

Competencies for Secondary Teachers: Agriculture, Grades 7-12

2013

In addition to the Arkansas Teaching Standards, the teacher of Agriculture, grades 7-12, shall demonstrate knowledge and competencies in the following areas:

<p>1. Agriculture: Social and Historical Perspectives CCTC: AG 1,5 Praxis (0700): VII</p>	<p>1.1 Ability to analyze how issues, trends, technologies and public policies impact systems in the Agriculture, Food & Natural Resources Career Cluster™ 1.2 Ability to describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources Career Pathways</p>
<p>2. Plant and Soil Science CCTC: AG-PL 1-4 Praxis (0700): II</p>	<p>2.1 Ability to analyze historic and current trends impacting the plant science industry 2.2 Ability to develop and implement a crop management plan for a given production goal that accounts for environmental factors 2.3 Ability to apply the principles of classification, plant anatomy and plant physiology to plant production and management 2.4 Ability to propagate, culture and harvest plants and plant products based on current industry standards 2.5 Ability to apply principles of design in plant systems to enhance an environment (e.g., floral, forest, landscape and farm) 2.6 Knowledge and usage of soil types and growing media</p>
<p>3. Animal Science CCTC AG-ANI 1-7 CCTC AG-FD 1-4 Praxis (0700): III</p>	<p>3.1 Ability to utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare 3.2 Ability to design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production 3.3 Ability to apply principles of animal reproduction to achieve desired outcomes for performance, development and/or economic production 3.4 Ability to evaluate environmental factors affecting animal performance and implement procedures for enhancing performance and animal health 3.5 Ability to classify, evaluate and select animals based on anatomical and physiological characteristics 3.6 Ability to apply principles of effective animal health care 3.7 Ability to develop and implement procedures to ensure safety, sanitation and quality in food product and processing facilities 3.8 Ability to apply principles of nutrition, biology, microbiology, biotechnology, chemistry and human behavior to the development of food products 3.9 Ability to select and process food products for storage, distribution and consumption 3.10 Ability to explain the scope of the food industry and the historical and current developments of food products and processing</p>
<p>4. Agricultural Mechanization and Technology</p>	<p>4.1 Ability to apply physical science principles and engineering applications to solve problems and improve performance in</p>

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<p>CCTC AG-PST 1-5 Praxis (0700): IV</p>	<p>AFNR power, structural and technical systems 4.2 Ability to operate and maintain AFNR mechanical equipment and power systems 4.3 Ability to service and repair AFNR mechanical equipment and power systems 4.4 Ability to plan, build and maintain AFNR structures 4.5 Ability to use control, monitoring, geospatial and other technologies in AFNR power, structural and technical systems</p>
<p>5. Agricultural Business and Economics CCTC AG-BIZ 1-6 Praxis (0700): V</p>	<p>5.1 Ability to examine and summarize the importance of health, safety and environmental management systems in AFNR businesses 5.2 Ability to apply management planning principles in AFNR businesses 5.3 Ability to use record keeping to accomplish AFNR business objectives, manage budgets, and comply with laws and regulations 5.4 Ability to manage cash budgets, credit budgets and credit for an AFNR business using generally accepted accounting principles 5.5 Ability to develop a business plan for an AFNR business 5.6 Ability to use sales and marketing principles to accomplish AFNR business objectives</p>
<p>6. Natural Resources and Environment CCTC AG-NR 2-4 CCTC AG-ENV 1-5 Praxis (0700): VI</p>	<p>6.1 Ability to evaluate the nature and scope of the Agriculture, Food & Natural Resources Career Cluster™ and the role of agriculture, food and natural resources (AFNR) in society and the economy 6.2 Ability to demonstrate stewardship of natural resources in AFNR activities 6.3 Ability to analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources 6.4 Ability to use analytical procedures and instruments to manage environmental service systems 6.5 Ability to evaluate the impact of public policies and regulations on environmental service system operations 6.6 Ability to develop proposed solutions to environmental issues, problems and applications using scientific principles of meteorology, soil science, hydrology, microbiology, chemistry and ecology 6.7 Ability to demonstrate the operation of environmental service systems (e.g., pollution control, water treatment, wastewater treatment, solid waste management and energy conservation) 6.8 Ability to use tools, equipment, machinery and technology common to tasks in environmental service systems</p>
<p>7. Program Planning and Management</p>	<p>7.1 Ability to understand career development events and student organizations (including Future Farmers of America (FFA)) 7.2 Ability to understand experiential learning processes and</p>

<p>Praxis(0700): VII</p>	<p>planning 7.3 Ability to evaluate program attributes and needs assessment 7.4 Ability to analyze historic and current trends of agricultural education 7.5 Knowledge of individual and team leadership skills</p>
<p>8. Disciplinary Literacy CCSS - English/Language Arts: English Language Arts & Literacy in Science, and Technical Subjects, grades 7-12</p>	<p><u>Reading in Science and Technical Subjects, Grades 7-12</u> Reading competencies for literacy in science and technical subjects for grades 7-12 include the ability to read informational texts in science and technical subjects closely and critically to analyze the key ideas and details as well as craft and structure with the purpose of integrating knowledge and ideas both within and across texts by</p> <p>8.1 Citing 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</p> <p>8.2 Determining 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</p> <p>8.3 Following precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyzing the specific results based on explanations in the text</p> <p>8.4 Determining 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 7-12 text and topics Analyzing how the text structures information or ideas are organized into categories or hierarchies, demonstrating understanding of the information or ideas</p> <p>8.5 Analyzing the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved</p> <p>8.6 Integrating and evaluating 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</p> <p>8.7 Evaluating 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</p> <p>8.8 Synthesizing 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</p> <p>8.9 Reading and comprehending a variety of scientific and technical documents appropriate for instruction within the 7-12 text complexity band</p>

	<p><u>Writing in History/Social Studies, Science, and Technical Subjects, Grades 7-12</u></p> <p>Writing competencies for literacy in history/social studies, science, and technical subjects for grades 7-12 will be demonstrated by</p> <p>8.10 Writing arguments focused on discipline-specific content by</p> <ol style="list-style-type: none">a. Introducing precise, knowledgeable claim(s), establishing the significance of the claim(s), distinguishing the claim(s) from alternate or opposing claims, and creating an organization that logically sequences the claim(s), counterclaims, reasons, and evidenceb. Developing 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.c. Using words, phrases, and clauses as well as varied syntax to link the major sections of the text, creating cohesion, and clarification of the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.d. Establishing and maintaining a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.e. Providing a concluding statement or section that follows from or supports the argument presented <p>8.11 Writing informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes by</p> <ol style="list-style-type: none">a. Introducing 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 comprehensionb. Developing 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 topicc. Using varied transitions and sentence structures to link the major sections of the text, creating cohesion, and clarifying the relationships among complex ideas and conceptsd. Using precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; conveying a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers
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	<ul style="list-style-type: none">e. Providing 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)8.12 Producing clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience8.13 Developing and strengthening 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 audience8.14 Using technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information8.15 Conducting 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 investigation8.16 Gathering 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; integrating 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 citation8.17 Drawing evidence from informational texts to support analysis, reflection, and research8.18 Writing 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
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