Arkansas CTE

Survey of Agriculture Systems: Grades 9, 10, 11, 12

Adopted 2013

Introduction to Agriculture

1.1 Importance of Agriculture

1. Explain the importance of agriculture in meeting basic human needs. (food, fiber and shelter) 1.1.1
2. Determine the impact of agriculture on Arkansas' economy. (rice, soybeans, broilers, forest products and jobs) 1.1.2

1.2 The Agriculture Industry

1. List and describe the three major areas of the agriculture industry. (supplies & services, production agriculture, and marketing & processing) 1.2.1
2. Discuss the changes that have come about in agriculture due to technology. (genetic engineering, GPS and computerized equipment) 1.2.2

FFA and Leadership

2.1 FFA Basics

1. Explain the three parts to agriculture education. (FFA, SAE and Classroom/Laboratory) 2.1.1
2. Identify and explain the meaning of the symbols of the official FFA emblem, the official FFA colors and the official FFA dress. 2.1.2
3. Explain the significance of these dates in the history of the FFA: 1917, 1928, 1965, 1969, 1988. 2.1.3
4. Explain the significance of the FFA Creed, Motto, Salute and Mission Statement. 2.1.4
5. List the degrees an FFA member may earn. (Discovery, Greenhand, Chapter, State and American) 2.1.5
6. Explain the meaning of the symbol for each officer station. 2.1.6

2.2 FFA Leadership

1. Compare/Contrast the Leadership Career Development Events (extemporaneous speaking, prepared speaking, creed speaking, parliamentary procedure, opening/closing ceremonies). 2.2.1
2. Analyze the three major divisions of the POA. (student development, chapter development and community development) 2.2.2

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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) 2.2.3

Supervised Agricultural Experiences

3.1 Career Pathways

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) 3.1.1

3.2 Student SAE's

1. Compare/Contrast the types of Supervised Agricultural Experiences and determine the FFA Proficiency Awards available. (Entrepreneurship, Placement, Exploratory and Research/Experimental) 3.2.1
2. Evaluate SAE's to determine FFA degree eligibility. 3.2.2

Agribusiness Systems

4.1 Organization of Agricultural Businesses

1. Investigate Careers (Quality assurance specialist, quality control supervisor, research economist) and Career Development Events (Farm Business Management) in the Agribusiness systems pathway. 4.1.1
2. Distinguish between the four types of agricultural businesses. (sole proprietorship, partnership, cooperative and corporation) 4.1.2
3. Distinguish between the areas of the Agriculture industry. (production, processing, marketing, distribution and sales) 4.1.3

4.2 Concepts of Agricultural Business

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) 4.2.1
2. Using expenses and income, calculate the profit or loss of an agricultural business. 4.2.2
3. Identify types of loans. (short-term, capital loan, mortgage) 4.2.3

Animal Systems

5.1 Careers in Animal Systems

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. 5.1.1

5.2 Animal Classifications

1. Distinguish between categories of animals (beef, sheep, dairy, swine, goats, poultry, aquaculture, equine, wildlife, specialty animal, small animal) 5.2.1

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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) 5.2.2
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) 5.2.3
4. Classify livestock by digestive systems (monogastric, ruminant) 5.2.4

5.3 Animal Products and Issues

1. List primary products obtained from animal origins. (beef, pork, lamb, veal, poultry, mutton, milk, wool, eggs, fish) 5.3.1
2. Compare/Contrast animal rights and animal welfare. 5.3.2

Plant Systems

6.1 Careers in Plant Systems

1. Investigate careers (plant breeder, plant geneticist, plant pathologist) and career development events (agronomy, floriculture, nursery/landscape) in the plant systems pathway. 6.1.1

6.2 Plant Science

1. Identify uses of plants. (food, fiber, construction, pharmaceuticals, ornamentals) 6.2.1
2. Identify the four major parts of a plant and explain their functions. (root, stem, leaf, flower) 6.2.2
3. Distinguish between plant processes. (transpiration, photosynthesis and respiration) 6.2.3
4. Compare the life cycles of annual, biennial and perennial plants. 6.2.4

6.3 Requirements for Plant Growth

1. Identify the three major nutrients found in fertilizer necessary for plant growth. 6.3.1
2. Compare soil particles by size. (sand, silt, clay) 6.3.2

Food Products & Processing System

7.1 Careers in Food Products & Processing

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. 7.1.1

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7.2 Food Products

1. Identify sources of foods. (meat, eggs, dairy, fruits, vegetables, grains) 7.2.1
2. Compare/Contrast components of the food industry. (processing, distribution, byproducts) 7.2.2

7.3 Food Safety

1. Investigate organizations that regulate the food products and processing industry. 7.3.1
2. List common food-borne pathogens. (salmonella, E-coli) 7.3.2
3. Discuss methods of food preservation. (refrigeration, freezing, curing, drying, canning) 7.3.3

Biotechnology Systems

8.1 Careers in Biotechnology

1. Investigate careers (microbiologist, geneticist, lab technician) in the Biotechnology Systems Pathway. 8.1.1

8.2 Current Applications in Biotechnology

1. Analyze current applications of biotechnology in plant science. (Bt, Round-up Ready, Tissue Culture, Genetic Engineering, and GMO) 8.2.1
2. Analyze current applications of biotechnology in animal science. (cloning, embryo transfer, artificial insemination, BST, transgenic organism) 8.2.2

8.3 Security in Biotechnology

1. List the agencies that regulate biotechnology and biosecurity. (USDA, EPA, FDA, Dept. of Homeland Security) 8.3.1

Natural Resources System

9.1 Careers in Natural Resources Systems (wildlife manager, timber manager, park ranger) and career development events (forestry, agronomy, land) in the Natural Resources Systems Pathway.

1. Investigate careers (wildlife manager, timber manager, park ranger) and career development events (forestry, agronomy, land) in the Natural Resources Systems Pathway. 9.1.1

9.2 Classifications of Natural Resources

1. Identify types of renewable and non-renewable natural resources and explore their uses. 9.2.1
2. Compare/Contrast the two main classifications of trees based on leaf retention. (evergreen, deciduous) 9.2.2
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) 9.2.3

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4. Explore minerals, ores and fossil fuels commercially extracted in Arkansas. (bauxite, bromine, natural gas, crude oil, coal) 9.2.4

9.3 Uses and Regulation of Natural Resources

1. Discuss recreational uses of natural resources. (hunting, fishing, boating, hiking, camping, watchable wildlife) 9.3.1
2. Identify public agencies associated with natural resources. (United States Forest Service, Arkansas Game and Fish Commission, Natural Resources Conservation Service, Corps of Engineers) 9.3.2

Environmental Service System

10.1 Careers in Environmental Service Systems

1. Identify careers (environmental conservationist, waste management specialist, water quality specialist) and career development events (land) in the Environmental Service Systems Pathway. 10.1.1

10.2 Environmental Uses

1. Compare/Contrast the uses of land. (crop, pasture/rangeland, forestland, wetland, urban) 10.2.1
2. Compare/Contrast the uses of water. (domestic, recreational, irrigation, wildlife habitat, processing, energy) 10.2.2
3. Compare/Contrast conventional and alternative energy sources. (conventional: oil, coal, natural gas) (alternative: solar, nuclear, hydro, wind) 10.2.3

10.3 Conservation Measures

1. Identify types of pollution and distinguish between point source and non-point source pollution. 10.3.1
2. Discuss the meaning of compost and explore the composting process. 10.3.2

Power, Structural & Technical System

11.1 Careers in Power, Structural & Technical Systems

1. Investigate careers (agricultural electrician, agricultural equipment dealer, welder) and career development events (Ag Mechanics, Electricity) in the Power, Structural & Technical Systems Pathway. 11.1.1

11.2 Safety in Power, Structural & Technical Systems

1. Identify safety colors and symbols. (red, orange, yellow, blue, green, black/white, slow-moving vehicle) 11.2.1
2. Explore fire safety. (Class A,B,C,D and the fire triangle) (fire safety equipment, fire blanket, fire extinguisher) 11.2.2
3. Research common agricultural hazards. 11.2.3
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) 11.2.4

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11.3 Skills in Power, Structural & Technical Systems

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) `11.3.1`
2. Identify and use measurement and layout tools. (steel tape measure, framing square, speed square, level) `11.3.2`
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) `11.3.3`