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

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

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
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