STRANDS AND STANDARDS
ANIMAL SCIENCE 1

Course Description

Students will develop knowledge and skills in a wide range of scientific principles, including genetics, anatomy, physiology, nutrition, disease, pests, and management practices. The scientific processes of observation, measurement, hypothesizing, data gathering, interpretation, analysis, and application are included. Career opportunities and educational preparation are examined. Learning activities are varied, with classroom, laboratory, and field experiences emphasized.

Intended Grade Level	9-12
Units of Credit	1.0
Core Code	30.02.00.00.040
Concurrent Enrollment Core Code	N/A
Prerequisite	N/A
Skill Certification Test Number	120
Test Weight	1.0
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Agriculture (CTE/General)
Endorsement 2	Animal Science & Technology
Endorsement 3	N/A

CTE® Learning that works for Utah

STRAND 1

Students will explain the role of FFA in agricultural education.

Standard 1

Discuss the history and organization of FFA as it relates to the complete program of agricultural education.
- Explain the interrelationship of classroom and laboratory instruction, supervised agricultural experience, and FFA.
- Describe how, when, and why FFA was organized.
- Identify key FFA historical events.
- Identify the mission and strategies, colors, motto, emblem and parts of the emblem, and organizational structure of FFA.
- Recite and explain the meaning of the FFA Creed.
- Discuss the meaning and purpose of a program of activities and its committee structure.
- List FFA chapter officers, and discuss the role of each.

Standard 2

Identify opportunities in FFA
- Describe FFA opportunities that develop leadership skills, personal growth, and career success.
- Summarize major state and national activities available to FFA members.

Standard 3

Describe FFA degrees, awards, and career development events CDEs).
- List and explain the FFA degree areas.
- Identify FFA proficiency awards.
- List and discuss various team and individual CDEs.

Performance Objective
- Explain the FFA Creed.
- Identify key components of the FFA Organization.

STRAND 2

Students will explain the role of supervised agricultural experience (SAE) programs in agricultural education.

Standard 1

Examine the responsibilities and benefits associated with an SAE.
- Explain the meaning and benefits of supervised agricultural experience.
- Explain the characteristics of an effective SAE program and the responsibilities of those involved.

Standard 2

Determine the types of SAE programs.

- Compare entrepreneurship SAEs and placement SAEs.
- Describe research/experimentation SAEs.
- Describe exploratory SAEs.

Standard 3

Plan an SAE program.

- Identify the steps in planning an SAE program.
- Describe the function of a business/training plan and/or agreement in an SAE program.
- Develop a short-range plan and a long-range plan for an SAE program.
- Relate classroom and laboratory instruction to an SAE program.

Standard 4

Maintain and use SAE records.

- Explain the importance of keeping records on an SAE program.
- Explain how SAE records are organized.
- Follow approved procedures to make entries in SAE records.

Performance Objective

- Prepare a plan for a SAE.
- Record all transactions and activities for a SAE, using an approved record book

STRAND 3

Students will apply scientific principles in the selection of animals.

Standard 1

Discuss the origin and importance of agricultural animals.

- Explain domestication and its contributions to animal agriculture.
- Evaluate the adaptation of animals to production practices.

Standard 2

Classify animals according to hierarchical taxonomy and agricultural use.

- Explain the meaning and importance of the binomial system of nomenclature (animal scientific classification and naming).
- State the scientific and common names of major animal agriculture species in Utah.
- Classify animal species based on their agricultural uses.

Standard 3

Discuss genetic inheritance in agricultural animals.

- Explain the meaning and importance of genetics.
- Describe and predict how traits are inherited in agricultural animals.
- Identify common agricultural animals on the basis of breed.

Standard 4

Select agricultural animals to fulfill production objectives.
- Explain the importance of animal selection in the success of a production enterprise.
- Evaluate the importance of conformation in animal selection.
- Describe how the muscular and skeletal systems contribute to the conformation of an agricultural animal.
- Identify major external parts of agricultural animals.
- Utilize breed and type characteristics in animal selection.
- Explain the use of quantitative breeding values (expected progeny differences) in animal selection.

Performance Objective
- Identify breeds of beef, dairy, swine, and sheep.

STRAND 4

Students will apply principles of animal breeding and reproduction to gain desired offspring.

Standard 1

Describe the role of animal breeding.
- Discuss the meaning and importance of reproduction in animal agriculture.
- Identify important factors in breeding readiness.
- Explain the benefits of using genetically superior animals in the production of animals and animal products.
- Explain the concept of hybrid vigor as it relates to animal agriculture.

Standard 2

Analyze the components of the animal reproductive system.
- Identify and explain the function of the components of the female reproductive system in agricultural animals.
- Identify and explain the function of the components of the male reproductive system in agricultural animals.

Standard 3

Explain animal reproductive processes.
- Explain reproductive efficiency in agricultural animals.
- Describe natural and artificial breeding of agricultural animals.
- Relate the reproduction cycle in female mammals to reproductive efficiency (i.e., estrous cycle).

Performance Objective
- Demonstrate reproductive technologies.

STRAND 5

Students will apply principles of animal nutrition to ensure the proper growth, development, reproduction, and economic production of animals.

Standard 1

Compare and contrast the digestive systems of agricultural animals.
- Describe the structure and function of the ruminant digestive system.
- Describe the structure and function of non-ruminant digestive systems.
- Describe the structure and function of avian digestive systems.

Standard 2

Explain the role of nutrition in animal productivity.
- List essential nutrients, and describe the importance of each.
- Compare and contrast common feedstuffs in the diets of ruminant and non-ruminant animals.
- Discuss the meaning and use of feed additives and growth promotants.

Standard 3

Provide appropriate nutrition for animals.
- Relate the role of nutrition to the age, performance, and condition of animals.
- Determine feed rations for specific species, ages, and conditions of animals.
- Calculate balanced rations for agricultural animals.

STRAND 6

Students will apply management principles for maintaining the health and well-being of agricultural animals.

Standard 1

Summarize the role of animal well-being in the animal industry.
- Explain the meaning and importance of animal well-being.
- Utilize safe practices in working with animals.
- Relate concepts of animal welfare and animal rights to animal well-being.

Standard 2

Apply animal anatomy and physiology to maintain animal health.
- Describe the role of major organ systems (skeletal, muscular, nervous, respiratory, digestive, circulatory, excretory, and reproductive) in maintaining animal health.
- Discuss common diseases, parasites, and physiological disorders of animals.
- Design and implement an animal health plan to promote efficiency of production.

Standard 3

Provide for the health and well-being of agricultural animals.
- Prescribe and implement prevention and treatment for animal diseases, parasites, and other disorders.

- Perform simple health checks on animals.
- Diagnose illnesses and disorders based on symptoms and problems caused by diseases, parasites, and physiological disorders.
- Identify and describe zoonotic diseases.
- Consider species-specific requirements in animal well-being.
- Identify and demonstrate use of equipment in animal health.

Performance Objective

- Utilize livestock management practices.
- Research and debate a current animal welfare and animal rights issues.

STRAND 7

Students will examine consumer products, services, and benefits derived from the production of agricultural animals.

Standard 1

Identify and evaluate consumer products that come from agricultural animals.

- Identify and grade wholesale and retail cuts of meat.
- Recognize signs of meat spoilage.
- Describe the various carcass characteristics that determine meat grade.
- Describe how milk and milk products are produced, processed and graded.
- Identify consumer products that are derived from by-products of animal production.
- Identify and grade poultry products, including eggs.
- Describe the impact of food safety issues on animal production.

Standard 2

Identify and evaluate services and benefits that come from agricultural animals.

- Identify the benefits provided by companion animals.
- Describe the role of exotic pets in the animal industry.
- Compare and contrast the use of agricultural animals in recreational activities including racing, showing, and power.
- Describe the use of animals in therapy programs.

STRAND 8

Students will examine trends and career opportunities in the animal industry, including those related to agricultural animals.

Standard 1

Interpret trends in the animal industry.

- Identify trends in the animal industry.
- Determine the implications of trends on animal production.

Standard 2

Determine career opportunities in the animal industry.
- Identify the nature of career opportunities in the animal industry.
- Develop a career plan to acquire needed education and skills for entering a career in the animal industry.
- Demonstrate personal and job skills for success in entering and

Performance Objective
- Identify a career opportunity in animal science.
- Demonstrate occupational competencies associated with an animal science career.

Skill Certificate Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Animal Science 1	120	4	2	14	15	18	13	8	1			75	54