

COMPETENCIES FOR SECONDARY TEACHERS: AGRICULTURE, GRADES 7-12

In addition to the Arkansas Teaching Standards (ATS) and the competencies for the Teacher Excellence and Support System (TESS), including competencies regarding the knowledge and use of educational technology that reflect the International Society for Technology in Education standards, the teacher of Agriculture, grades 7-12, shall also demonstrate knowledge and competencies in the following areas:

1. PEDAGOGICAL CONTENT KNOWLEDGE

AAAE: Standard 1

NCAE: Standard

1.1 Demonstrates the capacity to utilize experiential learning opportunities to encourage student development and construct an instructional delivery process that allows all students access to systematic experiential, service, and work-based experience learning, including:

- a. Highlights STEM concepts in lesson plan construction
- b. Understands how to implement safe and effective laboratory activities
- c. Facilitates student-centered learning using a variety of approaches
- d. Understands and teaches students the reliability of sources
- e. Plans lessons for instruction from a local and global perspective
- f. Implements inquiry-based learning
- g. Utilizes higher-order questions
- h. Demonstrates a variety of teaching methods
- i. Implements research-based pedagogy and best practices for instruction
- j. Develops and sequences curriculum framework for SBAE (School-Based Agricultural Education)
- k. Teaches students how to use technology appropriate to the agricultural industry
- l. Utilizes digital literacy and social media appropriately to enhance student learning

1.2 Understand individuals and create a learning environment to encourage positive social interactions, self-motivation, and active learning, including:

- a. Understand individuals and create a learning environment to promote positive social interactions, self-motivation, and active learning
- b. Understand effective age-appropriate motivational strategies
- c. Conveys excitement about the subject matter to students
- d. Demonstrates basic knowledge of meeting the needs of all students

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- e. Demonstrates and displays effective classroom management strategies
- f. Engages all students through effective motivational strategies to ensure a positive learning environment
- g. Develops and demonstrates instruction that fulfills the needs of all students
- h. Implements inquiry-based learning

2. AGRICULTURAL CONTENT KNOWLEDGE

Praxis 5701: Section I

AAAE: Standard 2

NCAE: Standards 1, 2, 3

2.1 Agribusiness Systems

- a. Knows the principles of capitalism and entrepreneurship in the agribusiness industry
- b. Knows the management skills needed to organize an agribusiness
- c. Knows the record-keeping abilities required to accomplish agribusiness objectives
- d. Knows generally accepted accounting practices for making agribusiness decisions
- e. Knows the fundamentals of savings, investments, and credit in agribusiness
- f. Knows the marketing principles needed to accomplish agribusiness objectives

2.2 Animal Systems

- a. Knows the historical development and trends of the animal systems industry
- b. Knows the classification, anatomical, and physiological characteristics of animals
- c. Knows proper health care of animals
- d. Knows the basic principles of animal nutrition
- e. Knows the basic principles of animal production and management
- f. Knows safety practices related to animal production
- g. Knows normal and abnormal animal behavior
- h. Knows the proper design and use of animal facilities and the equipment for safe and efficient production
- i. Knows the principles and practices of basic animal production
- j. Knows the effects of environmental conditions on animal
- k. Knows the impact of animal production on the environment
- l. Knows the issues related to animal rights, animal welfare, and producer responsibilities

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2.3 Food Science and Biotechnology Systems

- a. Knows major issues and trends affecting the food products and processing industry
- b. Knows industry organizations, groups, and regulatory agencies that affect the food products and processing industry
- c. Knows the safety principles and recommended equipment and facility management practices related to the food products and processing industry
- d. Knows the processes for selecting, harvesting, processing, and classifying food products for storage, distribution, and consumption
- e. Knows major innovations, historical developments, and applications of biotechnology in agriculture
- f. Knows the ethical, legal, social, cultural, safety, and environmental issues related to biotechnology
- g. Knows basic, safe laboratory procedures
- h. Knows various uses of genetic engineering in the agricultural industry

2.4 Environmental and Natural Resource Systems

- a. Knows the natural cycles related to environmental and natural resource management
- b. Knows chemical properties related to environmental and natural resources
- c. Knows the various ecosystems of the environment
- d. Knows the ecological concepts and principles related to natural resource systems
- e. Knows the current issues and regulations in environmental and natural resource management
- f. Knows the use of personal protective equipment (PPE) and safety procedures related to environmental and natural resource management
- g. Knows the role of environmental and natural resource management in the local, state, and national economies
- h. Knows the impact of conventional and alternative energy sources on the environment
- i. Knows about wetlands and their role in the environment
- j. Knows the use, production, and processing of natural resources
- k. Knows the procedures used to develop an environmental and natural resource management plan
- l. Knows the general impact of land use on environmental and natural resources

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2.5 Plant Systems

- a. Knows the historical development of plant science and its relationship with society
- b. Knows the general safety issues related to plant systems
- c. Knows the basic principles of identification, classification, anatomy, and physiology as related to plant production and management
- d. Knows the influence of environmental factors on plant growth
- e. Knows propagation, cultivation, and harvesting of plants
- f. Knows the basic characteristics of both soils and growing media and their uses
- g. Knows the use of integrated pest management (IPM) in plant production
- h. Knows production and management practices associated with horticultural crops
- i. Knows production and management practices associated with agronomic crops
- j. Knows the principles and elements of landscape and floral design

2.6 Power, Structural, and Technical Systems

- a. Knows the physical science principles and engineering applications associated with power, structural, and technical systems
- b. Knows electricity and electrical wiring
- c. Knows various power and energy sources
- d. Knows principles of power, energy, transfer, and conversion
- e. Knows the proper use, storage, and disposal of potentially hazardous materials common to the agricultural mechanics laboratory
- f. Knows the safe operation and maintenance of hand tools, power tools, and other equipment
- g. Knows the principles of small-engine operation, maintenance, and repair
- h. Knows the planning and building structures
- i. Knows metal fabrication and welding
- j. Knows the installation, maintenance, and repair of water systems
- k. Knows the application of technology to the agriculture industry
- l. Knows the use of technical and mathematical approaches to map land, facilities and infrastructure

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2.7 Leadership and Career Development

- a. Knows the principles of leadership
- b. Knows the foundational areas of career development
- c. Understands the purpose, structure, and function of the National FFA organization
- d. Encourages student participation in intra-curricular leadership, career, and personal development through FFA
- e. Knows individual and team leadership skills
- f. Knows communication skills
- g. Knows information research skills to make informed decisions
- h. Understand supervised agricultural experiences (SAE)
- i. Knows career opportunities across various pathways of agriculture
- j. Knows local program planning and management

3. PROGRAM PLANNING

AAAE: Standard 3

NCAE: Standard 1, 4, 7

3.1 Implements a standards-based curriculum in agriculture, food, and natural resource education delivered through programs of study that incorporate classroom laboratory instruction; experiential, project, and work-based learning through SAE and leadership and personal development through FFA

3.2 Plans instruction based on knowledge of the subject matter, students, the community, and the curriculum

3.3 Ensures facilities and equipment support the implementation of the program and curriculum by providing all students opportunities for the development and application of knowledge and skills

3.4 Utilizes multiple methods to assess and promote student learning

3.5 Ensures school and community partners are engaged in developing and supporting a quality program

3.6 Understanding a system of needs assessment and evaluation provides information necessary for continual program development and improvement

4. DIVERSITY

AAAE: Standard 2, 5

New America

4.1 Embraces and celebrates diversity by creating environments that build positive rapport with students, parents, stakeholders, and community members ensuring fairness and equity

4.2 Recognizes and appreciates the influence of diverse cultures on global agricultural production practices, possesses global competence in issues relating to food and fiber systems, and realizes the impact of agriculture/agricultural practices on global populations

4.3 Reflect on one's cultural lens

4.4 Draw on students' culture to share curriculum and instruction

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- 4.5 Bring real-world issues into the classroom
- 4.6 Model high expectations for all students
- 4.7 Promote respect for students' differences
- 4.8 Collaborate with families and the local community
- 4.9 Communicate in linguistically and culturally responsive

5. PROFESSIONALISM

AAAE: Standard 6

NCAE: Standard 6

5.1 Strives for personal and professional growth to meet the needs of their students, school, community, and profession through dedication to all aspects of the discipline

- a. Engages in professional development opportunities in content, teaching, and experiences in the agriculture industry
- b. Reflects on teaching and identifies opportunities for personal and professional growth
- c. Utilizes feedback to improve teaching and guide professional growth
- d. Interacts in a collaborative manner and fosters positive relationships with stakeholders
- e. Maintains a professional image and displays professional behavior through ethical conduct
- f. Fulfills professional responsibilities including engagement in professional education organizations
- g. Values a service-minded approach
- h. Model personal leadership traits involving the investment and empowerment of others

5.2 Exhibits professional responsibilities in the school environment

- a. Recognizes the role of the agriculture program in contributing to the broad mission
- b. Exhibits a collaborative spirit
 - Collaborates with other educators
 - Makes efforts toward curriculum integration
 - Engages in professional networking
 - Maintains positive rapport with school leaders
- c. Decision making
 - Makes sound ethical judgments in the workplace
 - Approaches situations with sound mind and judgment
- d. Management tasks
 - Handling school finances and requisitions
 - Demonstrating time management in attention to professional assignments

5.3 Demonstrates personal leadership traits

- Models leadership skills
- Participate in professional education organizations
- Demonstrates an emphasis on leadership for students as well as self
- Invests in and empowering others
- Exhibits a service-minded approach to leadership