Arkansas CTE

Agricultural Education: Survey of Ag Systems (2020)

Explore the Agricultural Industry. 1

1 **Analyze the Importance of Agriculture.** 1.1

1 Explain the importance of agriculture in meeting basic human needs (e.g., food, fiber, shelter, etc.) 1.1.1

2 Determine the impact of agriculture on Arkansas' economy (e.g., rice, soybeans, broilers, forest products, jobs, etc.) 1.1.2

2 **Examine the Agricultural Industry.** 1.2

1 List and describe the three major areas of the agricultural industry (supplies & services, production agriculture and marketing & processing) 1.2.1

2 Discuss the changes that have come about in agriculture due to technology (e.g., genetic engineering, GPS and computerized equipment) 1.2.2

Explore FFA and Leadership in the Agricultural Industry. 2

1 **Identify FFA Basics.** 2.1

1 Explain the three parts to agricultural education (FFA/Leadership, Experiential Learning/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 theses dates in the history of 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 **Practice FFA Leadership opportunities.** 2.2

1 Compare/Contrast the Leadership Development Events (e.g., extemporaneous speaking, prepared public speaking, creed speaking, parliamentary procedure, conduct of chapter meeting) 2.2.1

2 Analyze the three major divisions of the Program of Activities (growing leaders, building communities, strengthening agriculture) 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 the rights of minority) 2.2.3

Explore Experiential Learning and Supervised Agricultural Experiences. 3

1 Determine the Career Pathways in AFNR. 3.1

1 Discuss the eight pathways of study in Agriculture (e.g., Agribusiness systems, Animal systems, Biotechnology systems, Environmental service systems, Food products & processing systems, Natural resources systems, and Power, Structural & Technical systems). 3.1.1

2 Plan and Develop Student Supervised Agricultural Experiences. 3.2

1 Compare/Contrast the types of Supervised Agricultural Experiences and determine the FFA proficiency awards available (e.g., Entrepreneurship, Placement, Research, School-based, etc.). 3.2.1

Explore Agribusiness Systems. 4

1 Examine the Organization of Agricultural Businesses. 4.1

1 Investigate Careers (e.g., quality assurance specialist, quality control supervisory, research economist) and Career Development Events (e.g., Farm and Agribusiness 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 Agricultural Industry (e.g., production, processing & marketing, distribution & sales). 4.1.3

2 Practice Concepts of Agricultural Businesses. 4.2

1 From an inventory, differentiate between common depreciable and non-depreciable capital items used in agriculture (e.g., feed, seed, fertilizer, stocker cattle, feeder cattle, breeding livestock, equipment, land, land improvements, etc.). 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 (e.g., short-term, capital, mortgage, etc.). 4.2.3

Explore Animal Systems. 5

1 Examine Careers in Animal Systems. 5.1

1 Investigate careers (e.g., animal nutritionist, animal trainer, veterinarian, etc.) and career development events (e.g., livestock evaluation, poultry evaluation, horse evaluation, veterinary science, etc.) in the animal systems pathway 5.1.1

2 Determine Animal Classifications. 5.2

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

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2 Compare gender and age classification terminology of cattle, chickens, swine, sheep, goats and horses (e.g., adult male, adult female, young female, castrated male, newborn, etc.). 5.2.2

3 Classify breeds within livestock categories (e.g., Angus, Brahman, Charolais, Hereford, Holstein, Hampshire sheep, Suffolk, Rambouillet, Boer, Nubian, Duroc, Yorkshire, Hampshire pig, Landrace, etc.). 5.2.3

4 Classify livestock by digestive systems (e.g., monogastric, ruminant, etc.). 5.2.4

3 Analyze Animal Products and Issues. 5.3

1 List primary products obtained from animal origins (e.g., beef, pork, lamb, veal, poultry, mutton, milk, wool, eggs, fish, etc.). 5.3.1

2 Compare/contrast animal rights and animal welfare. 5.3.2

Explore Plant Systems. 6

1 Examine Careers in Plant Systems. 6.1

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

2 Describe Plant Science Concepts. 6.2

1 Identify uses of plants (e.g., food, fiber, construction, pharmaceuticals, ornamentals, etc.). 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 (e.g., transpiration, photosynthesis, respiration, etc.). 6.2.3

4 Compare the life cycles of annual biennial and perennial plants. 6.2.4

3 Analyze Requirements for plant growth. 6.3

1 Identify the three major nutrients found in fertilizer necessary for plant growth (N,P,K) 6.3.1

2 Compare soil particles by size (e.g., sand, silt, clay). 6.3.2

Explore Food Products & Processing Systems. 7

1 Examine Careers in Food Products & Processing Systems. 7.1

1 Investigate careers (e.g., food chemist, food inspector, food scientists, etc.) and career development events (e.g., food science, poultry evaluation, milk quality and products, etc.) in the Food Products & Processing Systems pathway 7.1.1

2 Determine Food Products. 7.2

1 Identify sources of foods (e.g., meats, eggs, dairy, fruits, vegetables, grains, etc.). 7.2.1

Compare/Contrast components of the food industry (e.g., processing, distribution, byproducts, etc.). 7.2.2

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3 **Analyze Food Safety Concepts.** 7.3

1 Investigate organizations that regulate the food products & processing industry (e.g., USDA, FDA, FSIS, etc.). 7.3.1

2 List common food-borne pathogens (e.g., salmonella, E-coli, etc.). 7.3.2

3 Discuss methods of food preservation (e.g., refrigeration, freezing, curing, drying, canning, etc.). 7.3.3

Explore Biotechnology Systems. 8

1 **Examine Careers in Biotechnology Systems.** 8.1

1 Investigate careers (e.g., microbiologist, geneticist, lab technician, etc.) in the Biotechnology Systems pathway. 8.1.1

2 **Analyze Current applications of biotechnology.** 8.2

1 Analyze current applications of biotechnology in plant science (e.g., Bt, Round-up Ready, Tissue culture, Genetic engineering, GMO, etc.). 8.2.1

2 Analyze current applications of biotechnology in animal science (e.g., cloning, embryo transfer, artificial insemination, BST, transgenic organisms, etc.). 8.2.2

3 **Determine Security in biotechnology.** 8.3

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

Explore Natural Resources Systems. 9

1 **Examine Careers in Natural Resources Systems.** 9.1

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

2 **Determine Classifications of Natural Resources.** 9.2

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 (e.g., white tail deer, turkey, squirrel, duck, black bear, largemouth bass, catfish, trout, striped bass, walleye, etc.). 9.2.3

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

3 **Analyze Uses and Regulations of Natural Resources.** 9.3

1 Discuss recreational uses of natural resources (e.g., hunting, fishing, boating, hiking, camping, watchable wildlife, etc.). 9.3.1

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2 Identify public agencies associated with natural resources (e.g., United States Forest Service, Arkansas Game & Fish Commission, Natural Resources Conservation Service, Corps of Engineers, etc.). 9.3.2

Explore Environmental Service Systems. 10

1 Examine Careers in Environmental Service Systems. 10.1

1 Investigate careers (e.g., environmental conservationist, waste management specialist, water quality specialist, etc.) and career development events (e.g., land, etc.) in the Environmental Service Systems pathway. 10.1.1

2 Analyze Environmental Uses. 10.2

1 Compare/Contrast the uses of land (e.g., crop, pasture/rangeland, forestland, wetland, urban, etc.). 10.2.1

2 Compare/Contrast the uses of water (e.g., domestic, recreational, irrigation, wildlife habitat, processing, energy, etc.). 10.2.2

3 Compare/Contrast conventional (e.g., oil, coal, natural gas, etc.) and alternative (solar, nuclear, hydro, wind, etc.) energy sources. 10.2.3

3 Determine Conservation Measures. 10.3

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

Explore Power, Structural and Technical Systems. 11

1 Examine Careers in Power, Structural & Technical Systems. 11.1

1 Investigate careers (e.g., agricultural electrician, agricultural equipment dealer, welder, etc.) and career development events (e.g., agricultural mechanics, agricultural electricity, etc.) in the Power, Structural & Technical Systems pathway. 11.1.1

2 Determine Safety in Power, Structural & Technical Systems. 11.2

1 Identify safety colors and symbols (e.g., red, orange, yellow, blue, green, black/white, slow-moving vehicle, etc.). 11.2.1

2 Explore fire safety (e.g., Class A,B,C,D and the fire triangle, fire safety equipment, fire blanket, fire extinguisher, etc.). 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 (e.g., eye protection, hair restraint, coveralls, apron, shop coat, gloves, hard hat, mask, respirator, ear protection, welding helmet, etc.). 11.2.4

3 Practice Skills in Power, Structural & Technical Systems. 11.3

1 Explore common skill areas of Agricultural Power, Structural & Technical systems (e.g., electricity, fabrication, geospatial technology, hydraulics/pneumatics, concrete/masonry, painting/finishing, plumbing, small engines, welding, woodworking, etc.). 11.3.1

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2 Identify and use layout tools (e.g., steel tape measure, framing square, speed square, level, etc.). 11.3.2

3 Identify and use hand tools and fasteners (e.g., 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, etc.). 11.3.3