on a timeline. 	SL9-10.4
2.1.4 Explain the significance of the FFA Creed, Motto, Salute and Mission Statement.	<ul style="list-style-type: none"> • Prepare a list of unfamiliar terms and definitions. • Recite the FFA Creed from memory. • Discuss how FFA opportunities help FFA members to achieve the FFA mission. (Career Development Events, Leadership Development Events, Camps/Conferences, Conventions, Holding Offices, Committee, School/Community Service) 	L9-10.4 SL9-10.4

2.1.5 List the degrees an FFA member may earn. (Discovery, Greenhand, Chapter, State and American)	<ul style="list-style-type: none"> • Create a check-list of requirements for each of the FFA degrees. 	W9-10.3
2.1.6 Explain the meaning of the symbol for each officer station.	<ul style="list-style-type: none"> • Describe the officer duties. • Prepare a list of unfamiliar terms and definitions in the opening ceremonies. • Provide a class demonstration of opening/closing ceremonies. • Describe desirable leadership traits of officers or any effective leader. • Become familiar with the FFA Code of Ethics. • Prepare a personal code of ethics. 	R9-10.1 L9-10.4 SL11-12.4 W9-10.4
Performance Indicator 2.2 FFA Leadership	Recommended Application/Activity	CCSS ELA
2.2.1 Compare/Contrast the Leadership Career Development Events (extemporaneous speaking, prepared speaking, creed speaking, parliamentary procedure, opening/closing ceremonies).	<ul style="list-style-type: none"> • Present a six minute prepared or extemporaneous speech that incorporates agriculture, FFA and/or leadership. 	SL11-12.4
2.2.2 Analyze the three major divisions of the POA . (student development, chapter development and community development)	<ul style="list-style-type: none"> • Review and revise the Chapter POA. • Participate on a POA committee. 	W9-10.2d W9-10.3

2.2.3 List the four main objectives of Parliamentary law. (focus on one thing at a time, extend courtesy to everyone, observe the rule of majority and respect rights of minority)	<ul style="list-style-type: none">• Perform 10 parliamentary abilities in a 15 minute group presentation.	SL11-12.4

Standard 3.0 Supervised Agricultural Experiences		
Performance Indicator 3.1 Career Pathways	Recommended Application/Activity	CCSS ELA
3.1.1 Discuss the eight pathways of study in agriculture. (Agribusiness systems, Animal systems, Biotechnology systems, Environmental Service systems, Food Products & Processing systems, Natural Resources systems and Power, Structural & Technical systems)	<ul style="list-style-type: none"> Complete the AET exercise “Getting Started – the First Day” on the (www.theaet.com) website. 	W9-10.6
Performance Indicator 3.2 Student SAE’s	Recommended Application/Activity	CCSS ELA
3.2.1 Compare/Contrast the types of Supervised Agricultural Experiences and determine the FFA Proficiency Awards available. (Entrepreneurship, Placement, Exploratory and Research/Experimental)	<ul style="list-style-type: none"> Complete the AET exercise “Student SAE’s and Beginning Inventory” on the (www.theaet.com) website. Write an experience plan for an SAE. Print a list of FFA Proficiency Awards available from the (www.ffa.org) website and match examples of experiences to the correct proficiency area. 	W9-10.4 R9-10.5
3.2.2 Evaluate SAE’s to determine FFA degree eligibility.	<ul style="list-style-type: none"> Generate the FFA Greenhand application from the (www.ffa.org) website. Generate the Chapter degree application from the (www.ffa.org) website. Generate the State and American degree applications from the (www.theaet.com) website. 	

Standard 4.0 Agribusiness Systems		
Performance Indicator 4.1 Organization of Agricultural Businesses	Recommended Application/Activity	CCSS ELA
4.1.1 Investigate Careers (Quality assurance specialist, quality control supervisor, research economist) and Career Development Events (Farm Business Management) in the Agribusiness systems pathway.	<ul style="list-style-type: none"> • Research careers using the Career Explorer link at the (www.ffa.org) website. • Explore career development events related to the Agribusiness Systems Pathway. 	L11-12.6 L11-12.6
4.1.2 Distinguish between the four types of agricultural businesses. (sole proprietorship, partnership, cooperative and corporation)	<ul style="list-style-type: none"> • Form a business plan for an agricultural business. 	W9-10.4
4.1.3 Distinguish between the areas of the Agriculture industry. (production, processing, marketing, distribution and sales)	<ul style="list-style-type: none"> • Prepare a poster following an agricultural commodity from producer to consumer. 	W9-10.2
Performance Indicator 4.2 Concepts of Agricultural Business	Recommended Application/Activity	CCSS ELA
4.2.1 From an inventory , differentiate between common depreciable and non-depreciable capital items used in agriculture. (feed, seed, fertilizer, stocker cattle, feeder cattle, breeding livestock, equipment, land, land improvement)	<ul style="list-style-type: none"> • Calculate depreciation of common agricultural capital items. 	

4.2.2 Using expenses and income , calculate the profit or loss of an agricultural business.	<ul style="list-style-type: none">• Analyze sample financial statements to pick out important parts and calculate profit/loss for businesses.	R11-12.7
4.2.3 Identify types of loans. (short-term, capital loan, mortgage)	<ul style="list-style-type: none">• Calculate interest and total pay-off on sample agricultural loans.	

Standard 5.0 Animal Systems		
Performance Indicator 5.1 Careers in Animal Systems	Recommended Application/Activity	CCSS ELA
5.1.1 Investigate careers (animal nutritionist, animal trainer, veterinarian) and career development events (livestock evaluation, dairy cattle evaluation, poultry, horse evaluation) in the Animal Systems Pathway.	<ul style="list-style-type: none"> • Research careers using the Career Explorer link at the (www.ffa.org) website. • Explore career development events related to the Animal Systems Pathway. 	L11-12.6 L11-12.6
Performance Indicator 5.2 Animal Classifications	Recommended Application/Activity	CCSS ELA
5.2.1 Distinguish between categories of animals (beef, sheep, dairy, swine, goats, poultry, aquaculture, equine, wildlife, specialty animal, small animal)(AS.02.01.02.a)	<ul style="list-style-type: none"> • Students investigate common livestock production operations for each category of animal. 	R9-10.10
5.2.2 Compare gender and age classification terminology of cattle, chickens, swine, sheep, goats and horses. (adult male, adult female, young female, castrated male and newborn) (AS.02.01.02.a)		

<p>5.2.3 Classify breeds within livestock categories. (Beef cattle: Angus, Brahman, Charolais, Hereford) (Dairy cattle: Holstein) (Meat sheep: Hampshire, Suffolk) (Wool sheep: Rambouillet) (Meat goat: Boer) (Dairy goat: Nubian) (Swine: Duroc, Yorkshire, Hampshire, Landrace)</p>	<ul style="list-style-type: none"> Students research and develop presentations on breeds of livestock. 	W9-10.7
<p>5.2.4 Classify livestock by digestive systems (monogastric, ruminant)</p>	<ul style="list-style-type: none"> Compare and Contrast the feed requirements for various types of monogastric and ruminant animals. 	W9-10.1
<p>Performance Indicator 5.3 Animal Products and Issues</p>	<p>Recommended Application/Activity</p>	<p>CCSS ELA</p>
<p>5.3.1 List primary products obtained from animal origins. (beef, pork, lamb, veal, poultry, mutton, milk, wool, eggs, fish)</p>	<ul style="list-style-type: none"> Create a list of products used by students during a 24 hour period and trace their origins. Discuss secondary byproducts of animal production. 	W9-10.2a
<p>5.3.2 Compare/Contrast animal rights and animal welfare.</p>	<ul style="list-style-type: none"> Develop a logical argument on animal rights and animal welfare and debate with classmates. 	W9-10.1b SL11-12.1

Standard 6.0 Plant Systems		
Performance Indicator 6.1 Careers in Plant Systems	Recommended Application/Activity	CCSS ELA
6.1.1 Investigate careers (plant breeder, plant geneticist, plant pathologist) and career development events (agronomy, floriculture, nursery/landscape) in the plant systems pathway.	<ul style="list-style-type: none"> • Research careers using the Career Explorer link at the (www.ffa.org) website. • Explore career development events related to the Plant Systems Pathway. 	L11-12.6 L11-12.6
Performance Indicator 6.2 Plant Science	Recommended Application/Activity	CCSS ELA
6.2.1 Identify uses of plants. (food, fiber, construction, pharmaceuticals, ornamentals)	<ul style="list-style-type: none"> • Categorize products that are obtained from plants. 	R9-10.5
6.2.2 Identify the four major parts of a plant and explain their functions. (root, stem, leaf, flower) (PS.01.02.03.a) (PS.01.02.04.a)	<ul style="list-style-type: none"> • Label the four parts of the plant on a diagram. • Students will use supplies to create a skit demonstrating the four parts of the plant and their functions. 	SL9-10.4
6.2.3 Distinguish between plant processes. (transpiration, photosynthesis and respiration) (PS.01.03.01.a) (PS.01.03.02.a)	<ul style="list-style-type: none"> • Illustrate the six components in the process of photosynthesis. (water, carbon dioxide, glucose, oxygen, sunlight and chlorophyll) • Relate each of the plant processes to a similar process in the human body and compare/contrast how humans meet each need. 	R9-10.5 L11-12.6 R9-10.9
6.2.4 Compare the life cycles of annual, biennial and perennial plants.	<ul style="list-style-type: none"> • From a list of plants, categorize them by their life cycle. 	R9-10.5

Performance Indicator 6.3 Requirements for Plant Growth	Recommended Application/Activity	CCSS ELA
6.3.1 Identify the three major nutrients found in fertilizer necessary for plant growth. (N,P,K)	<ul style="list-style-type: none"> • Observe the labels on fertilizer containers to determine its nutrient analysis. • Observe the affects of various fertilizer levels on plant growth. 	R9-10.4 R9-10.7
6.3.2 Compare soil particles by size. (sand, silt, clay)	<ul style="list-style-type: none"> • Have students use the ribbon test to feel the difference in soil texture. (fine, medium, coarse) • Illustrate the ideal soil structure pie chart. 	SL9-10.5

Standard 7.0 Food Products & Processing System		
Performance Indicator 7.1 Careers in Food Products & Processing	Recommended Application/Activity	CCSS ELA
7.1.1 Investigate careers (food chemist, food inspector, food scientist) and career development events (food science, poultry, milk quality and products) in the Food Products & Processing pathway.	<ul style="list-style-type: none"> • Research careers using the Career Explorer link at the (www.ffa.org) website. • Explore career development events related to the Food Products & Processing Systems Pathway. 	L11-12.6 L11-12.6
Performance Indicator 7.2 Food Products	Recommended Application/Activity	CCSS ELA
7.2.1 Identify sources of foods. (meat, eggs, dairy, fruits, vegetables, grains) (FPP.04.02.01-03)	<ul style="list-style-type: none"> • Students record food eaten over a one week period and identify the source of each item. 	W9-10.7
7.2.2 Compare/Contrast components of the food industry. (processing, distribution, byproducts) (FPP.01.01.01.a)	<ul style="list-style-type: none"> • Students develop a food product from a marketing scenario. • Students identify different aromas used in foods. • Students participate in taste tests. 	L11-12.6 R9-10.2
Performance Indicator 7.3 Food Safety	Recommended Application/Activity	CCSS ELA
7.3.1 Investigate organizations that regulate the food products and processing industry. (USDA, FDA, FSIS) (FPP.02.01.01-03.a)	<ul style="list-style-type: none"> • Students research the role and function of government organizations and report to class. 	W9-10.7 SL9-10.4
7.3.2 List common food-borne pathogens. (salmonella, E-coli) (FPP.02.01.01-03.a)	<ul style="list-style-type: none"> • Research appropriate cooking temperatures of beef, poultry, pork and fish. 	W9-10.7

<p>7.3.3 Discuss methods of food preservation. (refrigeration, freezing, curing, drying, canning)</p>	<ul style="list-style-type: none">• Students preserve food by dehydrating meat, fruit and/or vegetables.	
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Standard 8.0 Biotechnology Systems		
Performance Indicator 8.1 Careers in Biotechnology	Recommended Application/Activity	CCSS ELA
8.1.1 Investigate careers (microbiologist, geneticist, lab technician) in the Biotechnology Systems Pathway.	<ul style="list-style-type: none"> Research careers using the Career Explorer link at the (www.ffa.org) website. 	L11-12.6
Performance Indicator 8.2 Current Applications in Biotechnology	Recommended Application/Activity	CCSS ELA
8.2.1 Analyze current applications of biotechnology in plant science. (Bt, Round-up Ready, Tissue Culture, Genetic Engineering , and GMO) (BS.01.01.02.a)	<ul style="list-style-type: none"> Research and Report on the benefits of current applications in plant biotechnology. 	W9-10.7 SL9-10.4
8.2.2 Analyze current applications of biotechnology in animal science. (cloning , embryo transfer, artificial insemination, BST, transgenic organism) (BS.01.01.02.a)	<ul style="list-style-type: none"> Research and Report on the benefits of current applications in animal biotechnology. 	W9-10.7 SL9-10.4
Performance Indicator 8.3 Security in Biotechnology	Recommended Application/Activity	CCSS ELA
8.3.1 List the agencies that regulate biotechnology and biosecurity . (USDA, EPA, FDA, Dept. of Homeland Security) (BS.01.02.01.a)	<ul style="list-style-type: none"> Explore ethical, legal and social biotechnology issues and develop an opinion, either for or against, biotechnology. Watch the PBS Video, <i>Botany of Desire</i> and discuss pros and cons of biotechnology. 	R11-12.6 R11-12.9 SL9-10.1

Standard 9.0 Natural Resources System		
Performance Indicator 9.1 Careers in Natural Resources Systems	Recommended Application/Activity	CCSS ELA
9.1.1 Investigate careers (wildlife manager, timber manager, park ranger) and career development events (forestry , agronomy, land) in the Natural Resources Systems Pathway.	<ul style="list-style-type: none"> • Research careers using the Career Explorer link at the (www.ffa.org) website. • Explore career development events related to the Natural Resources Systems Pathway. 	L11-12.6 L11-12.6
Performance Indicator 9.2 Classifications of Natural Resources	Recommended Application/Activity	CCSS ELA
9.2.1 Identify types of renewable and non-renewable natural resources and explore their uses. (NRS.01.01.01.a)	<ul style="list-style-type: none"> • Students create poster/collage giving examples of the different types of natural resources. • Discuss the natural resources found in your area and how they impact the local and state economy. • Given an Arkansas state map, students will locate different features related to natural resources. • List hazards associated with natural resources. 	R9-10.7 SL9-10.5 SL9-10.1
9.2.2 Compare/Contrast the two main classifications of trees based on leaf retention. (evergreen, deciduous) (NRS.01.02.01.a)	<ul style="list-style-type: none"> • Identify products obtained from trees in each classification. • Walk students around campus and identify trees and products. 	R9-10.5

<p>9.2.3 Explore major wildlife and aquatic species found in Arkansas. (white tail deer, turkey, squirrel, duck, black bear, largemouth bass, catfish, trout, striped bass, walleye)</p>	<ul style="list-style-type: none"> • Students research and develop presentation on the various species using the (www.agfc.com) website. • Students create a brochure about a species of wildlife and fish in the local community. 	<p>W9-10.7 SL9-10.4</p> <p>SL9-10.5</p>
<p>9.2.4 Explore minerals, ores and fossil fuels commercially extracted in Arkansas. (bauxite, bromine, natural gas, crude oil, coal)</p>	<ul style="list-style-type: none"> • Locate deposits of minerals, ores and fossil fuels in Arkansas using the (www.minerals.usgs.gov) website. • Obtain a box of rocks from the Arkansas Geological Service and analyze the different types. 	<p>R9-10.1</p>
<p>Performance Indicator 9.3 Uses and Regulation of Natural Resources</p>	<p>Recommended Application/Activity</p>	<p>CCSS ELA</p>
<p>9.3.1 Discuss recreational uses of natural resources. (hunting, fishing, boating ,hiking, camping, watchable wildlife) (NRS.03.01.08.a)</p>	<ul style="list-style-type: none"> • Students research local natural resources available for recreational purposes. • List hazards associated with recreation. In groups students create an educational safety poster for the areas. 	<p>W9-10.7</p>
<p>9.3.2 Identify public agencies associated with natural resources. (United States Forest Service, Arkansas Game and Fish Commission, Natural Resources Conservation Service, Corps of Engineers)</p>	<ul style="list-style-type: none"> • Students research and report on the purposes of each agency. 	<p>W9-10.7 SL9-10.4</p>

Standard 10.0 Environmental Service System		
Performance Indicator 10.1 Careers in Environmental Service Systems	Recommended Application/Activity	CCSS ELA
10.1.1 Identify careers (environmental conservationist, waste management specialist, water quality specialist) and career development events (land) in the Environmental Service Systems Pathway.	<ul style="list-style-type: none"> • Research careers using the Career Explorer link at the (www.ffa.org) website. • Explore career development events related to the Environmental Service Systems Pathway. 	L11-12.6 L11-12.6
Performance Indicator 10.2 Environmental Uses	Recommended Application/Activity	CCSS ELA
10.2.1 Compare/Contrast the uses of land. (crop, pasture/rangeland, forestland, wetland, urban) (ESS.03.02.04.a)	<ul style="list-style-type: none"> • Students will explore the FFA Land Judging CDE and Land Capability Classes. • From a list of locations in the local community, students will classify them based on their land use. 	R9-10.5
10.2.2 Compare/Contrast the uses of water. (domestic, recreational, irrigation, wildlife habitat, processing, energy) (ESS.03.03.01.a)	<ul style="list-style-type: none"> • Have students keep a log of all the ways they use water in a week period. 	
10.2.3 Compare/Contrast conventional and alternative energy sources. (conventional: oil, coal, natural gas) (alternative: solar, nuclear, hydro, wind) (ESS.05.01.01.a) (ESS.05.01.01.b)	<ul style="list-style-type: none"> • Research and report on conservation measures to reduce energy consumption. • Explore energy sources in your local area. 	W9-10.7 SL9-10.4

Performance Indicator 10.3 Conservation Measures	Recommended Application/Activity	CCSS ELA
10.3.1 Identify types of pollution and distinguish between point source and non-point source pollution. (ESS.04.01.01.a)	<ul style="list-style-type: none"> • Describe ways in which pollution can be prevented and managed. • Students perform water quality and soil quality tests. 	SL9-10.1
10.3.2 Discuss the meaning of compost and explore the composting process. (ESS.04.02.04.a)	<ul style="list-style-type: none"> • Create a class composting bin using cafeteria waste. 	

Standard 11.0 Power, Structural & Technical System		
Performance Indicator 11.1 Careers in Power, Structural & Technical Systems	Recommended Application/Activity	CCSS ELA
11.1.1 Investigate careers (agricultural electrician, agricultural equipment dealer, welder) and career development events (Ag Mechanics, Electricity) in the Power, Structural & Technical Systems Pathway.	<ul style="list-style-type: none"> • Research careers using the Career Explorer link on the (www.ffa.org) website. • Explore career development events related to the Power, Structural & Technical Systems Pathway. 	L11-12.6 L11-12.6
Performance Indicator 11.2 Safety in Power, Structural & Technical Systems	Recommended Application/Activity	CCSS ELA
11.2.1 Identify safety colors and symbols. (red, orange, yellow, blue, green, black/white, slow-moving vehicle)	<ul style="list-style-type: none"> • Students make an informative poster identifying safety colors and symbols. 	SL9-10.5
11.2.2 Explore fire safety. (Class A,B,C,D and the fire triangle) (fire safety equipment, fire blanket, fire extinguisher)	<ul style="list-style-type: none"> • Create a fire safety map for the agriculture building/shop. 	SL9-10.5
11.2.3 Research common agricultural hazards.	<ul style="list-style-type: none"> • Use the (www.aragriculture.org) website to identify common hazards in agriculture. • List the top five causes of agriculture related fatalities in Arkansas according to the UofA division of agriculture. 	R9-10.1

<p>11.2.4 Demonstrate the proper personal protective equipment (ppe) in the Power, Structural & Technical Systems pathway. (eye protection, hair restraint, coveralls, apron, shop coat, gloves, hard hat, mask, respirator, ear protection, welding helmet)</p>	<ul style="list-style-type: none"> • Students identify proper ppe for each shop area. • Demonstrate how to wear ppe by having students choose a shop area or career and come dressed in the ppe for that area or career. 	
<p>Performance Indicator 11.3 Skills in Power, Structural & Technical Systems</p>	<p>Recommended Application/Activity</p>	<p>CCSS ELA</p>
<p>11.3.1 Explore common skill areas of Agricultural Power, Structural & Technical Systems. (electricity, fabrication, geospatial technology, hydraulics/pneumatics, concrete/masonry, painting/finishing, plumbing, small engines, welding, woodworking)</p>	<ul style="list-style-type: none"> • Students conduct projects in a selected area of Power, Structural & Technical Systems. 	
<p>11.3.2 Identify and use measurement and layout tools. (steel tape measure, framing square, speed square, level) (PST.01.03.01.a)</p>	<ul style="list-style-type: none"> • Build or lay out a project using these measurement and layout tools. • Develop a bill of materials for this project. • Have students use the (www.rickyspears.com/rulergame) or (www.funbrain.com/measure) websites for online measurement activities. 	<p>W9-10.3</p>

11.3.3 Identify and use hand tools and fasteners. (hammer, screwdriver, needle-nose pliers, slip-joint pliers, handsaw, common nail, finishing nail, metal screw, wood screw, bolt, nut, washer, masonry bit, spade bit, circular saw, power drill, hacksaw, ball peen hammer, twist drill)	<ul style="list-style-type: none">• Students develop a pamphlet identifying all hand tools.• Build or lay out a project using appropriate hand tools and fasteners.	SL9-10.5 W9-10.3
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Glossary of Terms

Agribusiness Systems – industries including sales, services, farm & ranch management, entrepreneurship and economics.

Agriculture – activities concerned with the production of plants and animals and the related supplies, services, mechanics, products, processing and marketing.

Agriculture Education Tracker (AET) – online record keeping system for agricultural experiences.

Agriculture Power – the use of engines, motors and other sources of power to do work in the agriculture industry.

Agriculture Structures – facilities used in the agriculture industry including barns, poultry houses, grain elevators, and earthen structures such as ponds.

Alternative Energy – energy as solar, wind, or nuclear energy that can replace or supplement traditional fossil fuel sources such as coal, oil or natural gas.

Animal Systems – industries including animals, small animals, wildlife and research animals.

Animal Rights - line of thinking that proposed that animals have the same rights as people.

Animal Welfare – line of thinking that proposed that animals should be treated well and that their comfort and well-being should be considered in their production.

Annual – a plant that completes its life cycle in one year or less.

Biennial – a plant that needs two years to complete its life cycle.

Biosecurity – analyzing and managing risk in the areas of food safety, animal life & health, and plant life & health.

Biotechnology – the management of biological systems for the benefits of humans, including cloning, gene transfer, and other technologies.

Breed - group of animals having similar characteristics that are passed on to their offspring.

Byproducts – a secondary or incidental product.

Career Development Event – (CDE), a hands-on team competition designed for FFA members to develop career-related skills.

Clone – exact duplicate; producing an organism through asexual means with the exact genetic make-up as another organism.

Compost – a soil additive derived from organic matter to promote plant growth.

Composting – a technique of placing organic matter in a favorable environment for its partial decomposition.

Concrete – a mixture of stone aggregates, sand, cement and water that hardens as it dries.

Conservation – the wise use of natural resources.

Deciduous – plants that lose their leaves every year.

Department of Homeland Security – department of the federal government with the primary responsibility of protecting the U.S. from terrorist attacks and responding to natural disasters.

Distribution – marketing, transporting, merchandising and selling of any item.

Electricity – a form of energy that can produce light, heat, magnetic force and chemical changes.

Entrepreneurship - plan and operate an agriculture related business.

Environmental Service Systems – industries including pollution prevention, water and air quality, hazardous materials, solid waste management, health and safety sanitation.

EPA – Environmental Protection Agency; an agency of the federal government focused on environmental quality.

Evergreen – plants that do not lose their leaves on a yearly basis.

Expense – any costs associated with producing a product.

Exploratory – learn about something in agriculture and its many related careers.

Extemporaneous Speech – a type of speech in which the speaker prepares ideas but does not memorize exact words.

Fabrication – to construct by combining or assembling diverse and standardized parts.

FDA – Food & Drug Administration; a federal agency responsible for safety of national food supply, veterinary drugs and biological products.

Fertilizer – a material that supplies nutrients to plants.

FFA – a national organization for students enrolled in agriculture education that promotes leadership, growth and career success.

Finishing – applying a chemical layer that protects the surface of a material.

Food Products & Processing Systems – industries including food processing, preserving, packaging, distribution, government monitoring and regulation.

Forestry – the science of planting and managing forest for specific purposes such as timber production or conservation.

Fossil Fuels – any combustible organic material as oil, coal, or natural gas derived from the remains of former life.

FSIS – Food Safety & Inspection Service; health agency of the federal government responsible for ensuring that the nations' commercial supply of meat, poultry and egg products are safe.

Genetic Engineering – movement of genes from one cell to another.

Geospatial Technology – three technologies of global positioning systems, geographical information systems and remote sensing that are all related to mapping features on earth.

GMO – genetically modified organism; organism whose genetic material has been altered using genetic engineering techniques.

Hydraulics – use of liquids to transfer force.

Income – the amount of money received from selling a product or providing a service.

Inventory – a physical count of all assets in a business.

Leadership – the ability to move and influence others toward achieving individual or group goals.

Masonry – anything made of brick, stone or tile or concrete units held in place by masonry cement.

Minerals – inorganic compounds occurring naturally in the earth and having a distinctive structure.

Monogastric – literally means “one stomach”; a simple stomached animal.

Natural Resource – a naturally occurring material or organism that supports life, provides fuels or is used in other ways by humans.

Natural Resources Systems – industries including habitat conservation, forest products, parks and recreation, mining, environmental services, fisheries and soil conservation.

Non-Point Source Pollution – pollution from sources that cannot be directly traced to any single point of discharge.

Non-Renewable Natural Resource – a resource provided by nature that cannot replace itself.

Opening/Closing Ceremony – a traditional contest designed to emphasize the purpose of meetings and duties of officers.

Ore – a metal bearing mineral or rock or native metal that can be mined at a profit.

Painting – process of coating a surface in order to improve aesthetics and protect from environmental factors.

Parliamentary Procedure – uses parliamentary law to conduct all types of orderly meetings.

Perennial – a plant that needs more than two years to complete its life cycle.

Photosynthesis – the food-making process of plants.

Placement – work for a business or individual, either for pay or for the experience.

Plant Systems – industries including agronomics, horticulture, forestry, turf, viticulture and soils.

Plumbing – installing and repairing water pipes and fixtures.

Pneumatics – use of air to transfer force.

POA – a roadmap for planning FFA activities and accomplishing goals at the local level.

Point Source Pollution – a specific place where pollution originated.

Power, Structural & Technical Systems – industries including power, structure, controls, geospatial technology, computer systems, electronics, hydraulics and pneumatics.

Prepared Speech – a type of speech in which the speaker prepared the speech completely beforehand.

Preservation – the process of treating and handling food to stop or slow down spoilage and thus allow for longer storage.

Processing – turning raw agricultural products into consumable food.

Proficiency Award – FFA award that recognizes members that have developed specialized skills that they can apply to their future careers.

Profit – the excess of receipts over payments for all factors of production.

Renewable Natural Resource – a resource provided by nature that can replace itself.

Research/Experimental – conduct research and analyze information to discover new knowledge.

Respiration – the process by which plants break down stored food for plant use.

Ruminant – any animal having a multiple compartment stomach and being capable of digesting roughages.

Small Engines - internal combustion engines that burn fuel inside the engine and provide more efficient power at a much reduced size and weight.

Soil – the outer layer of the earth's crust that supports plant growth and includes sand, silt and clay.

Supervised Agricultural Experience – (SAE), a project done by students with help from their agriculture instructor in which they learn by doing.

Transgenic – organisms that are a result of crossing genes from one organism to another.

Transpiration – the process by which a plant loses water vapor.

USDA – United State Department of Agriculture; main agency of the federal government that oversees agriculture.

Wildlife – animals that have not been domesticated and live and survive in a natural environment.

Welding – joining to pieces of metal using heat.