

# High School Agriscience Education - Animal Science

1. Safety
2. Global Animal Agriculture
3. Breeds of Animals
4. Animal Reproduction
5. Biology of Growth and Nutrition
6. Animal Health Management
7. Animal Management Practices
8. Evaluating Animals and Animal Products
9. Marketing animals and Animal Products
10. Legal Aspects of Animal Production
11. Career Opportunities in Animal Science

Agriscience courses in ANIMAL SCIENCE might include: Introductory Agriscience, Animal Science, Small Animal Care, Livestock Production, Poultry Production, Aquaculture, Equine Science, Feeds and Nutrition, Animal Products and Processing, Animal Health, and Agribusiness

## **Possible Animal Science Sequences:**

### **Suggested Introductory Courses:**

Introductory Agriscience  
Animal Science

### **Suggested Intermediate Courses:**

Animal Science  
Advanced Animal Science  
Wildlife Management  
Poultry Production

### **Suggested Advanced Courses:**

Advanced Animal Science  
Agribusiness  
Aquaculture  
Animal Products & Processing

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## **CONTENT STANDARD 1: HISTORICAL APPLICATIONS AND FUTURE IMPLICATIONS OF AGRISCIENCE POWER AND SYSTEMS TECHNOLOGY**

<b>STUDENTS WILL UNDERSTAND THE DEVELOPMENT AND APPLICATION OF AGRISCIENCE POWER AND SYSTEMS</b>
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# TECHNOLOGY

## CONTENT STANDARD 1: SAFETY

### STUDENTS WILL DEMONSTRATE THE SAFE APPLICATION OF SKILLS IN ANIMAL SCIENCE

#### A. identify safety procedures used in animal science situations

1. use proper animal handling techniques for production, laboratory and recreation animals English Language Arts Standards 1-3
2. develop specific safety rules and regulations for all specific animal species in hands-on applications Science Standards 1, 6-8
3. establish data recording sheets and observation charts for all laboratory animals to minimize handling
4. identify and demonstrate the use of all associated safety equipment used for all laboratory animals
5. properly store and sanitize all safety laboratory equipment
6. perform safety inspections of animal science laboratory, pasture areas, out buildings, and transport equipment for handler and animal safety
7. develop and maintain animal records
8. maintain a laboratory animal first-aid kit and injury reporting procedure

#### B. safely handle and manage animals

1. demonstrate animal restraining and handling techniques English Language Arts Standards 1-3
2. demonstrate proper leading techniques Science Standard 1
3. demonstrate ethical show techniques
4. safely cage, stable, pen, corral, tank, or herd laboratory animals
5. safely examine laboratory animals
6. manage laboratory animals to promote animal health
7. participate in the FFA Dairy Handlers Career Development Events
8. repair animal structures and facilities to maintain animal safety and health

9. provide daily care to laboratory animals
10. raise an animal as a student, group or class SAE project
11. safely handle animal products

## **CONTENT STANDARD 2: GLOBAL ANIMAL AGRICULTURE**

### **STUDENTS WILL RESEARCH AND INTERPRET DATA CONCERNING THE GLOBAL IMPLICATIONS OF ANIMAL AGRISCIENCE**

#### **A. identify and locate global applications of animal agriscience**

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|--|--|
| 1. map the global concentrations of economically important agriscience animals and their uses                                | Social Studies-Geography Standards 1,3 |
| 2. identify cultural and societal uses of animals  | Science Standards 1, 6                 |
| 3. research and display animal uses  | English Language Arts Standard 1       |
| 4. survey, collect and display data of animals used in Delaware and globally   |  |
| 5. access the Internet for global post-secondary institutions to review global research in animal agriscience                |  |
| 6. examine the Chicago Board of Trade commodities and the influence of global conditions on values                           |  |
| 7. research the world food outlook, population and global trade issues   |  |
| 8. map the dispersion of domesticated animals from their native range and discuss the impacts of some on their new locations |  |

#### **B. understand the economic value of animal agriscience**

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|--|---------------------------------------|
| 1. collect data, analyze and graph animal economic information   | Social Studies Economic Standards 1-4 |
| 2. determine marketing and distribution of animal products and services in the local community                             | Science Standards 5-8                 |
| 3. develop charts that depict the percentage of income of animal agriscience in Delaware                                   | Mathematics Standards 2-5             |
| 4. view industry and commodity group publications and videos about animal agriscience                                      | English Language Arts Standards 1, 2  |
| 5. take a field trip to an animal agriscience research, production, processing or recreation facility to discuss economics |                                       |
| 6. analyze school-based animal projects and demonstrations   |                                       |

**C. identify technological advances in animal agriscience**

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|--|--------------------------------------|
| 1. develop a historical timeline of the advances in animal agriscience   | Science Standards 1, 6-8             |
| 2. research current biotechnology in animal agriscience  | Social Studies History Standards 1-4 |
| 3. demonstrate or display ways in which animal agriscience is contributing to improvements in our standard of living | English Language Arts Standards 1-3  |
| 4. discuss/debate environmental, food and medicine, public safety and biosecurity issues of animal science           |                                      |
| 5. review biotechnology videos and conduct visioning' exercises to suggest future animal uses or benefits            |                                      |
| 6. field trip or guest speaker from government regulatory agency to discuss animal biotechnology                     |                                      |
| 7. recognize the implications of human management decisions on animals and how they effect animal welfare            |                                      |
| 8. identify various cultural practices associated with animals and the level of technology needed to manage them     |                                      |

**D. use the scientific method of research in animal agriscience**

- |   |                                     |
|---|-------------------------------------|
| 1. examine animal feed trial results and analyze the data   | Science Standards 1, 5-8            |
| 2. conduct experimental research on animal growth, development and behavior   | English Language Arts Standards 1-3 |
| 3. participate in FFA Meats Evaluation, Dairy Cattle, Dairy Products, Poultry, Livestock and Equine Career Development Events |                                     |
| 4. conduct SAE projects, agriscience research projects,   |                                     |

integration projects

5. use student placement, shadowing and hands-on animal agriculture activities

6. field trip or guest speaker from animal agriculture research facility to discuss animal science research

### **CONTENT STANDARD 3: BREEDS OF ANIMALS**

#### **STUDENTS WILL RESEARCH AND INTERPRET DATA CONCERNING THE GLOBAL IMPLICATIONS OF ANIMAL AGRISCIENCE**

##### **A. identify species and breeds of animals**

1. student picture, video, live specimen, line drawings, or scale model identification exercises      Science Standards 1, 6-8

2. examine and review of industry standards for economically important species and breeds      English Language Arts Standards 1-3

3. chart and display terminology associated with particular species and breeds of animals

4. review breed association publications and videos

5. participate in FFA Livestock, Dairy, Equine, Poultry, Dairy Product and Meats Evaluation Career Development events and instruction

##### **B. recognize breed improvements and industry standards**

1. write student letters to animal breed associations, commodity groups and breed marketing associations      English Language Arts Standards 1-3

2. demonstrate or display breed improvements for a particular animal via animal history or pictorial timeline      Social Studies History Standards 1-3

3. discuss or debate the future needs for animals and animal products      Science Standards 1, 6-8

4. list uses of animals for biotechnology

5. research biotechnology, genetics and genetic engineering as ways to improve animals and their products

### **CONTENT STANDARD 4: ANIMAL REPRODUCTION**

#### **STUDENTS WILL BE ABLE TO DESCRIBE THE FUNCTIONS OF REPRODUCTIVE ORGANS, BIOLOGICAL EVENTS OF REPRODUCTION AND ADVANCES IN REPRODUCTIVE TECHNOLOGY AND MANAGEMENT**

##### **A. identify the biological aspects of animal reproduction**

1. use and manipulate specie breeding, estrus and lactation wheels as a breeding management tool      Science Standards 1, 6-7

2. conduct microscopic examination of reproductive cells; English Language Arts Standards 1-3  
video review of reproduction processes and organs
3. dissect reproductive organs; review videos of reproductive organs
4. veterinarian or animal breeding technician as a guest speaker to discuss reproductive efficiency
5. training and instruction in FFA Dairy Cattle, Livestock, Poultry and Equine Career Development Events
6. develop student terminology, anatomy and physiology, and laboratory data, charts, diagrams, and timelines
7. conduct animal behavioral studies related to reproductive development
8. establish classroom/lab breeding experiments with small lab animals, fish, birds or hobby animals
9. plan, develop, and maintain large animal, companion animal, aquatic, hobby or recreational animal projects

**B. explain animal genetics and heritability of animal traits**

1. review genetic research of Mendel and Spallanzani                      Science Standards 1, 6-8
2. examine and analyze breed selection and genetic guides from dairy, equine, swine, poultry, beef, and aquatic breed organizations                      English Language Arts Standards 1-3
3. training and instruction in FFA Dairy Cattle, Poultry, Livestock, and Equine Career Development Events                      Mathematics Standards 1, 3, 5-6, 9-10
4. examine pedigrees of companion animals; family trees
5. conduct a DNA Extraction experiment
6. visit a Delaware research laboratory to view and discuss electrophoresis
7. debate the use or release of transgenic organisms into the environment
8. field trip to USDA Beltsville Experimental Laboratory or USDA Poultry Diagnostic Laboratory at the University of Delaware
9. predict genotypes of animals using the Punnet Square Method

10. conduct probability experiments

### **C. identify reproductive techniques and evaluate reproductive efficiency**

1. analyze animal breeding potential through breed directory guides Science Standards 1, 5-8

2. observe natural and artificial breeding and insemination techniques

3. visit a dairy farm to view super ovulation techniques and procedures

4. observe ova transfer techniques and procedures

5. identify livestock by sex in dairy, poultry, small animals, fish, wildlife

6. examine animals with ultrasonic device

7. identify heat detection techniques

8. video review of reproductive techniques and procedures

9. discuss reproductive efficiency and identify significant factors for specific animals; ie: accelerated lambing

### **D. describe animal mating systems**

1. develop criteria for breeding animals to achieve desired results Science Standards 1, 6-7

2. demonstrate crossbreeding to achieve heterosis

3. display or chart a crossbreeding system for a specific animal

4. train and practice for the FFA Dairy Cattle, Livestock, Equine, and Poultry Career Development Events

5. view Breed Association publications and videos depicting purebred animal mating systems

6. visit an animal production facility, kennel, fish hatchery, incubation operation or breeding stable

## **CONTENT STANDARD 5: BIOLOGY OR GROWTH AND NUTRITION**

### **STUDENTS WILL BE ABLE TO EXPLAIN AND DESCRIBE THE FUNCTION OF NUTRIENTS AND THE PHYSIOLOGY OF DIGESTION**

#### **A. identify the essential nutrients for animal growth, performance, maintenance, and reproduction**

1. conduct a nutrition experiment that demonstrates the role of the six essential nutrients in animals Science Standards 1-3, 6

2. examine animal feed labels and feed analysis tags Mathematics Standards 5-7

3. develop an educational display of feed substances that are growth stage or maturity based English Language Arts Standards 1-3

4. field trip to an animal production facility, pet shop, or similar facility to discuss feed ration development

5. field trip to research facility to discuss nutrition trials and analysis of the data that they are collecting (can be done via the Internet)

6. student displays and charts of the six essential nutrients and their function in the digestive process

7. identify specific feed ingredients for a specific animal in a particular stage of growth and development

### **B. identify types of feeds and formulate feed rations**

1. conduct an experiment on feed chemistry; such as starch digestion or effects of chemical treatment of forage samples on digestibility Science Standards 1-3, 5-8

2. examine human food products that are enzyme sensitive; i.e.: lactase, amylase, protease, lipase Mathematics Standards 1-7

3. display raw feed ingredients and the processing procedures required to formulate specific feed rations English Language Arts Standards 1-3

4. participate in FFA Agronomic Crop Career Development Event Social Studies Economics Standard 1

5. collect, display and qualitatively judge animal feeds and rations

6. examine and analyze feed formulations ( i.e.: floating vs.sinking aquatic feeds, feed size acceptability, coatings)

7. participate in the Keystone Herdsman Contest or a local county or 4-H Fair

8. visit a local pet store, feed store or a local animal production facility to observe feed ration formulation

9. calculate the costs of feed rations and determine the least cost formulation for a particular species of animal

10. determine the economic impact of improper and inefficient feeding

### **C. explain the physiology of digestion**

1. chart the comparison of monogastric and polygastric digestion Science Standards 1-3, 5-8

2. examine enzymatic, protozoan, bacterial and fungal agents of digestion under the microscope

Mathematics Standards  
1, 5, 7-8, 10

3. examine digested or partially digested materials obtained through fistulated animals

4. compare the digestibility of various cellulose materials (cottonseed, hays, bark, grass)

5. construct a three-dimensional model of a ruminant and non-ruminant stomach

6. demonstrate how environmental variables effect digestion

7. measure and examine the effects of ammonia nitrogen on aquatic organisms or poultry as a result of manure management

8. compare and contrast aquatic species, poultry, equine, wild species and other animal digestive systems for feed digestion and efficiency

## **CONTENT STANDARD 6: ANIMAL HEALTH MANAGEMENT**

### **STUDENTS WILL BE ABLE TO RECOGNIZE ANIMAL HEALTH CONCERNS AND RECOMMEND APPROPRIATE ACTION**

#### **A. identify housing, sanitation and safety considerations for animals**

1. visit a poultry farm composter; build a composter

Science Standards 1-3,  
5-8

2. build models of animal housing facilities, loading or handling facilities, breeding facilities, manure handling, or feeding facilities.

English Language Arts  
Standards 1-3

3. tour a wastewater treatment facility to observe and discuss treatments

4. guest speakers from agricultural engineering, building structures, or university extension personnel to discuss facility engineering

5. debate agricultural land preservation, suburban development, zoning and production farming issues

6. guest speaker from animal health industry to discuss health issues

7. research, plan and develop a recirculating aquaculture system

8. build and utilize animal handling equipment; i.e.: sheep stand, aquatic biofilter, hay racks, mineral feeders

9. build and maintain bluebird or purple martin houses

10. utilize safety equipment and follow safety procedures for human and animal protection

## **B. recognize, identify and evaluate effects of diseases and parasites on animals**

1. collect, identify and display animal insect pests and parasites Science Standards 1, 6-8
2. view animal health, disease and parasite treatment videos and slides English Language Arts Standards 1-3
3. make a display of animal diseases and their economic impact on humans
4. visit a USDA poultry diagnostic lab to discuss animal health issues
5. perform an autopsy on a chicken or fish to evaluate organism health
6. guest visit from a veterinarian to discuss heartworms in dogs, or the communicability of diseases
7. participate in training for the FFA Dairy Products, Livestock, Equine, Poultry, Dairy Cattle, and Meats Career Development Events
8. discuss wildlife health management issues with a guest speaker from the Department of Fish and Wildlife
9. visit the State Veterinarian and discuss careers in animal health and issues effecting state regulations
10. review and discuss state laws that govern animal health and transporting
11. discuss the economic impact of animal diseases and parasites and their potential transfer to humans

## **C. evaluate animal health management**

- C.1. develop a health management plan for a specific animal, which includes diet and exercise C. Science Standards 1, 6-8
2. discuss animal health certificates, regulations, permits and procedures with a veterinarian English Language Arts Standards 1-3
3. cost compare construction materials in animal facility engineering and construction Mathematics Standards 1, 3, 5, 7-8
4. review animal health catalogs and publications
5. develop a small animal or laboratory first-aid kit
6. with assistance from a veterinary technician or animal handler, administer medication, clean ears, clip nails and groom cats and dogs
7. visit or volunteer at SPCA shelters

8. volunteer as a handler for elder care and companion animal visits

9. maintain a school animal laboratory

## **CONTENT STANDARD 7: ANIMAL MANAGEMENT PRACTICES**

### **STUDENTS WILL GAIN PRACTICAL EXPERIENCES IN ANIMAL MANAGEMENT**

#### **A. demonstrate safe handling and showing of animals**

1. prepare an animal for show or judging

English Language  
Arts Standards 1-4

2. outfit an animal for a show or judging event

Science Standard 1

3. participate in FFA Dairy Handlers activities

4. secure an animal in a cage, tank, pen, stable or pasture

5. visit and observe an animal auction

6. visit or watch an AKC Field Trial or Show, a Professional Rodeo, a circus or equestrian events, to observe animal training and handling

7. train an animal or alter its behavior

8. demonstrate proper animal handling and transporting techniques

9. describe and discuss safe animal handling techniques

10. develop handler safety procedures

11. discuss show ring ethics and the responsibilities of animal owners, showpeople, trainers and judges concerning animals

#### **B. identify cultural practices and skills required to manage animals**

1. repair cages, fences, gates, tanks, and handling equipment

Science Standards 1-2,  
5-8

2. clean and repair tack and show equipment

Mathematics  
Standards 1, 5-8

3. provide daily care to animals

4. use computer simulations of animal management (SimFarm™)

English Language Arts  
Standards 1-3

5. raise an animal as a student, group, or class SAE project

6. maintain a school animal laboratory

7. operate and maintain laboratory systems; i.e.: ventilation, water, heat, storage and lighting

8. farrow, calf, foal, hatch, lamb, whelp or wean animals

9. develop or improve habitat for wildlife

10. perform associated skills and activities for animal production; ie: hay making, silage chopping, pasture management

11. determine the proper spacing requirements and stocking rates for livestock species, aquaculture species, wild species, and hobby or recreation animals

12. identify appropriate facilities and housing for specific animal species

13. identify scientific and industry standards for using animals in research and animal welfare issues effecting

## **CONTENT STANDARD 8: EVALUATING ANIMALS AND ANIMAL PRODUCTS**

### **STUDENTS WILL ANALYZE AND EVALUATE ANIMALS ACCORDING TO INDUSTRY STANDARDS**

#### **A evaluate production and performance data**

1. analyze production and performance data to make management decisions Mathematics Standards 1-10

2. participate in the FFA Farm and Ranch Business Management Career Development Event Science Standards 1, 6-8

3. participate in the FFA Livestock, Dairy Cattle and Equine Career Development Events English Language Arts Standards 1-3

4. use and maintain a Delaware FFA SAE project book

5. complete FFA Proficiency Application

6. participate in the FFA Meat Evaluation and Dairy Products Career Development Events

7. examine breed selection guides and select animals to breeding based on industry standard criteria

8. determine the rate of gain for specific animals based on data analysis

#### **B. visually observe, judge, select and recite reasons orally for animal selection processes**

1. participate in FFA Livestock, Dairy Products, Meats Evaluation, Poultry, Dairy Cattle and Equine Career Development Events English Language Arts Standards 1-4

2. participate in FFA Public Speaking Career Development Events Science Standards 1, 6-7

3. practice live animal judging and selection exercises Social Studies  
Economics Standard 1

4. practice herd, flock and pen culling
5. practice video judging and selecting
6. develop and deliver oral reasons for a class of animals
7. identify breed and industry standards for domestic farm animals, aquatic organisms, hobby and recreation animals and companion animals

**CONTENT STANDARD 9: MARKETING ANIMALS AND ANIMAL PRODUCTS**

**STUDENTS WILL UNDERSTAND THE PROCESSING AND CONSUMER SAFETY ASSOCIATED WITH ANIMAL MARKETING**

**A. determine marketing options for animals and animal products**

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|--|-------------------------------------|
| 1. visit local animal auctions, collection and processing facilities   | Mathematics Standards<br>2-4, 6     |
| 2. identify livestock handling and transportation systems  | Science Standards 1, 6-7            |
| 3. identify local market outlets for animal products and animals   | English Language Arts<br>Standard 3 |
| 4. analyze Chicago Board of Trade markets and options for animals and animal products                                  |                                     |
| 5. research state and federal guidelines and regulations concerning animal processing and marketing                    |                                     |
| 6. display animal products and the animals from which they were processed  |                                     |
| 7. participate in the Chicago Board of Trade Commodity Marketing Activity  |                                     |
| 8. chart or graph commodity cash, contract and futures prices to identify market trends and evaluate market conditions |                                     |

**B. explain animal processing procedures and techniques**

- |  |   |
|--|---|
| 1. visit animal processing facilities and discuss production schedules and processing efficiencies | Science Standards 1, 6-8                  |
| 2. view videos of animal processing processes and discuss procedures                               | Social Studies Geography<br>Standards 3-4 |
| 3. discuss global animal processing procedures and processes                                       | Social Studies History<br>Standard 3      |
| 4. examine global, cultural and ethnic customs as they pertain to animal processing                | Mathematics Standards 5-7                 |
| 5. utilize data transmission and Internet access to gather animal                                  |   |

processing information

6. visit Port Penn Interpretive Center, the Delaware Agricultural Museum, or the John Dickinson Mansion to understand historical methods of animal harvests, processing and utilization

7. participate in FFA Meats Evaluation, Dairy Cattle, Dairy Products, Poultry and Livestock Career Development Events

8. recognize animal welfare issues about processing and preparation of animal products and by-products

### **C. identify consumer safety regulations for animal processing and marketing**

1. visit the APHIS Office of the USDA at the Port of Wilmington to discuss and observe consumer safety regulations

English Language  
Arts Standards 1-3

2. contact a Federal Meat Inspector for information about the agency and guidelines for consumer safety

Science Standards 1,  
6-8

3. visit local supermarket to talk with store manager or meat department supervisor about consumer safety

4. invite the State Veterinarian to class to discuss state regulations and procedure for animal agriculture issues

5. research past consumer concerns of animal product processing and food safety issues

6. examine global food safety issues and consumer protection regulations

7. participate in FFA Meat Evaluation, Dairy Cattle, Dairy Products, Poultry and Livestock Career Development Events

8. visit the University of Delaware, Sea Grant Program Office to discuss the Hazardous Analysis and Critical Control Point program for fish

## **CONTENT STANDARD 10: LEGAL ASPECTS OF ANIMAL PRODUCTION**

### **STUDENTS WILL UNDERSTAND THE LEGAL RESPONSIBILITIES ASSOCIATED WITH ANIMAL PRODUCTION AND MANAGEMENT**

#### **A. recognize animal welfare, use and utilization issues**

1. debate current local animal welfare, use and utilization issues in class

A. Science Standards 1,  
6-8

2. conduct student research and prepare student presentations on animal use, welfare and utilization issues

Social Studies  
Geography Standards 2-  
4

3. conduct newspaper, magazine, Internet or other media search for animal welfare and use issues

Social Studies History

4. review town, county or state regulations concerning animal welfare, Standard 2  
use and utilization

English Language Arts

5. review the global, historical human uses and utilization of animals Standards 1-3

6. define the terms animal rights' and animal welfare' and conduct research concerning issues of humans and animals; compare and debate these positions and definitions

7. identify and recognize best management practices

8. identify animal utilization issues in medicine, education, research and nutritional testing

9. identify the effects of hunting and re-stocking of wild animal populations

10. discuss and debate the introduction of non-indigenous species

### **B. identify and examine environmental issues of animal welfare, use and utilization**

1. visit a local animal production facility or discuss animal production factors that have an impact on the environment

B. Science

Standards 1-2, 5, 7-8

2. examine biosecurity measures undertaken by animal producers and processors

3. display information about manure handling systems and management of animal waste or processing wastes and by-products

4. invite extension agent, soil and water conservation engineer, or county planner to speak about animal production, planning and zoning

### **C. identify biotechnology issues of animal welfare, use and utilization**

1. discuss, display or demonstrate ways that animals and animal products have been improved through biotechnology

Science Standards 1,  
6-7

2. display or demonstrate nutritional, pharmaceutical, genetic and environmental advancements in animal production and utilization

English Language  
Arts Standard 1

3. examine and review current global animal production methods and future global animal needs

4. access the Internet to conduct searches and determine biotechnology uses

## **CONTENT STANDARD 11: CAREER OPPORTUNITIES IN ANIMAL SCIENCE**

### **STUDENTS WILL INVESTIGATE ANIMAL SCIENCE CAREER OPPORTUNITIES**

#### **A. examine animal science careers**

A.1. investigate the diversity of careers in the animal

A. English Language Arts

2. make job-site visits
3. guest speakers from the animal science industry to discuss careers
4. engage in career guidance counseling
5. complete student interest inventory test
6. attend a career or job fair
7. contact animal industry professional organizations

**B. identify advanced training and post-secondary education experiences**

1. attend college information fairs
2. examine labor market information
3. request post-secondary information
4. contact animal industry professional organizations
5. examine Tech-Prep articulation
6. access post-secondary institutions via the Internet

English Language Arts Standard 3

**C. demonstrate leadership development**

1. become a member of the FFA
2. practice parliamentary procedure and meeting management
3. set personal and career goals
4. participate in FFA Chapter meetings
5. attend State FFA leadership events
6. participate in National FFA leadership events
7. establish, maintain and complete a FFA SAE project
8. plan, prepare and present a speech
9. participate in FFA committee work
10. review **National FFA Student Manual**
11. review the **FFA Student Handbook**

English Language Arts  
Standards 1-3

12. view and discuss FFA Leadership videos
13. participate in FFA community service activities
14. establish FFA Degree applications
15. identify and list personal attributes that contribute to a sound work ethic
16. work with others to solve problems
17. demonstrate self-motivation and time management
18. interact with diverse personalities

**D. arrange and assess SAE projects, research and experiences**

1. examine entrepreneurship experiences English Language Arts Standards 1-4
2. examine wage-earning experiences
3. examine school-to-work experiences
4. participate in cooperative learning
5. arrange shadowing experiences
6. conduct school-site experiences
7. complete Agriscience Research Project
8. complete senior project or portfolio
9. complete integrated learning projects
10. prepare for student graduation reviews
11. participate in FFA community service activities

**E. develop communication and interpersonal skills**

1. use computer and word processing
2. participate in FFA Public Speaking and Extemporaneous Speaking Events
3. write a job resume´
4. complete reports and records
5. conduct and present technical reviews
6. utilize a telephone and fax machine

7. send e-mail communications
8. complete integrated writing assignments
9. complete conflict resolution exercises
10. participate in team and group learning
11. recognize cultural diversity and equity
12. prepare and practice job interviews